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DESCRIBE ANTENATAL CARE COMPLIANCE TO IMPROVE SERVICE QUALITY FOR PREGNANT WOMEN IN NUSA TENGGARA TIMUR

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ABSTRACT

Compliance with antenatal care (ANC) visits for pregnant women is influenced by the quality of services. The level of compliance with antenatal care visits in Nusa Tenggara Timur Province (NTT) still varies. Therefore, this study is aimed at finding out the overview of the level of ANC compliance in pregnant women in NTT. A cross-sectional study was conducted using secondary data from the 2017 Indonesia Health Demographic Survey (IHDS). A total of 790 women of childbearing age (WCA) who had been pregnant and gave birth within five years before the survey in NTT were selected by the stratified sampling method. The extracted data were data on ANC service utilization, age, education, area of residence, parity, employment status, marital status, pregnancy status, health insurance ownership, wealth quintile, ownership of means of transportation, husband support, media exposure knowledge, and pregnancy complications. ANC utilization is measured based on adherence to ANC visits at least 4 times during pregnancy. The research data was analyzed univariate and bivariate. The proportion of antenatal care compliance during pregnancy by WUS was 74.7%. As many as 84% of WUS performed ANC in the 2nd and 3rd trimesters, the least received type of laboratory examination was 53.8%. Women of childbearing who adhered to implementing ANC during pregnancy were found in pregnant women with a higher education level (80.2%), parity of 2-3 children (81.1%), and the support of their husbands (78.7%). This study provides an overview of the importance of maintaining the quality of ANC services to increase the coverage of ANC visits for pregnant women. It is therefore recommended to provide information about the importance of ANC visits and to carry out essential laboratory examinations for pregnant women.

Keywords: Antenatal care., pregnancy., women of childbearing.

INTRODUCTION

Antenatal care (ANC) is a pregnancy examination to overcome the problem of maternal and child mortality rates. There are at least 10 types of integrated check-ups that pregnant women get during antenatal care. With this examination, it is hoped that mothers can be helped during pregnancy, childbirth, to postpartum.[1]

World Health Organization (WHO) recommends a minimum of eight contacts: five contacts in the third trimester, one contact in the first trimester, and two contacts in the second trimester.[2] The benefits of ANC Visits are very important in early detection of various health problems during pregnancy, as well as in the prevention of stunting (growth disorders) and efforts to reduce maternal and child mortality.[3] To provide good health to pregnant women, the quality of ANC services needs to be maintained. The quality of ANC services can be affected by various factors such as service providers' compliance with ANC guidelines, service users' education levels, distance to health facilities, and availability of health facilities.[4] To optimize the quality of ANC services, efforts must be focused on laboratory examinations, counseling, health education, good interpersonal relationships, and ensuring the availability of necessary facilities[(4)] Additionally, strategies such as employee training, leveraging technology, and fostering a customer-centric culture can improve service quality across industries, leading to increased customer satisfaction and loyalty.[5]

Based on the national target, antenatal care visits are recommended to reach above 95%, but the number of ANC visits for pregnant women still varies. The range of ANC visit coverage for pregnant women is between 70-90%. The percentage of respondents who obediently conducted ANC ANC visits at Rijali Health Center of 74.3%.[6] The coverage of K1 visits is 82.1% and the coverage of K4 is 79%.[7] Compliance with ANC examinations in pregnant women in the Deli Tua Health Center area reaches 88.13%.[8] Routine ANC visits at the Mataram City Hospital were reported to be 88.2%.[9] K1 coverage at Rowosari 02 health center reached 100% and K4 coverage was 93.51%.[10]

East Nusa Tenggara (NTT) is a region in Indonesia with a decrease in the coverage of ANC visits from 2012 and 2017. The demographic conditions in NTT that are different from other regions in Indonesia allow for an influence on the coverage of

pregnant women to make ANC visits. Based on the results of the Indonesia Health Demographic Survey (SDKI), data is available on the use of ANC services in NTT province. In addition, the publication of ANC compliance levels in pregnant women in NTT is still limited, so this study aims to find an overview of ANC compliance levels by WUS in NTT to improve the quality of ANC services.

MATERIALS AND METHODS

Type of Research

The study is a secondary data analysis of the 2017 IDHS results. The detailed study design has been described in the 2017 IDHS report. The survey was conducted with a cross-sectional design which took place from 24 July to 30 September 2017 in East Nusa Tenggara Province. The target population in this study is all WCA who have been pregnant and given birth in the last five years before the survey. The affordable population is WCA who has been pregnant and given birth in the last five years before the survey, which is in the Census Block as a result of the SP2010 listing in East Nusa Tenggara Province.

Place and Time of Research

The study took place in NTT Province between 24 July to 30 September 2017.

Population and Sample

A total of 790 WCA were involved in this research selected in two stratified stages. The first stage is to select several census blocks in a systematic probability proportional to size (PPS) with the size of the number of households in the population census. The second stage is to choose households in each selected census block. In the Women's File dataset with IDIR71FL code downloaded from the DHS Program website, there are 49627 WUS respondents in Indonesia. To obtain data on WUS respondents in East Nusa Tenggara Province, a filter was carried out on the data with the code V024 (province) and the number of WUS interviewed in East Nusa Tenggara Province was 2223 respondents. To get the sample, a re-filter was carried out on the data with the code V208, and a total of 839 WUS who had been pregnant and given birth were obtained. Furthermore, of the 839 respondents, there were 48 missing data on the ANC service utilization variable and one missing data on the husband support variable. The missing data was issued, so the total sample analyzed was 790 respondents.

Data Collection

This study uses secondary data from IHDS 2017 accessed through the www.dhsprogram.com website. The extracted data were data on ANC service utilization, age, education, area of residence, parity, employment status, marital status, pregnancy status, health insurance ownership, wealth quintile, ownership of means of transportation, husband support, media exposure knowledge, and pregnancy complications.

The use of ANC services is categorized as "complete" if ANC checks are carried out at least once in the first and second trimesters and twice in the third trimester, "incomplete if ANC is performed less than once in the first and second trimesters and twice in the third trimester. Age is categorized as "<20 years old", "20-35 years old" and ">35 years old", Education is categorized into "low", "middle" and "high", Residential area is categorized as "Rural" and "Urban", Parity is categorized into "1 child", "2-3 children" and "≥4 children", Employment status is categorized as "working" and "not working" Marriage status is categorized as "married", "unmarried" and "divorced", The status of wanting to get pregnant is categorized into "wanting" and "not", the ownership of health insurance is categorized into "having" and "not having", economic status is measured by the quintile of wealth and categorized into "high", "medium" and "low". Ownership of means of transportation is categorized into "have" and "no", Husband's support is categorized into "yes" and "no", Media exposure is categorized as "yes" and "no" Perceptions about the risk of pregnancy complications are categorized into "positive" and "negative"

Data Analysis and Processing

The data from the research results were analyzed in univariate and bivariate. Univariate analysis was carried out to determine the frequency distribution of each variable. Bivariate analysis was carried out to determine the comparison of the proportion of ANC service utilization based on the characteristics of pregnant women.

This research has received Ethical Clearance approval from the Ethics Commission of the Faculty of Medicine, Udayana University, with ethical number 1076/UN14.2.2.VII.14/LT/2024, on April 3, 2024.

RESULT

Table 1 shows that most of the WCA are between 20-35 years old (71.4%), secondary education level (42.5%), rural area of residence (80.4%), 2-3 children parity (44.2%), work (61.0%), marital status (82.3%), pregnancy status (95.8%), have health insurance (64.6%), low economic status (78.7%), do not have transportation (50.4%), have husband support (57.0%), have media exposure (52.2%), and have no pregnancy complications (81.9%). hasil tentang penelitian yang dilakukan.

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Table 1. Characteristics Respondent (n=790)

Characteristic	n	Percent
Age		
>20 year	17	2.1
20-35 year	564	71.4
>35 year	209	26.5
Education		
Tall	121	15.3
Intermediate	336	42.5
Low	333	42.2
Region of Residence		
Urban	155	19.6
Rural	635	80.4
Parity		
1	227	28.7
2-3	349	44.2
≥4	214	27.1
Employment Status		
Work	482	61.0
Not Working	308	39.0
Marital Status		
Marry	650	82.3
Unmarried	127	16.1
Divorce Life/Death	13	1.6
Status of wanting to get pregnant		
Wanted	757	95.8
Unwanted	33	4.2
Health Insurance Ownership		
Yes	510	64.6
Not	280	35.4
Economic status		
Upper	18	2.3
Upper Middle	18	2.3
Intermediate	30	3.8
Lower Middle	102	12.9
Bottom	622	78.7
Ownership of Means of Transportation		
Yes	392	49.6
Not	398	50.4
Husband's Support		
Exist	450	57.0
Not	340	43.0
Media Exposure		
Yes	412	52.2
No	378	47.8
Perception of Complications		
Positive	143	18.1
Negative	647	81.9

Table 2. describes the proportion of antenatal care compliance during pregnancy by WUS. As many as 74.7% of WUS admitted that they were obedient in carrying out ANC while pregnant. Most WUS performed ANC in the 2nd and 3rd trimesters (84%). Based on the type of

examination received, the least received type of laboratory examination was 53.8%.

Table 2. Proportion of antenatal care compliance in women of childbearing age in NTT

Antenatal care	F	%
Obedient	590	74.7
Non-compliant	200	25.3
Only comes in the second trimester	8	4.0
Only comes in the third trimester	12	6.0
Only comes in the first and second trimesters	5	2.5
Only comes in the first and third trimesters	7	3.5
Only comes in the second and third trimesters	168	84.0
Types of Examinations		
Weight Check	765	96.8
Height Measurement	655	82.9
Blood Pressure Measurement	770	97.5
Upper Arm Circumference Measurement	738	93.4
Urinary Fundus High Examination	723	91.5
Fetal Heart Rate Examination	761	96.3
Giving Tetanus Toxoid Immunization	681	86.2
Giving Blood Booster Tablets	752	95.2
Laboratory Examination	425	53.8
Counselling Services	557	70.5

In Table 3, it is illustrated that WCA who obediently carry out ANC during pregnancy is found in pregnant women the age of >35 years (76.6%), a higher education level (80.2%), urban living areas (74.8%), parity of 2-3 children (81.1%), not working (75.0%), marital and divorce status (76.9%), wanting to get pregnant (75.4%), having health insurance (75.5%), middle to upper economic status (83.3%), having transportation equipment (76.6%), had the support of their husbands (78.7%), received media exposure (76.9%), and did not experience complications (79.0%).

Table 3. The Proportion of ANC compliance based on characteristic respondent

	ANC compliance		p
	patuh n (%)	Tidak patuh n (%)	
Age			
>35 year	160 (76.6)	49 (23.4)	0.140
20-35 year	420 (74.5)	144 (25.5)	0,163
<20 year	10 (58.8)	7 (41.2)	Ref
Education			
Tall	97 (80.2)	24 (19.8)	0.041
Intermediate	258 (76.8)	78 (23.2)	0.068
Low	235 (70.6)	98 (29.4)	Ref
Region of Residence			
Urban	116 (74.8)	39 (25.2)	0.960
Rural	474 (74.6)	161 (25.4)	Ref
Parity			
≥4	146 (68.2)	68 (31.8)	0.538
2-3	283 (81.1)	66 (18.9)	0.005
1	161 (70.9)	66 (29.1)	Ref
Employment Status			
Work	359 (74.5)	123 (25.5)	0.870
Not Working	231 (75.0)	77 (25.0)	Ref
Marital Status			

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Divorce Life/Death	10 (76.9)	3 (23.1)	0.756
Marriage	491 (75.5)	159 (24.5)	0.196
Unmarried	89 (70.1)	38 (29.9)	Ref
Status of wanting to get pregnant			
Desired	571 (75.4)	186 (24.6)	0.021
Unwanted	19 (57.6)	14 (42.4)	Ref
Health Insurance Ownership			
Have	385 (75.5)	125 (24.5)	0.482
Don't have	205 (73.2)	75 (26.8)	Ref
Wealth Quintile			
Upper	14 (77.8)	4 (22.2)	0.793
Upper Middle	15 (83.3)	3 (16.7)	0.427
Intermediate	23 (76.7)	7 (23.3)	0.698
Lower Middle	81 (79.4)	21 (20.6)	0.203
Bottom	457 (73.5)	165 (26.5)	Ref
Ownership of Means of Transportation			
Have	301 (76.8)	91 (23.2)	0.177
Don't have	289 (72.6)	109 (27.4)	Ref
Husband's Support			
Supported	354 (78.7)	96 (213)	0.003
Not Supported	236 (69.4)	104 (30.6)	Ref
Media Exposure			
Exposed	317 (76.9)	95 (23.1)	0.128
Not Exposed	273 (72.2)	105 (27.8)	Ref
Perception of Complications			
Experience	113 (79.0)	30 (21.0)	0.187
Not Experiencing	477 (73.7)	170 (26.3)	Ref

DISCUSSION

Proportion of antenatal care compliance during pregnancy by WCA. As many as 74.7% of WCA admitted that they were obedient in carrying out ANC while pregnant. The compliance of antenatal care visits among pregnant women at Eka Sriwahyuni Clinic in Medan was found to be 64.7%, influenced by knowledge, attitudes, and husband's support.[11] The compliance rate of antenatal care among women at Rijali Health Center in 2021 was 74.3%, indicating a significant level of adherence to ANC visits.[6] (The compliance of antenatal care visits among pregnant women at Muara Pinang Health Center, Empat Lawang Regency in 2023 was over 58%, influenced by age and education level.[12] However, the figure achieved is still low compared to the target from the Ministry of Health of Indonesia which reaches 80%.[13] so efforts are needed to improve the quality of ANC services for pregnant women to achieve the ANC target.

Improving the quality of ANC care services can be achieved through the integration of mobile health services (mHealth), effective training of healthcare workers, and improving access to services.[14,15] Through mHealth technology, the accessibility of care and maternal-fetal health outcomes can be improved, and encourage pregnant women to have ANC checkups more regularly.[15] In addition, mHealth services are considered effective and cost-effective in providing sustainable ANC services.[15] The World Health Organization recommends assessing the quality of ANC based on the coverage of pregnant women visiting ANC services. Monitoring of ANC Huga's service coverage is aimed at identifying deficiencies in services so that improvements can be sought for better maternal and child health outcomes.[14]

The results of this study found that most (84%) of WCA performed ANC during pregnancy in the 2nd and 3rd trimesters, Only a small percentage of WUS performed ANC in the first trimester during pregnancy. Based on data from the Demographic and Health Survey (DHS) conducted in Sub-Sahara, it was found that 17.6% of women attended ANC visits in their first trimester.[16] Meanwhile, the proportion of visits in the first trimester of the Salud Mesoamérica Initiative was found at 56%.[17] Timely admission of ANC visits was associated with Wontedness of pregnancy, being 1st birth order, having a mobile phone, and enrolled in Health insurance schemes were significantly associated with early initiation of ANC.[18]

Antenatal care is aimed at ensuring that the mother's pregnancy condition is in good health, through early detection of the risk of pregnancy-related diseases and health problems such as anemia, pre-eclampsia, eclampsia, and bleeding.[19] WHO recommends at least 4 antenatal visits at 16, 24, 32, 36 weeks. Physical examinations involve general appearance, vital signs, systemic examinations, obstetric examinations, routine blood and urine examinations, and special examinations such as serological tests, ultrasound examinations, and maternal serum alpha-fetoprotein

The types of examinations that pregnant women receive include history, physical examination, anemia screening tests, diabetes, hypertension, and management interventions during ANC visits.[14] In this study, there were 7 types of physical examinations that pregnant women received during ANC visits such as weight checks, height, blood pressure, upper arm circumference, uterine fundus height, fetal heart rate, and laboratory tests. However, the proportion of laboratory examinations found was the lowest, at 53.8%. This is possible due to the presence of fear and anxiety with laboratory tests and unwanted results.[20] In addition, laboratory facilities that can conduct examinations for pregnant women are still difficult to reach, especially in rural areas.[21] To overcome this, efforts are made to socialize the importance of laboratory examinations during pregnancy to determine the risk of pregnancy-related diseases from an early age to get immediate follow-up.Significant differences in the proportion of ANC compliance during pregnancy were found in WCA with higher education level, parity, status of wanting to get pregnant and husband support. Compliance with ANC examinations tends to be more common in WCA with higher education levels, parity 2-3 and WUS with the support of husbands. Mothers with higher education levels tend to make more use of antenatal care.[22] The level of maternal education has a positive effect on maternal visits to ANC services, as well as helps to reduce maternal and child mortality rates in the region.[23] These findings provide an understanding that education has a big role in improving maternal health-seeking behavior.

A parity of 2-3 tends to be more likely to obediently do visit le ANC service. This finding is reinforced by the results of other researchers who found that parity of the mother as a primigravida who tends to be more likely to be obedient in doing ANC.[24] Mothers with a parity of 2-3 tend to obediently attend ANC visits, reducing the risk of postpartum bleeding, as shown in a study at the Mataram City Hospital in 2021.[9] The opposite trend was found from another study that found that maternal parity was not associated with ANC visit compliance.[25] Therefore, it is important to educate all pregnant women about the importance of regular ANC visits to monitor fetal development and prevent complications.Women of childbearing age who received support from their husbands were also found to tend to be more obedient to ANC visits compared to those who did not receive support. Husband support correlates with pregnant women's compliance in ANC visits, as shown in the study, indicating its importance in promoting adherence to ANC services[8,11,26,27] The results of this study provide an understanding of the importance of husband support for mothers' compliance in implementing ANC.

CONCLUSIONS AND SUGGESTIONS

Compliance with antenatal care during pregnancy by WCA in NTT has still not reached the target. Based on the quality aspect, there are still types of examinations with low coverage, namely laboratory examinations for pregnant women and ANC coverage in the first trimester. Women of childbearing who obediently implemented ANC during pregnancy are found in pregnant women with a higher education level, parity of 2-3 children, and the support of their husbands. This study provides an overview of the importance of maintaining the quality of ANC services to increase the coverage of ANC visits for pregnant women. Therefore, it is recommended to provide information about the importance of ANC visits and to carry out essential laboratory tests for pregnant women.

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