

Effectiveness of Digital Partographs on Clinical Decision-Making in the Delivery Process by Midwives

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ARTICLE INFORMATION

Received: 17, February, 2023

Revised: 23, November, 2023

Accepted: 28, November, 2023

KEYWORD

Labour; Digital partograph, Clinical Decision Making

Persalinan; Partograf digital, Pengambilan Keputusan Klinis

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DOI

<https://doi.org/10.36456/embrio.v15i2.6971>

ABSTRACT

A partograph can be used as an early warning system that will help make early decisions when a mother should be referred, expedite or end monitoring of the fetus and mother during childbirth, as well as help find the presence of fetal or maternal problems. A digital partograph is a form of application where the use of digital paper instead of manual paper for monitoring is authentically designed by researchers. The use of partographs through devices that can be used as a tool to assist with medical care and facilitate it during tracking by the workforce can be downloaded from the Google Play Store. The purpose of this study is to analyze the use of Android-based digital partographs for clinical decision-making in the delivery process. The research method used in this study is a comparative study by looking at the differences between the two variables studied, namely the use of digital partographs with manuals for clinical decision-making in the delivery process with a cross-sectional approach. The results of data analysis using Man Whitney on the aspects of ease, speed, and relevance of the data obtained a p-value of < 0.05 meaning that there is a significant difference between manual partographs and digital partographs from the aspects of ease, speed, and relevance of data to clinical decision making in the delivery process.

Partograf dapat digunakan sebagai deteksi dini yang akan membantu pengambilan keputusan lebih awal kapan seorang ibu harus dirujuk, dipercepat atau diakhiri pemantauan janin dan ibu selama persalinan, serta membantu menemukan adanya masalah janin atau ibu. Partograf digital adalah partograf bentuk aplikasi berbasis android, merupakan inovasi dari lembar partograf yang sudah ada yang berbentuk kertas, digunakan untuk pemantauan yang dirancang secara otentik oleh para peneliti. Penggunaan partograf melalui perangkat yang dapat diterapkan sebagai alat untuk membantu perawatan medis dan memudahkannya selama pemantauan tenaga kerja yang dapat diunduh di Google Play Store. Tujuan penelitian ini yaitu untuk menganalisis penggunaan partograf digital berbasis android untuk pengambilan keputusan klinik pada proses persalinan. Metode penelitian yang digunakan pada penelitian ini yaitu studi komparatif dengan melihat perbedaan antara kedua variable yang diteliti yaitu penggunaan partograf digital dengan manual terhadap pengambilan keputusan klinik pada proses persalinan dengan pendekatan cross-sectional. Hasil analisis data menggunakan Man whitney pada aspek kemudahan, kecepatan dan relevansi data diperoleh nilai p Value $< 0,05$ artinya ada perbedaan yang signifikan antara partograf manual dan partograf digital dari aspek kemudahan, kecepatan dan relevansi data terhadap pengambilan keputusan klinik pada proses persalinan.

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Introduction

Monitoring childbirth, mechanisms and care for childbirth is important to pay attention to in order to monitor the welfare of the mother and fetus (Irvani et al., 2015; Marwiyah & Pusporini, 2017).

Monitoring is carried out to assess the progress of childbirth, early detection of emergencies and to make clinical decisions, care, and medical measures (Ulfa, 2021; Abebe, 2013; Madden et al., 2016). A partograph is a tool recommended by WHO as the most standardized and most effective delivery monitoring tool. The partograph can be used as a detection system that will help make an early decision on when a mother should be referred, expedited or ended fetal and maternal monitoring during childbirth, as well as help find the presence of fetal or maternal problems (Lawrence et al., 2013; WHO, 2013; Khonje, 2012). The development of partographs is very rapid and the last modification in 2000 was made simpler and easier to use, the latent phase was eliminated and the depiction of the partograph started from the active phase i.e. at the time of the opening of the cervix 4 cm (Iravani et al., 2015). Partographs as a protocol in labor management have been shown to reduce long labor from 6.4% to 3.4%. Emergency Surgery cesarea section decreased from 9.9% to 8.3% and stillbirth from 0.5% to 0.3% (Jayne Marshall, 2014; Raven et al., 2012).

Midwives as health workers who are closest to the community and directly provide services to the community have an important role in relation to the forgery (Kepmenkes, 2020; Abebe, 2013). In accordance with the Midwife Competency standards, each Midwife must have basic skills in the use of partographs and labor monitoring so that it can improve the degree of health of mothers and babies and reduce MMR and AKB. However, the utilization of partographs is currently very low, with the following factors influencing its utilization: little or no knowledge of partographs (85.4%), unavailable (70%), staff shortage (61.5%), and the fact that it is time-consuming to use (30%) (Dorathy et al., 2018). The results of research conducted in Bandung Regency stated that there is no relationship or relationship between the length of work and midwife compliance when using a partograph, this happens because, in reality, midwives use a partograph not as a tool for monitoring the delivery process, but as more widely used as a reporting tool (Dorathy et al., 2018).

So far, the analysis of decision-making by midwives is based on recording in the partograph, however, based on several studies, it is said that there are still many midwives who do not complete the data in the partograph properly and systematically, therefore along with the development of technology and some research related to information technology that can help facilitate the work of health workers, especially can speed up recording, Reporting and making clinical decisions in the delivery process, an update of the partograph tool in the form of an android-based application is needed so that it can facilitate and analyze the situation and condition of the mother during childbirth and help overcome referral delays.

A digital partograph is a form of Application where the use of digital instead of manual paper for monitoring is authentically designed by researchers. the use of partographs through devices that can be applied as a tool to help with medical care and facilitate it during workforce monitoring which can be downloaded on the Google Play Store. To improve the quality of the digital partograph used, an updated version of the digital partograph has been released, namely version 3.0. In this version, there are bug fixes, design changes, additional info features, and additional features for backing up and restoring data. With the upgrade of the digital partograph application, it is hoped that users, especially midwives, can

use it more easily and quickly, and the quality will be better. Based on this, the purpose of this study is to analyze the use of Android-based digital partographs for clinical decision-making in the delivery process.

Method

The research method used in this study was a comparative study by looking at the differences between the two variables studied, namely the use of digital partographs with manuals for clinical decision-making in the delivery process with a cross-sectional approach. The research site at TPMB Tasikmalaya City, the time for research and data collection starts in January to August 2022. The instrument used is a questionnaire in the form of a statement choice test, with 5 alternative answers. The insufficiency of the statement test is carried out in the following way: Strongly agree (SS); 5, Agree (ST): 4, Almost agree (HS); 3, Disagree (TS): 2, Strongly Disagree (STS): 1.

The population in this study was Midwives with Independent Practice Places in Tasikmalaya City Area by taking purposive samples. The number of samples taken is 40 client data from the delivery examination which will be divided into 2 groups, namely, the case and control groups. The inclusion in this study is that labor mothers with active phases, and mothers with uncomplicated childbirth.

Midwives in intervention groups were given training on the use of digital partograph applications and control group midwives were given refreshing the use of manual (conventional) partographs. Then the midwife performs childbirth assistance using each type of partograph. After the two groups filled out the questionnaire as many as 30 questions (aspects of ease, security, speed, and relevance of the data). The data results were processed and analyzed using computer analysis, for testing the effectiveness of digital and manual partographs using Mann Whitney.

Results

Table 1. An Overview of The Effectiveness of The Aspects of Ease, Speed, and Relevance of Data to Clinical Decision-Making in The Delivery Process Using Manual Partographs and Digital Partographs

	Variable	n	Median	Min-Maks
Manual Partograph	Ease Aspects	20	23	20-24
	Speed Aspect	20	20	20-21
	Data Relevance Aspects	20	13	12-15
Digital Partograph	Ease Aspects	20	24	20-25
	Speed Aspect	20	21	20-24
	Data Relevance Aspects	20	15	12-15

Source: personal data 2022

Table 1 shows that the description of the aspects of ease, speed, and relevance of the data to clinical decision-making using a manual partograph has a median value on the ease aspect of 23, speed 20, and data relevance of 13, while in the use of a digital partograph obtained the median value of the convenience aspect 24, speed 21, and data relevance 15.

Table 2. Effectiveness of Manual Partographs and Digital Partographs towards Clinical Decision-Making in the Delivery Process

Aspects of Decision-Making	<i>n</i>	<i>p</i>
Ease Aspects of Manual Partograph and Digital Partograph	20	0.017
Speed Aspects of Manual Partograph and Digital Partograph	20	0.017
Relevance Aspects of Manual Partograph and Digital Partograph Data	20	0.017

Source: personal data 2022

Table 2 shows the results of data analysis using Man Whitney on the aspects of ease, speed, and relevance of the data obtained p value < 0.05 meaning that there is a significant difference between manual partographs and digital partographs from the aspects of ease, speed, and relevance of data to clinical decision making in the delivery process.

Discussion

Clinical decision-making is a problem-solving process and as a determinant of the care to be provided to the patient, the decision must be accurate, comprehensive, and safe, both for the patient and his family and the officer providing relief care. In addition to skills, accuracy and speed of time also greatly affect the observation of clinical decisions, and the importance of quick response in screening problems that occur in the process of childbirth (Jayne Marshall, 2014). Aspects The decision-making taken includes the convenience aspect, the speed aspect, and the data relevance aspect, the results showed that the data analysis using the Mann-Whitney Test on the aspect of ease, speed, and relevance of the data obtained a p -value of < 0.05 means that there is a significant difference in effectiveness between digital and manual partographs. WHO currently recommends the use of a developmental childbirth monitoring instrument from the partograph, for the prevention of unnecessary interventions during labor, and improved labor management known as The Labour Care Guide (World Health Organization, 2020).

Midwives as delivery helpers should be aware of partographs used in normal childbirth assistance and that normal childbirth care is sought to maintain survival and provide a high degree of health for mothers and babies through integrated and complete efforts with minimal intervention for the principle of safety and quality of service maintained at an optimal level (Abebe, 2013). With a partograph, it is hoped that it can help midwives make clinical decisions (Kepmenkes, 2020; World Health Organization, 2018).

Partographs, both manual and digital, are graphic records of labor progress to monitor the condition of the mother, fetus and the progress of childbirth detect any problems or deviations, and become a guide to carry out care or other obstetric actions. The android-based digital partograph is designed by researchers to make it easier for midwives or other health care providers to monitor the delivery process It can be used at any time and is easy to carry and quick access because it is installed on the midwife's cellphone.

The use of partographs as an early warning system will help make early decisions to determine when a mother should be referred, accelerated, or ended by the management of the fetus and mother during childbirth (World Health Organization, 2020). The use of a partograph at the time of childbirth assistance by the midwife is very important. Midwives who do not comply with the use of partographs

have an impact on the health of the mother and fetus. The impact of negligence in filling the partograph is the non-detection of abnormalities that may arise at the time of delivery, such as fetal distress, hypertension, dystocia labor, and bleeding because 15% of complications in childbirth are unpredictable (Marwiyah & Pusporini, 2017).

In this case, the midwife is one of the health workers who are directly involved in childbirth assistance so behavior and actions when providing care are very important, but it is still found that midwives do not use a partograph in monitoring childbirth. From the results of the researchers' survey, there are still some midwives who conduct an examination of the progress of childbirth (opening) not directly filling in the partograph sheet but on observation paper or patient status. In the digital partograph application, the menu displayed is made in such a way as the WHO partograph, covering labor monitoring from the aspects of mother, baby, and labor progress. Data input is done digitally, if there are abnormal data findings, there will be signs of problems in maternal labor, so that midwives can quickly respond to handle these problems.

Conclusions

There is a significant difference between manual partographs and digital partographs in the aspects of ease, speed, and relevance of data to clinical decision-making in the delivery process. To support further data, further research is needed on the effectiveness of the use of digital partographs on the quality of obstetric care services in childbirth.

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