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Effectiveness Of Partograf Based On Computer System With Clinical Decision Making In Labor Process

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Abstract : Partograf is a record chart the progress of labor to monitor the State of mother and fetus as well as detect any abnormal childbirth and a guidance for doing surgical obstetrics. This research aims to prove the partograf based computer systems can be used as a tool of clinical decision-making, assessing the effectiveness of the difference and know the aspects of convenience, speed and relevance of the data on the partograf-based computer systems and conventional partograf in clinical decision-making in the process of childbirth. This research method using quasy alphabets experiment with comparative descriptive design, sampling by means of purposive sample amounted to 20 data inpartu mother by using computer-based partograf and mother inpartu 20 by using the partograf conventional (manual). Data analysis using univariate analysis and bivariat with Mann Whitney test. The results showed that the effectiveness on partograf-based computer system towards decision-making in the birthing clinic is to ease the median value aspect of 24, the median value of the speed aspect and the aspect of relevance the median value of 15 data, whereas in conventional partograf (manual) to the median value of the convenience aspect of 23, with the median value of the speed aspect and the relevance of the data with the median value of 13. The results of statistical tests by using test Mann Whitney p value obtained Value < 0.05 ($\alpha = 0.05 <$). This means that there is a difference in the effectiveness of partograf-based computer systems and conventional partograf in clinical decision making. Thus it can be concluded that partograf-based computer systems more effectively used as a tool of decision-making clinic compared to the use of conventional partograf (manual).

Keywords : Partograf, Computers, Conventional, Clinical Decision Making.

1. Introduction

Partograf is a record chart the progress of labor to monitor the State of mother and fetus as well as detect any abnormal childbirth and a guidance for doing surgical obstetrics. Partograf can be used as an early warning system that will assist decision making earlier when a mother should be consulted, expedited or terminated monitoring of the fetus and the mother during labor, as well as help find fetal problems or mother

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The results of a study conducted in Ethiopia stated that the use of partograf in monitor labor is very low at both the profession of midwifery, it is influenced by the attitudes and knowledge of health care personnel in the use of partograf, holding training for health care personnel would improve the quality of maternal use of partograf until the death of preventable early ^[20]. Based on some research, there were 36.4% of midwives, private practice (BPS) Member IBI (Bond Midwife Indonesia) North Surabaya branch obediently in front as well as rear fill partograf for each maternity patients. In addition in Purworejo in Central Java Province, there were 39.4% pomegranate midwives who perform logging in continue and properly on sheet partograf. Based on the results of the second can be obtained summary that compliance of a midwife in the context of the use of partograf is still relatively low ^[11].

During this analysis of decision making by midwives are based on recording in the partograf, however it is based on some research says that many midwives who do not complete the data in the partograf properly and systematically, by because it's in line with the technological developments as well as some related research information technology which can help facilitate the work of the health workforce especially midwives as well as accelerate the defacement, reporting and clinical decision making on labor, then needed a system of information-based technology to make it easier to analyze the situation and condition of the mother during labor and inpartu/help cope with 3T (too late, too late decisions referred to, Late got service) ^[5,15,16,17,21,2,18,8,19]. Based on the above, this research aims to analyze the partograf-based computer systems for clinical decision making in the process of childbirth.

2. Research Methods

Design Research

The methods used in the research was the quasy alphabets experiment by giving preferential treatment to the respondents and then given a post test. The research design used i.e. the comparative descriptive, this design will provide an overview of the research statement is used to find out if there is a difference against computer-based partograf and partograf conventional.

Location and Research Time

This research was conducted in the Clinics of Bara-Baraya Makassar in the birthing room starting October until December 2017.

Populations and Samples

The population in this research using population health public health agencies namely affordable Bara-Baraya Makassar. The sampling techniques used in this research is *purposive sample*, the number of samples taken, namely 40 labor inspection results data will be divided into 2 groups, 20 patients filled using conventional partograf and 20 patients filled out by using a computer-based partograf.

Data collection and Data analysis

Data collection is done using the library studies, observation and interview questionnaire. The researchers in this case using internal reliability, which analyzes data from a one time test results by way of engineering formulas *Alpha Cronbach* by using the *Windows SPSS Versi 20*, It is said if you have a constant r reliability more than 0.6. 15 reserved partograf based computer systems obtained *Alpha Cronbach* conventional partograf 0.8 and *Alpha Cronbach* partograf-based computer system 0.7, if seen from the second test result reliability of conventional partograf and partograf-based computer systems have a value of Cronbach Alpha is greater than r 0.6 konstran then it can be concluded that questionnaire reliability.

3. Results

Table 1 Shows that the results of the analysis to the problem of computer-based partograf found on inpartu's mother shows the duration of the average time is less than 5 minutes, this means that the decision-making on the issue of maternal clinic inpartu faster done so faster midwife knows the orphanage/actions that will be given to addressing the issue that occurs in birthing.

Table 1. Partograf Analysis Results Against Computer-Based Clinical Decision Making On Labor

Patient Data	Problem	Time (< 5 minutes)	Orphanage/action
1	DJJ over 100 x/minute: Tachicardia	2 minutes 3 seconds	Oxygen 2 liters/minute, left-leaning, observation
2	DJJ less than 100 x/minute: Bradichardia	2 minutes 5 seconds	Oxygen 2 liters/minute, left-leaning, observation
3	Amniotic mixed meconium	3 minutes 8 seconds	Tilted left, listen to the DJJ, preparation resuscitation, cf.
4	Old Partus	3 minutes 20 seconds	Install oxygen infusion of RL, 2 liter, oxytocin drip 1 Ampules, observation
5	Hypertension	3 minutes 7 seconds	Tilted left, drip infusion of RL, 4 grams of MgSo4 20% (5-8 minute), observations of the condition of the mother and fetus
6	Amniotic Rupture Early < 24 hours	3 minutes 25 seconds	The observation of the condition of mother and fetus
7	DJJ: Tachycardia	2 minutes 20 seconds	Oxygen 2 liters/minute, left-leaning, observation.

Source: Data primary

Table 2 shows that the results of the analysis using the conventional partograf (manual) to problems discovered on mother's inpartu shows average time duration of more than 5 minutes, this means that the time duration affects the speed in the process clinical decision making to the problem inpartu there's mother/actions that will be given to addressing the issue happens to be late.

Table 2. Conventional Partograf analysis results (manual) for Clinical decision making in the process of Labor

Patient Data	Problem	Time	Orphanage/Action
1	Old Partus	7 minutes 5 seconds	Install oxygen infusion of RL, 2 liter, oxytocin drip 1 Ampules, observation
2	DJJ over 100 x/minute: Tachicardia	6 minutes 20 seconds	Oxygen 2 liters/minute, left-leaning, observation.
3	DJJ over 100 x/minute: Tachicardia	6 minutes 32 seconds	Oxygen 2 liters/minute, left-leaning, observation.
4	Amniotic Meconial	6 minutes 20 seconds	Tilted left, listen to the DJJ, preparation of resuscitation.

Source: Data Primary

Table 3 shows that the description of the aspects of convenience, speed and relevance of aspect data against clinical decision-making by using computer-based partograf the median value obtained an average of 21 with average standard deviation 2.0 and third These aspects have the highest average value i.e. 25 and the lowest average value i.e. 20, so it can be believed that aspects of the ease, speed and the relevance of the data becomes very variable influence on decision making at the clinic the process of childbirth.

Table 3. Description of the effectiveness of this aspect of the ease, speed and relevance of data against clinical decision-making in the process of giving birth using partograf-based computer

Variable	N	Mean	Median	SD	Min –Max
Aspects Of Convenience	20	22,2	21	2,0	20-25
Aspects Speed	20	22,2	21	2,01	20-25
Aspects Of Relevance Data	20	22	21	2,0	20-25

Source: Primary Data, note: T pair Test

Table 4 shows that the description of the aspects of convenience, speed and relevance of aspect data against clinical decision-making using the conventional partograf (manual), on the median values obtained 23 amenity with standard deviation 2.2 and the highest value i.e., 24, the lowest value i.e. 20, then on the median values obtained speeds of 20 with the standard deviation of 1.2 and the highest value i.e. 21, lowest value i.e. 20, whereas on the relevance of the data obtained with a median value of 15 standard deviation of 1.3 and highest value i.e. the lowest value, namely 23 20. From the results of the statistical tests can be believed that the aspects of convenience more influential aspect compared to the speed and relevance of data against clinical decision-making in the process of childbirth.

Table 4. Description of the effectiveness of this aspect of the ease, speed and relevance of data against clinical decision making on labor by using conventional partograf (manual)

Variable	N	Mean	Median	SD	Min – Max
Aspects Of Convenience	20	23	23	2,2	20-24
Aspects Speed	20	20,3	20	1,2	20-21
Aspects Of Relevance Data	20	12,8	15	1,3	20-23

Source: primary Data, Note: T pair Test

Table 5 shows that the results of the data analysis using the Mann Whitney Test on the ease, speed and the relevance of the data aspects of the obtained values of p Value 0.05 means there are differences < effectiveness significantly between computer-based partograf and partograf conventional (manual) from the aspects of convenience, speed and relevance of aspect data against clinical decision-making in the process of childbirth.

Table 5. The effectiveness of computer-based partograf and partograf conventional (manual) for clinical decision making in the process of labor

Variable	N	p Value
Aspects of Conventional and computer Ease	20	0,01
Aspects of Conventional and computer Speed	20	0,01
Aspects of Conventional and computer Data Relevance	20	0,01

Source: Primary Data, Note: Mann Whitney Test

4. Discussion

The results showed that out of the 20 mothers inpartu there are 7 problems were found and analyzed using a computer-based, including partograf; There are two mothers who are having problems inpartu tachycardia, 1 mother inpartu experience *bradichardia*, 1 inpartu mother suffered amniotic mixed *meconium*, 1 mother old partus, 1 inpartu mother suffered hypertension, amniotic and mother broke early < 24 hours.

The results of the analysis of partograf-based computer system to problems found starting from the process of charging up to know/identify problems that occur indicating the average duration of the time less than 5 minutes. There are two mothers who are having problems inpartu tachycardia with time identification of 2 minutes 3 seconds and 2 minutes 20 seconds, 1 inpartu mother suffered bradycardia with identification of time 2 minutes 5 seconds, 1 inpartu mother suffered amniotic water mixed with meconium identification of time 3 minutes 8 seconds, 1 mother partus long time identification of 3 minutes 20 seconds, 1 mother experiencing hypertension with inpartu time identification of 3 minutes 20 seconds, and 1 mother of early amniotic rupture time 24 hours < identification 3 minutes 25 seconds. This means that clinical decision making to the problem of mother inpartu faster, so the orphanage/actions provided faster to deal with problems that occur in the process of giving birth.

Clinical decision making is the process of solving problems and as a determinant of the orphanage will be given to the patient, the decision should be accurate, comprehensive and secure, both for the patient and his family as well as the officer who gave the help [4].

In addition to skills, accuracy and speed are also very effect on clinical decision making, therefore a fast reponse time is required in identifying problems that occur. This is related to the research done by [22,14], who said that the faster response times health workers to the problem occurs then the more positive impact on a patient that is able to reduce the burden of financing, no complications, morbidity and mortality figures are lower because of the performance of the health workforce is very high and fast in delivering treatment. If response times slow health care personnel to the problem occurs it will negatively affect the patient's risk of complications i.e., disability even death.

Conventional partograf analysis results (manually) to problems found starting from the process of charging up to know/identify problems that occur indicating the average duration of more than 5 minutes. There is 1 inpartu mother suffered a long time with a partus identification 7 minutes 5 seconds, 1 mother experiencing hypertension with inpartu time identification 5 minutes 37 seconds, 1 inpartu mother who is having problems with the identification of the tachycardia 6 minutes 26 seconds, and 1 inpartu mother suffered amniotic water mingled with the meconium identification 6 minutes 20 seconds.

Conventional of partograf analysis results (manually) to problems found starting from the process of charging up to know/identify problems that occur indicating the average duration of more than 5 minutes, so the researchers assume that partograf conventional (manual) less fast in knowing conditions that occur in the mother so that less effective in helping midwife on clinic decision-making process.

The description of the aspects of convenience, speed and relevance of aspect data against clinical decision-making by using computer-based partograf the median value obtained an average of 21 with standard deviation average of 2.0 and a third aspect has the highest average value i.e. 25 and the lowest average value i.e., 20.

The data is processed through a model into the information, then the recipient receives that information, which means generating decisions and perform other actions that will make a number of the data returned. The data will be captured as input, returns are processed through a model and so on are called cycle information. This cycle is also called with the data processing cycle.

The data are processed with inpartu's mother partograf-based technology provides convenience, speed and generate the relevant data so that it can help identify problems as well as the clinical decision making process in birth. This is in accordance with the research conducted by [16] which says that the technology-based partopen is very easy to use to confront obstacles that occur in developing countries related to monitoring results recording labor.

The use of conventional partograf (manual) has been used since a long time in various health institutions particularly in the maternity room, so a very large impact of knowledge of midwives in using it. Partograf conventional (manual) gives the analysis manually against the actions of the decision-making process in birth clinic, one of the factors that influence in the use of conventional partograf is the level of compliance against the midwife its use so that the resulting analysis is sometimes less precise and give the effect on clinical decision making and action that will be performed. This is in accordance with the results of research conducted by ^[6], who said that knowledge of the use of midwives partograf as documentation of patient data is very good, while compliance in using partograf is still lacking.

The effectiveness of computer-based partograf and partograf conventional (manual) for clinical decision making on labor, based on the results of analysis demonstrate that data analysis using the Mann Whitney Test on the ease, the speed and relevance of data retrieved value p Value 0.05 means there are differences < effectiveness significantly between computer-based partograf and partograf conventional (manual) from the aspects of convenience, speed and relevance of aspect data against retrieval clinical decision on the process of childbirth.

Partograf can be used as an early warning system that will assist decision making earlier when a mother should be consulted, expedited or terminated monitoring of the fetus and the mother during labor, as well as help find fetal problems or the mother. Partograf is regarded as the "Early warning system" which will assist decision making earlier when a mother should be consulted, expedited delivery, or terminated labor ^[14,6]

The results of statistical tests on the speed aspect indicated that there is a difference in the effectiveness of partograf-based computer system with conventional partograf (manual), on computer-based partograf the median value obtained i.e. 21, while on partograf conventional (manual) median value obtained i.e. 20 means that midwives feel partograf-based computer systems faster compared to conventional partograf in taking decisions on birthing clinic.

Then the results of statistical tests on the relevance of the data shows that there is a difference in the effectiveness of partograf-based computer system with conventional partograf (manual), computer-based partograf on the retrieved value mediaan i.e. 21, whereas in partograf conventional (manual) median value obtained i.e. 15 means that partograf-based computer systems have a fairly accurate data relevance as compared to conventional partograf in clinical decision-making in the process of childbirth.

5. Conclusions And Suggestions

Based on the results and discussion then it can be inferred that there is a difference in the effectiveness of this aspect of the ease, speed and the relevance of the data on the partograf-based computer systems and conventional partograf in decision making at the clinic the process of childbirth. Therefore strongly advised so that the patient's data search system needs to be developed online

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