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Overview of Student Knowledge about The Importance of Inverted Pyramid Antenatal Care at Faculty of Medicine, Universitas Sumatera Utara

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Abstract. ***Introduction.*** *The old model antenatal care/simple pyramid in 1929 based on the third trimester, contributed substantially to the reduction of maternal and newborn mortality. Along with the development of science and technology, many complications of pregnancy including fetal abnormalities, miscarriage, stillbirth, preeclampsia, premature delivery, gestational diabetes, fetal growth disorders, and macrosomia can be detected in the first trimester. Therefore, the inverted pyramid antenatal care was developed with early detection of risk factors and complications at 11-13 weeks of gestation. However, the application of the inverted pyramid antenatal care in Indonesia has not been implemented and there is a lack of socialization about the importance of the inverted pyramid antenatal care.* ***Objectives.*** *The purpose of this research was to describe knowledge about importance of inverted pyramid antenatal care in student generation 2018-2020 of Faculty of Medicine Universitas Sumatera Utara.* ***Methods.*** *This research used a descriptive analytic study with cross sectional approach and primary data was collected using online questionnaire.* ***Results.*** *There is no significant difference about descriptions of knowledge between student of 3rd semester, 5th semester. and 7th semester. From 126 subjects, 77 subjects (61,1%) use more than one source of information.* ***Conclusion.*** *Student of generation 2018-2020 of Faculty Medicine Universitas Sumatera Utara have a good knowledge about the importance of inverted pyramid antenatal care by involving more than one source of information*

Keyword: *Early Pregnancy Complication, Inverted Pyramid Antenatal Care, Nuchal Translucency, Nasal Bone, Doppler Ultrasonography*

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1 Introduction

One of indicator to assess the success of maternal health efforts can be assessed through the *maternal mortality rate* (MMR). MMR is described as the ratio of maternal mortality during pregnancy, childbirth and postpartum also its management but not caused by other things such as accidents in every 100,000 live births [1]. High *maternal mortality rate* (MMR) and *infant*

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mortality rate (IMR) are still a problem in one of developing countries, namely Indonesia. In Southeast Asia, Indonesia is a country with the highest maternal mortality rate [2].

Routine antenatal care is the main action to reduce maternal mortality rate [3]. Antenatal care is a type of health service for pregnant women during pregnancy based on standard antenatal care with the intention of providing protection for pregnant women through detection of risk factor, prevention, and actions to overcome complications [4].

The introduction of the first model of antenatal care, namely the old model/simple pyramid antenatal care in 1929, contributed greatly to reducing maternal and newborn mortality, where the frequency of visits was highest in the last trimester of pregnancy [5]. Nowadays, the development of medical knowledge and technology has increased rapidly over the years and many complications and diseases can be detected early in pregnancy. Therefore, a new concept of inverted pyramid antenatal care has been developed with the first contact to obstetrics and gynecology specialists [6]. However, the application of the inverted pyramid antenatal care has not been implemented and there is a lack of socialization about the importance of inverted pyramid antenatal care in Indonesia.

2 Methods

This research was a descriptive analytic study with a cross sectional design. This research was conducted from March – November 2021. Sample of this research was students of generation 2018-2020 at Faculty of Medicine, Universitas Sumatera Utara (3^{rd} semester, 5^{th} semester, and 7^{th} semester) with inclusion criteria were students from generation 2018-2020 who were still actively studied at the Faculty Medicine and agreed to be research sample, the exclusion criteria were students who filled out the questionnaire incompletely. This research instrument used an online questionnaire via google form which has been tested for validity and reliability. There were 126 samples in this research. The sampling technique used a stratified random sampling, which the samples were distributed evenly in each semester and each semester consisted of 42 people.

3 Result

In **Table 1** showed that subjects by gender, there were 82 subjects(female) and 44 subjects(male). Based on semester level, subject were divided equally in each semester because the sampling technique used a stratified random sampling, there were 42 subjects in each semester's group. In this research, subject used various source of information to get information about inverted pyramid antenatal care, there were 2 subjects through print media, 31 subjects through electronic media, 5 subjects through friends, 11 subjects through health workers, and 77 subjects through more than one source, which more than one source mean a combination of print media, electronic media, friends and health workers.

Table 1 Frequency Distribution of Subject's Characteristic by Gender, Semester Level, and Source of Information

Variable	Frequency(N)	Percentage(%)
Gender		
Male	44	34,9
Female	82	65,1
Semester Level		
Third Semester	42	33,3
Fifth Semester	42	33,3
Seventh Semester	42	33,3
Source of Information		
Print Media	2	1,6
Electronic Media	31	24,6
Friend	5	4,0
Health Worker	11	8,7
More than one source Information	77	61,1

In **Table 2**, Majority of subjects had good knowledge about the importance of inverted pyramid antenatal care, there were 94 subjects(74,6%) with good knowledge.

Table 2 Frequency Distribution of Subject's Characteristic based on Knowledge Level

Level of Knowledge	Frequency(N)	Percentage(%)
Good	94	74,6
Sufficient	30	23,8
Deficient	2	1,6

In **Table 3**, based on the level of knowledge in each semester's groups, there were 28 subjects with good knowledge and 14 subject with sufficient knowledge in third semester's group. In the fifth semester's group, there were 32 subjects with good knowledge, 9 subjects with sufficient knowledge, and one subject with deficient knowledge. Then in seventh semester's group, there were 34 subjects with good knowledge, 7 subjects with sufficient knowledge, and one subject with deficient knowledge.

Table 3 Level of Knowledge Student of Faculty Medicine Universitas Sumatera Utara about the Importance of Inverted Pyramid Antenatal Care based on Semester Level

Variable	Level of Knowledge			Total
	Good	Sufficient	Deficient	Frequency(N)
Semester Level				
3rd semester	28	14	0	42
5th semester	32	9	1	42
7th semester	34	7	1	42

Table 4 Differences of Level Knowledge based on Semester Level

Variable	Level of Knowledge		Total	*p*-value
	Good	Deficient	Frequency	
Semester Level				
3rd semester	28	14	42	
5th semester	32	10	42	0,309
7th semester	34	8	42	

4 Discussion

According to this research, most of research's subjects had good knowledge about the importance of inverted pyramid antenatal care, there were 94 subjects(74,6%) with good knowledge, 30 subjects(23,8%) with sufficient knowledge, and 2 subjects(1,6%) with deficient knowledge.

When compared based on the level of knowledge in each semester's group, it was found that seventh semester's group had subjects with good knowledge were more than the fifth and third semester's groups. The level of education is one of the factors that was affected level of knowledge, it means the higher education is balanced with a lot of knowledge [7]. Then in seventh and fifth semester's groups, subjects had been received course material about inverted pyramid antenatal care on the Reproductive System block firstly compared to third semester's group. In addition, the subject level of knowledge was good because the various source of information used by subject which the mostly sources of information was more than one source (a combination of print media, electronic media, friends, and health workers), there were 77 subjects (61.1%).

In this research, it was found *p*-value = 0,309 ($p>0,05$) showed there was no significant difference between the level of knowledge about the importance of inverted pyramid antenatal

care based on level semester. Therefore, the overall level of knowledge about the importance of inverted pyramid antenatal care in third, fifth, and seventh semester's groups at Faculty of Medicine Universitas Sumatera Utara was categorized as good by involving more than one source of information. The results of this research was relevant to undergraduate thesis which conducted by Rumahorbo with 99 subjects, It was showed that in general the level knowledge between students in third semester, fifth semester, and seventh semester in Faculty of Medicine Universitas Sumatera Utara regarding the use of ultrasound in antenatal care is categorized as good [8].

5 Conclusion

Based on this research, it can be concluded that mostly of subjects get information about the importance of inverted pyramid antenatal care through more than one source. Overall, the description of students knowledge of generation 2018-2020 about the importance of inverted pyramid antenatal care categorized as good and there was no significant difference between the descriptions of knowledge in each semester's groups (3^{rd} semester, 5^{th} semester, and 7^{th} semester).

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