Antenatal care implementation between two Asian countries: A study from Indonesia and Taiwan

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Abstract

Background: Antenatal care (ANC) is essential for safeguarding the health of both mothers and their unborn children throughout pregnancy. Understanding the differences from other counties provides valuable insight for enhancing maternal and neonatal health outcomes in various healthcare environments. Aims: This study compares the implementation of ANC between Indonesia and Taiwan. Method: A qualitative approach was used to explore ANC implementation between Indonesia and Taiwan. Participants were recruited using purposeful sampling, consisting of 6 healthcare providers, 10 pregnant women, and 3 experts from Taiwan and Indonesia. Data were collected through interviews, focused group discussions, and document review. Collaizi’s strategy was used to analyze the data. To ensure the trustworthiness of the study, credibility, transferability, dependability, and confirmability were encouraged. Result: There are three themes emerged from this study with twelve following sub-themes. The themes are institutional and structural framework of ANC, ANC education and awareness, and self-empowerment and encouragement of pregnant women. Conclusion: By adopting best practices from Taiwan, Indonesia can enhance its ANC services and empower pregnant women, leading to improved maternal and neonatal health outcomes.

Keywords: antenatal care, antenatal care implementation, Indonesia, Taiwan, qualitative

Abstrak

Latar Belakang: Perawatan antenatal (ANC) sangat penting untuk menjaga kesehatan ibu dan bayi yang belum lahir selama kehamilan. Memahami perbedaan dengan negara lain memberikan wawasan berharga untuk meningkatkan hasil kesehatan ibu dan neonatal di berbagai lingkungan kesehatan. Tujuan: Penelitian ini membandingkan implementasi ANC antara Indonesia dan Taiwan. Metode: Pendekatan kualitatif digunakan untuk mengelompokkan implementasi ANC antara Indonesia dan Taiwan. Partisipan direkrut menggunakan teknik purposive sampling, terdiri dari 6 penyedia layanan kesehatan, 10 ibu hamil, dan 3 ahli dari Taiwan dan Indonesia. Data dikumpulkan melalui wawancara, diskusi kelompok

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Kata kunci: antenatal care, implementasi antenatal care, Indonesia, Taiwan, qualitatif

INTRODUCTION

Antenatal care (ANC) is a critical component of maternal health services, aiming to ensure the well-being of both the mother and the fetus throughout pregnancy. The provision and quality of ANC services can significantly influence pregnancy outcomes, reducing maternal and neonatal morbidity and mortality rates (Anggraeni et al., 2023; World Health Organization, 2021). Despite global advancements in maternal healthcare, significant disparities exist between countries and regions, influenced by diverse socioeconomic, cultural, and healthcare system factors.

Indonesia and Taiwan, both located in Asia, present an intriguing comparison in terms of ANC implementation due to their distinct healthcare systems, cultural contexts, and levels of economic development. Indonesia, with its vast archipelago and diverse population, faces challenges in delivering consistent and high-quality healthcare services across its regions. In contrast, Taiwan, a high-income country with a more homogeneous population, benefits from a robust healthcare infrastructure and comprehensive national health insurance coverage.

Previous studies have highlighted several critical aspects of ANC implementation in these countries. In Indonesia, research indicates that geographical barriers, limited healthcare resources, and socio-cultural factors significantly impact ANC access and quality. For example, Laksono et al. (2020) and Putri et al. (2023) found that rural areas face significant challenges in accessing timely and adequate ANC services, leading to disparities in maternal health outcomes. Similarly, Damayanti et al. (2023) identified that traditional beliefs and practices often influence pregnant women’s healthcare-seeking behavior in Indonesia, sometimes resulting in delayed or inadequate ANC.

In Taiwan, the implementation of ANC is generally more streamlined, supported by the country’s advanced healthcare infrastructure and national health insurance system. Studies such as those by Lee et al., (2023) have shown that nearly universal access to ANC services in Taiwan leads to high maternal health standards. However, there are still areas for improvement, particularly concerning the integration of migrant populations into the healthcare system and addressing specific needs of high-risk pregnancies.
This study aims to explore and compare the implementation of ANC in Indonesia and Taiwan through a qualitative approach. By examining the experiences and perceptions of healthcare providers and pregnant women in both countries, this research seeks to identify key differences and similarities in ANC practices, highlight the strengths and weaknesses of each system, and provide insights into potential improvements in maternal healthcare delivery.

The comparison between Indonesia and Taiwan is particularly relevant in the context of global efforts to achieve the Sustainable Development Goals (SDGs), particularly Goal 3, which aims to ensure healthy lives and promote well-being for all at all ages. Understanding the factors that contribute to successful ANC implementation can inform policies and practices that enhance maternal and neonatal health outcomes, not only in these two countries but also in other regions with similar challenges.

METHO

This study employs a qualitative phenomenological approach to explore and compare the implementation of antenatal care (ANC) in Indonesia and Taiwan. Phenomenology is chosen as the study design to understand the lived experiences and perceptions of healthcare providers and pregnant women in both countries, providing deep insights into the complexities and nuances of ANC practices.

The study was conducted in various healthcare settings across Indonesia and Taiwan, including urban and rural areas. Participants were selected using purposive sampling to ensure a diverse representation of experiences and expertise. The primary participants included: 6 healthcare providers, 10 pregnant women, and 3 experts.

Data collection was carried out through in-depth semi-structured interviews and focus group discussions (FGDs). The data collection process included the following steps: interview, FGDs, and document review that took place five months (October 2020 to February 2021). A grand question with some probe questions was built to guide the data collection. The data collected from interview and FGDs were transcribed and verbatim analyzed using thematic analysis utilizing the Collaizzi’s qualitative data analysis (Morrow et al., 2015; Yesodharan et al., 2021). To ensure the trustworthiness of the study, several strategies were employed including credibility (triangulation of data sources), transferability, dependability, and confirmability.

Ethical approval was obtained from the institutional review board (IRB). Informed consent was obtained from all participants prior to data collection. Participants were assured of the confidentiality and anonymity of their responses, and their participation was voluntary with the option to withdraw at any time.

RESULT AND DISCUSSION

Result

Participants of the study

Participants in this study are presented in Table 1. Among the healthcare providers group, we employed nurses, midwives, and nurse-midwives, most of
whom have at least five years of experience in clinical and community settings. Their education ranges from bachelor’s to master’s degrees, obtained from both domestic and overseas universities. On the other hand, the experts in this study have educational backgrounds ranging from bachelor’s to doctoral degrees, including one obstetrician-gynecologist. All of them have extensive experience in clinical settings and educational institutions. One of the experts served as a consultant for maternity care in Taiwan and owns her own clinic.

Table 1. Participants of this study

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Healthcare provider</th>
<th>Expert</th>
<th>Pregnant women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (year): range, average±STD</td>
<td>35 to 45; 40.2±3.7</td>
<td>22 to 39; 28.6±5.06</td>
<td></td>
</tr>
<tr>
<td>Gestational age (week)</td>
<td>N/A</td>
<td>N/A</td>
<td>8 to 32; 23.8±7.84</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High school</td>
<td>0%</td>
<td>0%</td>
<td>30%</td>
</tr>
<tr>
<td>Bachelor degree</td>
<td>20%</td>
<td>20%</td>
<td>60%</td>
</tr>
<tr>
<td>Master degree</td>
<td>40%</td>
<td>20%</td>
<td>10%</td>
</tr>
<tr>
<td>Doctoral degree</td>
<td>40%</td>
<td>60%</td>
<td>0%</td>
</tr>
<tr>
<td>Length of work experience (year): range, average±STD</td>
<td>5 to 9; 6.6±1.7</td>
<td>5 to 9; 7±2</td>
<td>N/A</td>
</tr>
</tbody>
</table>

(Note: N/A: data not available)

Additionally, the pregnant women in our study were at various gestational ages, with most in the third trimester and having previous childbirth experience. They have diverse educational backgrounds, with many having completed college as their highest level of education (60%). The participants were of productive age, ranging from 22 to 39 years old.

Themes and Sub-themes

The themes and sub-themes of this study are presented in Table 2. There are three themes: ANC service institutional and structural framework, ANC education and awareness, and Self-empowerment and encouragement of pregnant women. These themes are supported by a total of twelve sub-themes.

Table 2. Themes and sub-themes

<table>
<thead>
<tr>
<th>Theme</th>
<th>Sub-theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. ANC service institutional and structural framework of ANC</td>
<td>1. Government support for prenatal care visits</td>
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<tr>
<td></td>
<td>2. ANC care services</td>
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<tr>
<td></td>
<td>3. Screening for high-risk pregnancy</td>
</tr>
<tr>
<td></td>
<td>4. Referral system</td>
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<tr>
<td>2. ANC education and awareness</td>
<td>1. Content and scope of prenatal education</td>
</tr>
<tr>
<td></td>
<td>2. Delivery methods of prenatal education</td>
</tr>
<tr>
<td></td>
<td>3. Accessibility and participation</td>
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<td></td>
<td>4. Impact on maternal health</td>
</tr>
<tr>
<td>3. Self-empowerment and encouragement of pregnant women</td>
<td>1. Knowledge seeking and information gathering</td>
</tr>
<tr>
<td></td>
<td>2. Decision-making autonomy</td>
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<td></td>
<td>3. Psychosocial support</td>
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<td></td>
<td>4. Personal health practices</td>
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</tbody>
</table>
Discussion

Prenatal service institutional and structural framework of ANC

This theme encompasses the overarching support and organizational structures that underpin the implementation of antenatal care (ANC) services in Indonesia and Taiwan. It highlights the role of government policies, service provision, screening protocols, and referral systems in shaping the effectiveness and efficiency of ANC.

Government support for antenatal care (ANC) visits

In both Indonesia and Taiwan, government support plays a pivotal role in ensuring the accessibility and quality of ANC services. Both countries design the policy to promote regular health checks and early detection of potential complications during pregnancy.

![Figure 1. The difference in coverage of the maternal health booklet between Taiwan and Indonesia](image)

One of the key components of Taiwan’s government support is the provision of 10 fully covered ANC visits, which are free of charge for all pregnant women. The Health Promotion Administration, under the Ministry of Health and Welfare, oversees the implementation and monitoring of these ANC services. The 10 ANC are meticulously outlined in the Maternal Health Handbook, a comprehensive guide provided to all expectant mothers (see figure 1). While in Indonesia, the government mandates a minimum of six free ANC visits to ensure adequate monitoring and support for pregnant women. The ANC services in Indonesia are guided by the Maternal Health Booklet (Buku Kesehatan Ibu dan Anak-Buku KIA) (see figure 1), which provides a structured approach to ANC. This book is distributed to pregnant women during their first ANC visit.

In Taiwan, nearly universal coverage through the National Health Insurance (NHI) system ensures that most pregnant women have access to comprehensive ANC services. Government policies in Taiwan focus on continuous improvement and integration of services to ensure high standards of maternal care. In contrast, even Indonesia has Jaminan Kesehatan Nasional (JKN) to support the coverage of ANC visits, but this country faces challenges related to geographical disparities and resource limitations. Government programs in Indonesia aim to increase ANC attendance through community-based initiatives and outreach programs, particularly in rural areas.

Prenatal care services

The availability and quality of prenatal care services vary significantly between Indonesia and Taiwan. In Taiwan, ANC services are well-integrated within...
the healthcare system, offering standardized care across different regions. In Indonesia, the quality of ANC services is influenced by the availability of trained healthcare providers and resources, with significant disparities observed between urban and rural settings. Efforts are being made to improve service delivery through training programs for midwives and healthcare workers, as well as investments in healthcare infrastructure.

The detailed assessment of pregnant women both in Taiwan and Indonesia are slightly different, just because the limited assessment of psychological and psychosocial aspects, including violence, funding, tough and emotion. One of the uniqueness assessment found in Taiwan is the prenatal-self checkup record. In contrast, nurse-midwives or midwives are the ones doing the prenatal screening in the primary healthcare, or hospital, or clinic. This narration give knowledge that maternal health booklet in Taiwan was prepared to build and enrich the ability of self-monitoring among the pregnant women.

**Screening for high-risk pregnancy**

Screening for high-risk pregnancies is an integral component of ANC in both countries. Taiwan’s healthcare system ensures routine screening and timely interventions for high-risk pregnancies through well-established protocols and access to specialized care. In Indonesia, screening practices are being strengthened, but challenges remain due to variability in service delivery and access to diagnostic tools. Initiatives to enhance screening processes include the development of guidelines and training for healthcare providers to identify and manage high-risk pregnancies effectively.

![Figure 2. The difference in high-risk screening assessment between Taiwan and Indonesia is depicted in the maternal health booklet](image)

In Indonesia, high-risk pregnancy screening utilizes the Pudji Rohyati Score (figure 2), administered separately from the maternal health booklet by healthcare providers at the primary level or sometimes by community healthcare volunteers. Conversely, in Taiwan, the screening process is integrated into the maternal health booklet, enabling pregnant women to perform self-assessments (figure 2). The checklist includes maternal and medical history items, with the presence of one or more checklist items indicating a high-risk pregnancy.

**Refferal system**

An efficient referral system is crucial for managing high-risk pregnancies and ensuring positive maternal and neonatal outcomes. Taiwan’s referral system is characterized by robust coordination between primary care providers and
specialized healthcare facilities, facilitated by the NHI system. Indonesia, on the other hand, faces challenges related to the referral system’s efficiency, particularly in remote and underserved areas. Efforts to improve the referral system in Indonesia include enhancing communication channels between healthcare providers and increasing the availability of transportation for pregnant women requiring specialized care.

In Indonesia, pregnant women start ANC at primary health facilities like Puskesmas or government-affiliated private clinics. They receive a maternal health booklet and are referred to secondary level hospitals (Type B and C) if risk factors are identified during ANC visits. If issues persist, they may be referred to tertiary hospitals (Type A). In Taiwan, all pregnant women directly visit hospitals for ANC without a tiered referral system. Private midwifery clinics provide ANC, excluding ultrasound procedures, and support home childbirth using the maternal health booklet for guidance.

The comparison of ANC referral systems between Indonesia and Taiwan reveals distinct approaches. In Indonesia, ANC begins at primary health facilities where pregnant women receive a maternal health booklet. If risk factors are identified during ANC visits, they are referred to secondary hospitals (Type B and C). Persistent issues may necessitate referral to tertiary hospitals (Type A). This tiered system aims to manage high-risk pregnancies effectively within the healthcare network.

Conversely, Taiwan employs a centralized approach where all pregnant women visit hospitals directly for ANC, eliminating the tiered referral system. Private midwifery clinics offer ANC services, excluding ultrasound procedures, and support home childbirth using the maternal health booklet.

These differences underscore varying strategies in ensuring comprehensive ANC and managing high-risk pregnancies across the two countries. Indonesia’s tiered referral system emphasizes decentralized care and early identification of risks (Kementerian Kesehatan RI, 2020, 2022), whereas Taiwan’s centralized approach simplifies access to healthcare services but may require robust coordination for managing complex cases effectively (Y.-C. Lee et al., 2023). Each system reflects local healthcare priorities and infrastructure, influencing the accessibility and quality of ANC provided to pregnant women.

Prenatal education and awareness

This theme examines the role of prenatal education in enhancing maternal and neonatal health outcomes in Indonesia and Taiwan. It highlights the importance of educating pregnant women about pregnancy, childbirth, and postnatal care, and the methods used to deliver this education.

Content and Scope of Prenatal Education

Prenatal education programs in Taiwan typically cover a comprehensive range of topics, including nutrition, exercise, stages of labor, pain management, breastfeeding, and postnatal care. These programs are designed to provide holistic education and prepare expectant mothers for various aspects of pregnancy and childbirth. In Indonesia, while similar topics are covered, there is often variability
in the depth and breadth of information provided, influenced by regional disparities and resource availability. Efforts are being made to standardize educational content to ensure consistency across different regions.

**Delivery Methods of Prenatal Education**

In Taiwan, prenatal education is delivered through multiple channels, including in-person classes at hospitals and clinics, online courses, and multimedia resources. Healthcare providers, including obstetricians, midwives, and nurses, play a significant role in conducting these sessions. In Indonesia, prenatal education is often delivered through community health centers and by community health workers, particularly in rural areas. While in-person classes remain common, there is a growing use of mobile health applications and online platforms to reach a wider audience, especially in urban areas.

**Accessibility and Participation**

Accessibility to prenatal education programs varies between Indonesia and Taiwan. In Taiwan, the widespread availability of these programs, supported by the National Health Insurance system, ensures high participation rates among pregnant women. Conversely, in Indonesia, geographical and socioeconomic barriers can limit access to prenatal education, particularly in remote and underserved areas. Cultural factors also play a role in influencing participation, with some women relying on traditional knowledge and practices instead of formal education programs. Efforts to increase accessibility include mobile health initiatives and community outreach programs.

**Impact on Maternal and Neonatal Health**

The impact of prenatal education on maternal and neonatal health is widely recognized in both countries. In Taiwan, participants report a high level of satisfaction with prenatal education programs, noting improved confidence and preparedness for childbirth and postnatal care. Testimonials highlight the positive effects of education on dietary practices, exercise routines, and breastfeeding success. In Indonesia, while the impact is also positive, there are challenges related to the consistency and quality of educational content. Testimonials from Indonesian women emphasize the benefits of prenatal education in increasing awareness and promoting healthy behaviors, although gaps in knowledge and practice remain in some areas.

Prenatal education programs in Taiwan emphasize comprehensive support through accessible resources and a well-established healthcare system (Huang et al., 2019). This includes diverse delivery methods such as in-person and online resources, ensuring broad participation and high satisfaction among expectant mothers (Y.-C. Lee et al., 2023). In contrast, Indonesia faces challenges in prenatal education due to geographical, socioeconomic, and cultural barriers (Afrizal et al., 2020; Laksono et al., 2020). While efforts by community health workers and mobile health initiatives are significant, there is a need for standardized and expanded educational content to ensure consistent quality across regions (Damayanti et al., 2023; Putri et al., 2023). Improving accessibility and participation, particularly in underserved areas, is crucial for maximizing the benefits of prenatal education and improving maternal and neonatal health outcomes globally (World Health Organization, 2022).
This comparison underscores the importance of effective prenatal education as a cornerstone of antenatal care, with Taiwan’s successful strategies offering valuable insights for enhancing prenatal education programs in Indonesia and similar contexts worldwide. Addressing these challenges can lead to significant improvements in maternal and newborn health outcomes globally.

**Self-empowerment and encouragement of pregnant women**

This theme explores the role of self-empowerment and self-encouragement among pregnant women in managing their pregnancy and accessing antenatal care (ANC) services. It highlights the internal factors that drive women to seek information, make informed decisions, and take proactive steps for their health and the health of their unborn child.

**Knowledge Seeking and Information Gathering**

In both Indonesia and Taiwan, pregnant women actively seek information about pregnancy and ANC to make informed decisions about their health. In Taiwan, the widespread use of digital resources and access to healthcare providers facilitate easy information gathering. Women often use the internet, mobile applications, and online forums to complement the information provided by their healthcare providers. In Indonesia, while digital resources are increasingly used, many women still rely on traditional sources of information, such as family and community health workers. Efforts to bridge the information gap include mobile health initiatives and educational campaigns.

**Decision-Making Autonomy**

The level of decision-making autonomy among pregnant women varies between Indonesia and Taiwan. In Taiwan, women generally feel empowered to make healthcare decisions, supported by a well-informed healthcare system and strong social support networks. In Indonesia, cultural norms and family dynamics often influence decision-making. Women may defer to the opinions of family members or community leaders, particularly in rural areas. Initiatives to promote autonomy include educational programs that encourage women to take an active role in their healthcare decisions.

**Psychosocial Support**

Psychosocial support plays a crucial role in encouraging self-empowerment among pregnant women. In Taiwan, support from family, friends, and healthcare providers contributes to women’s confidence and self-efficacy. Women participate in support groups and community activities that provide emotional and practical support. In Indonesia, extended family and community networks provide significant support, but there can be variability in the level of encouragement women receive. Programs aimed at strengthening psychosocial support include community-based support groups and peer mentoring initiatives.

**Personal Health Practices**

Pregnant women in both countries take various proactive steps to maintain their health, driven by personal motivations and influenced by the support they receive. In Taiwan, women are generally more consistent in adhering to recommended health practices, such as attending regular ANC visits, maintaining a healthy diet, and exercising regularly. In Indonesia, while many women are...
motivated to follow healthy practices, challenges such as access to resources and cultural beliefs can impact adherence. Initiatives to support personal health practices include educational campaigns and community health programs that provide practical advice and resources.

The comparison of self-empowerment and encouragement among pregnant women in Indonesia and Taiwan highlights important factors influencing proactive health engagement during pregnancy. In Taiwan, accessible information, decision-making autonomy, strong psychosocial support, and adherence to health practices contribute to positive maternal outcomes. The well-established healthcare system and supportive social networks empower women to actively manage their pregnancies (Huang et al., 2019; Lee et al., 2010).

In Indonesia, while pregnant women are eager to engage in proactive health behaviors, challenges such as cultural norms, access to information, and resource limitations can hinder their efforts (Damayanti et al., 2023). To enhance self-empowerment, initiatives focus on increasing access to reliable information, promoting decision-making autonomy, and strengthening psychosocial support networks through educational programs and community initiatives. Understanding these factors allows for tailored policies and programs that support pregnant women in both countries, with Taiwan's experience offering valuable insights for improving maternal health in Indonesia and similar contexts.

**CONCLUSION**

This study compares antenatal care (ANC) implementation between Indonesia and Taiwan, focusing on service frameworks, education, and self-empowerment. In Taiwan, comprehensive government support and a well-integrated healthcare system ensure direct hospital visits for ANC, simplifying access and improving outcomes. In contrast, Indonesia faces challenges with its tiered referral system and needs to enhance the standardization and accessibility of prenatal education, despite significant efforts by community health workers to overcome various barriers.

Taiwan’s success in promoting self-empowerment among pregnant women through accessible information, decision-making autonomy, and strong psychosocial support underscores the importance of these factors in achieving positive maternal health outcomes. While Indonesia’s pregnant women show a strong desire for proactive health behaviors, they face limitations due to cultural norms and resource constraints. Learning from Taiwan’s experience, Indonesia can improve its ANC services by increasing access to reliable information, promoting autonomy, and strengthening support networks, ultimately contributing to better maternal and neonatal health globally.

**SUGGESTION**

To enhance antenatal care (ANC) in Indonesia, it is recommended to increase government support and investment in healthcare infrastructure, particularly in underserved areas. Standardizing and expanding the content and delivery methods of prenatal education, leveraging technology, and community health workers can improve accessibility and participation. Promoting decision-making autonomy and
strengthening psychosocial support networks are crucial for empowering pregnant women. Additionally, adopting best practices from Taiwan’s successful ANC implementation, such as integrating comprehensive education programs and simplifying access to healthcare services, can lead to significant improvements in maternal and neonatal health outcomes in Indonesia and similar contexts.

**DAFTAR PUSTAKA**


