



Relationship between Type of Antenatal Services and Delivery Outcomes in Denpasar, Bali

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ABSTRACT

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The number of operative deliveries, especially sectio caesarea from 2013 to 2018 in Indonesia and Bali has increased and still exceeds the ideal limit. Prevention efforts are antenatal care according to standards that have developed accompanied by complementary care. The purpose of this study was to determine the relationship between the type of antenatal care and delivery outcomes in private midwife practice in Denpasar City Region. This type of research is correlation analysis using a cross sectional. The study was conducted in two different midwife practice in Denpasar in April – May 2022. The research sample was 52 people. The sampling method with probability sampling technique is simple random sampling. Data analysis using Chi-square. There are 56% respondents who received integrated antenatal care and 96.3% respondents who received integrated antenatal care with complementary care gave birth spontaneously vaginally. There are 44% respondents who received integrated antenatal care and 3.7% respondents who received integrated antenatal care with complementary care. The results of the chi-square obtained a value of $p < 0.001 < 0.05$. This result shows there is relationship between the type of antenatal care and delivery outcomes in private midwife practice in the denpasar city area. private midwife practice is expected to develop integrated antenatal care accompanied by complementary midwifery care.

INTRODUCTION

The process of pregnancy and childbirth are two closely related things, where childbirth is a physiological process and the end of pregnancy is the release of the results of conception. There are three types of childbirth, namely spontaneous, artificial and recommended childbirth. Spontaneous childbirth takes place through the mother's birth canal with the mother's strength. Artificial childbirth is childbirth assisted by external forces, for example in forceps extraction, vacuum or cesarean section. While recommended childbirth is childbirth that does not start on its own but after actions or interventions in the form of breaking the amniotic fluid, administering Pitocin or prostaglandins (1). Naturally, childbirth is done spontaneously through vagina. Spontaneous vaginal childbirth is a physiological process of human reproduction and has many positive effects than cesarean section childbirth (2).



Normal pregnant women are encouraged to have vaginal childbirth and if there are problems with the mother and baby, childbirth is carried out by forceps extraction, vacuum or cesarean section surgery. Surgical procedures are performed the mother, fetus or both.(3) However, Cesarean section delivery is now not only carried out with medical indications but in some cases is carried out without medical indications due to the selection of the baby's birth time.(4) Meanwhile, other operative deliveries such as forceps and vacuum extraction are usually carried out for certain indications..

While other operative deliveries such as forceps and vacuum extraction are usually carried out with certain indications. The number of deliveries with forceps, vacuum and other extractions other than spontaneous vaginal delivery and surgery in Indonesia from 2013 to 2018 was 0.9%. Bali Province has a higher figure than Indonesia, which is 1.9%.(5)

) Caesarean section delivery also tends to increase. The proportion of caesarean section deliveries in Indonesia was 9.8% from 2010 to 2013(6) While the proportion of caesarean section deliveries in Indonesia from 2013 to 2018 was 17.6%.(5) This figure shows an increase in cases of caesarean section deliveries in Indonesia. In Bali itself, the proportion of caesarean section deliveries is 30.22%.(7) The proportion of caesarean section deliveries in Indonesia and Bali in particular is still above the ideal target set by WHO (World Health Organization). WHO has set the ideal limit for caesarean section deliveries since 1985, which is between 10% and 15%.⁽⁸⁾

This increasing trend is influenced by many factors. Several factors driving the incidence of caesarean section deliveries in Indonesia are upper economic status, higher education levels, urban areas of residence, worker status as private employees and ownership of health insurance.(3) Age factors, number of children, education and place of residence of the mother also play a role in the increasing number of caesarean sections deliveries.(9) In addition, education level, labor anxiety, choice of birth time, insurance ownership and reference groups are factors that influence the choice of caesarean section deliveries without indication.(4) According to Kasdu (2003) in Ayuningtyas et al. (2018) the existence of public beliefs that link the fortune of a child with the time of birth also influences the decision of pregnant women in choosing the time of birth.(10)

Midwifery services that are implemented by fulfilling the indicators of competent, comfortable, motivational, caring, clean, communication, knowledge, prayer, friendly, calm, patient, continuous, delivery assistance, availability, respect, complete facilities, low cost and leadership can reduce caesarean section delivery.(11) Non-pharmacological interventions such as breathing exercises, relaxation techniques, and massage reduce the intensity of labor pain during the active phase of labor. Likewise, other non-pharmacological interventions such as essential oils, acupressure, music therapy, aromatherapy, perineal massage and yoga are commonly used to manage labor pain. These interventions have been shown to have an effect on labor outcomes and reduce the number of deliveries by caesarean section(12–14). This study aims to examine the relationship between the type of antenatal services and labor outcomes. The types of antenatal services are categorized into two, services that comply with Indonesian government standards and antenatal services that are supplemented with complementary services, such as meditation and yoga. The study was conducted a private midwife practice in Denpasar City.

METHOD

This study is a correlational analytical study, using a cross-sectional design. The study was conducted in a private midwife practice in Denpasar. Using two locations, one location of a private midwife practice that uses complementary services (prenatal yoga, hypnotherapy and aromatherapy) and one location of a private midwife practice that provides services according to the standards applied by the government .The sample used in this study was 52 respondents. Respondents in this study were mothers who gave birth in both where the study was conducted or were referred in 2020-2021 with inclusion and exclusion criteria. The sampling technique used simple random sampling. The



instruments in this study used medical records and/or cohorts related to antenatal services received and the type of maternal delivery, the type of data collected was secondary data. The types of antenatal services are categorized into two; integrated antenatal services according to service standards set by the government and antenatal services supplemented with complementary services such as Aromatherapy, hypnotherapy, and yoga, at least 6 times of service. Service history was taken from the maternal and child health book and medical records stored at the research location. Data was supplemented by interviews with health service providers. The hypothesis test used in this study was the Chi Square test.

RESULT AND DISCUSSION

Table 1 describes that out of 52 respondents, 90.4% of respondents (47 people) were aged between 20-35 years, most (48.1%) of respondents were housewives, 53.8% of respondents had a high school education, 48.1% of respondents were Hindu, most (67.3%) of respondents had multigravida pregnancies, and 30.8% of mothers gave birth at 39 weeks of pregnancy. A more detailed description is also shown in table 1 below.

Table 1.
 Characteristics of Mothers

Characteristics	(f)	(%)
Age		
< 20	3	5,8
20-35	47	90,4
> 35	2	3,8
Total	52	100
Jobs		
Private employee	22	42,3
Housewife	25	48,1
Trader	1	1,9
Lecturer	1	1,9
Self-employed	3	5,8
Total	52	100
Education		
Elementary School	7	13,5
Junior High School	5	9,6
High School	28	53,8
Undergraduate	11	21,2
Post Graduate	1	1,9
Total	52	100
Gravida		
Primigravida	16	30,8
Multigravida	35	67,3
Grandemultigravida	1	1,9
Total	52	100
Gestational Age		
Preterm	2	3,8
Aterm	50	96,2
Postterm	0	0
Total	52	100



Frequency Distribution of Antenatal Service Types and Delivery Outcomes

Table 2 shows that out of 52 respondents, 25 people (48.1%) received integrated antenatal care during pregnancy and 27 people (51.9%) received integrated antenatal care with complementary care. In terms of delivery outcomes, it was found that out of 52 respondents, 36 people (69.2%) gave birth spontaneously through vagina and 16 people (30.8%) were referred to more complete facilities.

Table 2.
Frequency Distribution of Antenatal Service Types and Delivery Outcomes

No	Variables	f	%
Types of Antenatal Services			
	Integrated Antenatal	25	48,1
	Integrated Antenatal with complementary care	27	51,9
	Total	52	100
Delivery Outcomes			
	Spontaneous vaginal delivery	40	76,9
	References	12	23,1
	Total	52	100

The results of the study found that more (51.9%) research subjects received integrated antenatal services combined with a complementary approach. In terms of delivery method, the majority were spontaneous vaginal delivery (76.9%).

Table 3.
Relationship between types of antenatal services and delivery outcomes

Types of antenatal services	Delivery Outcomes				Total	p		
	Spontaneous vaginal delivery		References					
	f	%	f	%				
Integrated Antenatal	14	56	11	44	25	100		
Integrated Antenatal with complementary care	26	96,3	1	3,7	27	100		
Total	40	76,9	12	23,1	52	100		

The respondents of this study tended to be in a healthy reproductive age, namely between 20-35 years with a range of 90.4%. The mother's age is related to the health and readiness of the female reproductive organs. This is by the results of the study by Rangkuti and Harahap (2020) which found a relationship between the age of pregnant women and high-risk pregnancies. Pregnant women who are



too young or too old have a higher risk of experiencing problems in pregnancy that can affect the delivery process and the condition of the mother and baby.(15) The results of the study by Wulandari and Maharani (2018) found a relationship between the age of the mother giving birth and the incidence of cesarean section. Mothers giving birth who are less than 20 years old or more than 35 years old have a greater chance of giving birth by cesarean section, although age is not a determinant of the incidence of cesarean section. The respondents of this study were more in a healthy reproductive age so the chance of giving birth spontaneously vaginally is greater.(16) As many as 48.1% of respondents were housewives. The results of the study by Inayah and Fitriahadi (2019) found that pregnant women who work do not regularly check their pregnancies. This is possible because mothers who do not work have more time to check their pregnancies. Meanwhile, mothers who work tend to spend their time doing their work.(17) Working mothers are usually tied to time which causes mothers to be motivated to choose a caesarean section.(3)

Mothers who gave birth with a history of high school education were the largest respondents in this study, namely 53.8%. The mother's education level also affects the regularity of pregnant women checking their pregnancy. Pregnant women with a higher education background tend to check their pregnancies regularly. Mothers with a history of higher education have a greater curiosity so they are motivated to check their pregnancies.(17) Higher education levels also affect the choice of caesarean section delivery. Mothers who have a higher level of education tend to pay more attention to their health during pregnancy. The higher the mother's education, the greater the knowledge and awareness to anticipate problems in pregnancy and childbirth is expected to increase.(3)

As many as 67.3% of respondents with multigravida pregnancies. Parity is related to the incidence of caesarean section and affects the regularity of visits by pregnant women. Mothers who are pregnant for the first time tend to be more motivated to make antenatal visits than mothers who have given birth. This occurs because primiparous and primigravida mothers do not have experience so they have a higher level of anxiety and mothers tend to pay more attention to their pregnancy.(19) Mothers with Grandmultiparous pregnancies tend to have a lower chance of giving birth by caesarean section than multiparous mothers. The chance of caesarean section delivery is higher in primiparous mothers.(3)

The majority of research respondents gave birth at 39 weeks of gestation, which was 30.8%. Most respondents gave birth at term gestation. Childbirth is said to be normal if it occurs at full term gestation, which is after 37 weeks.(20) Gestational age is related to the estimated condition of the baby, whether it is mature or not. Pregnancy is said to be aterm from 38 weeks to 42 weeks of pregnancy. The condition of the baby at 38-40 weeks of pregnancy will cover the entire body, the amniotic fluid begins to decrease but is still within normal limits. If labor occurs at a gestational age of less than 37 weeks, it is called preterm labor. The condition of babies born at a gestational age of less than 37 weeks is often accompanied by abnormalities, both long-term and short-term. Meanwhile, if the pregnancy lasts up to >42 weeks, it is included in postterm pregnancy. At a gestational age of >42 weeks, a decrease in placental function begins to occur which can have an impact on the condition of the fetus.(21)

Types of Antenatal Services

Of the 52 respondents, 25 people (48.1%) received integrated antenatal services and 27 people (51.9%) received integrated antenatal services with complementary care. Regarding delivery outcomes, 40 people (76.9%) underwent spontaneous vaginal delivery outcomes and 12 people (23.1%) underwent referral delivery outcomes. These data show that spontaneous vaginal delivery is a type of delivery that is physiologically expected because it has a very small risk compared to delivery with surgery. This is in accordance with the results of a study by Chen and Tan, 2019, which stated that spontaneous vaginal delivery has many positive effects..⁽²⁾ Several respondents underwent referrals to more complete facilities because they experienced several complications. This is likely due to the disruption of one or more factors that influence delivery, namely power, passage, passenger, psychology and assistant



factors.⁽¹⁾ Referred deliveries are likely to undergo operative deliveries in the form of labor induction, vacuum and forceps extraction and caesarean section. The long-term impact of cesarean section delivery is the occurrence of placenta previa, placental abruption and uterine rupture.⁽²²⁾ This cesarean section delivery also has an impact on the baby, namely the risk of experiencing asphyxia, impacting the child's sensory perception, sensory integration abilities, neuropsychiatric influences and the development of the mother and baby relationship.^(2,23) Meanwhile, in delivery by forceps extraction, it can cause several complications for both the mother and the baby. Maternal complications are divided into two, namely acute complications and late complications. Acute complications include lacerations of the cervix, vagina, perineum, bladder, wider episiotomy, increased bleeding, hematoma and uterine rupture. Late complications that can occur are urinary incontinence, alvi incontinence, anal sphincter trauma and pelvic organ prolapse. Complications that can occur in babies are cephal hematoma, facial injury, facial nerve trauma, clavicle fracture and shoulder dystocia⁽²⁴⁾

Delivery by vacuum extraction can also have an impact if not done properly. The impacts caused are the risk of fetal scalp damage, cephalhematoma and more serious subaponeurotic bleeding.⁽²⁵⁾

Delivery outcomes based on type of antenatal care

This study found that out of 25 mothers who received integrated antenatal care, 14 (56%) underwent spontaneous vaginal delivery and 11 (44%) underwent referral delivery. Meanwhile, out of 27 mothers who received integrated antenatal care with complementary care, 26 (96.3%) underwent spontaneous vaginal delivery and 1 (3.7%) underwent referral. These results indicate that mothers who received integrated antenatal care with complementary care gave birth more spontaneously vaginally than mothers who received integrated antenatal care alone.

Complementary acupuncture care can treat breech babies and relieve pain during labor.⁽¹⁰⁾ Acupuncture can help improve the breech position so that the baby's head is down and the mother can give birth vaginally and can reduce labor pain which makes the mother more comfortable and strong to undergo spontaneous vaginal delivery. Aromatherapy is useful in providing comfort, relaxation and facilitating labor by using special oils that stimulate contractions.⁽¹⁰⁾ Meanwhile, prenatal yoga can reduce the number of caesarean section operations.^(12,26) Prenatal yoga helps train flexibility and muscle strength and teaches mothers to listen to their bodies so that their bodies and minds are ready to face spontaneous vaginal labor. Hypnobirthing is useful in reducing pain, making the first stage of labor shorter.^(27,28) This is because in hypnobirthing relaxation and self-hypnosis techniques are taught which help mothers to control feelings of anxiety and pain due to contractions so that labor does not feel difficult.

Relationship between types of antenatal care and delivery outcomes

The results showed that 96.3% of mothers who received integrated antenatal care accompanied by complementary care and 56% of mothers who received integrated antenatal care gave birth spontaneously vaginally. The results of the bivariate analysis using the chi-square test obtained a p value = 0.001, which means that H₀ was rejected because p < 0.05. These results indicate that there is a relationship between the type of antenatal care and delivery outcomes in private midwife practice in the Denpasar City area.

The results of this study are in line with the theory of Ayuningtyas, 2019 that complementary midwifery care can influence and facilitate the delivery process. Complementary care provides many benefits to pregnant women in facing the delivery process, especially providing a relaxing effect on the body. One of the complementary care whose stages can be applied in childbirth is prenatal yoga. The pranayama stages in prenatal yoga can be applied when the mother is giving birth to relax the mother's body. Aromatherapy also provides a relaxing effect on the body.⁽¹⁰⁾



According to Karnasih (in Riarawati et al., 2021) relaxation that occurs in the body will affect oxygen intake and ATP secretion for the uterine contraction process so that cervical opening will be faster. According to Gupta, et al. (in Riarawati et al., 2021) relaxation techniques will help increase self-awareness, save energy, create a breathing rhythm during labor and relieve tension during contractions. Meditation helps release tension, overcome stress and fear and will make the mind calm and centered on the body. This technique has an impact on labor which causes labor to take place easily and the duration of labor will be shorter.(29)

Research by Mudihayati et al., 2018 showed that there was a significant influence on the implementation of hypnobirthing on the first stage of labor in the latent phase, especially on the frequency and duration of contractions, opening and lowering of the baby's head. The hypnobirthing method is a natural method to eliminate fear, panic, tension and other feelings of stress felt by mothers during labor. According to Mongan (in Mudihayati et al., 2018) hypnobirthing aims to prepare and train the muscles that play a role in the labor process through breathing exercises, relaxation, visualization, affirmation and deepening. Based on the discussion above, complementary care provides more relaxation effects on the mother which also affects changes in the mother's body during labor(30,31). This exercise can affect the power, passenger, psychology and assistant factors. These factors determine whether pregnant women can give birth spontaneously vaginally or not.(30)

CONCLUSION

The first conclusion of this study is based on the characteristics of the respondents, most of the respondents are mothers aged between 20-35 years, housewives, last education high school or equivalent, Hindu, multigravida, and give birth at term gestational age. Second, most respondents give birth spontaneously vaginally and some are referred to more complete health facilities. Third, most respondents who receive integrated antenatal services accompanied by complementary care give birth spontaneously through vagina. Some respondents who received integrated antenatal care were referred to more complete facilities. Fourth, the results of the relationship analysis showed that there was a relationship between the type of antenatal care and delivery outcomes in Denpasar City . The results of this study can be continued to be researched with better methods.

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