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Evaluation of Digital Partograph Application Case Study on Normal Labor by Community Midwife

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Dear Editor,

I hope this message finds you well. I am writing to submit my manuscript titled “Evaluation of Digital Partograph Application Case Study on Normal Labor by Community Midwife” for consideration for publication in the International Conference on Computer, Science, Engineering and Technology (ICComSET).

I confirm that this manuscript is original, has not been published elsewhere, and is not currently under review by any other journal. All co-authors have reviewed and approved the manuscript and its submission to ICComSET.
I believe that our research will offer valuable insights and contribute to the ongoing discourse. We are excited about the opportunity to share our findings with the ICComSET audience and look forward to your feedback.
Attached to this email, you will find the manuscript along with all required documents, including the cover letter and any additional forms needed for the submission process.

Thank you for considering our work for publication. We look forward to your response.

Best regards,

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EVALUASI APLIKASI PARTOGRAF DIGITAL STUDI KASUS PADA PERSALINAN NORMAL OLEH BIDAN DESA DI KECAMATAN SINGAPARNA TAHUN 2017

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ABSTRACT

Midwives have an important role in health services. One effort that can be made to contribute to the quality of health care is with the use of partograph at the time of delivery. The use of partograph in labor is still low, that is 25% Hospital, Community Health Centers 45%, and Maternity Clinic54%. The low use of partograph because it is considered difficult and takes a long time, for it needs the effort of using partograph become easier, faster, without losing the essence of partograph function. Digital partographs become one of the solutions for the use of partograph at the time of birth to be increased. The purpose of the study was to evaluate digital partograph applications, assess the usefulness of digital partographs, analyze the behavioral changes of partograph usage, and identify stakeholder support in the use of digital partographs.

Qualitative research method with case study approach. Primary research subject is community midwife, subject of secondary research is head of health center, midwife of health center manager, Head of Health Office of Tasikmalaya Regency, and Chairman of IBI Branch of Tasikmalaya Regency. Sampling technique using Snowball sampling. Data collection with in-depth interviews, FGDs and document review. Analyze data with techniques, create keywords, categorize and create themes.

Research shows that the information system contained in the digital partograph has met the aspect of system quality, information quality and user satisfaction. The application of digital partograph has fulfilled the use in clinical decision making, monitoring the progress of labor, documentation, monitoring of mother and fetal condition, digital partographs, and support from stakeholders for digital partograph applications.

Based on the results of the study concluded digital partograph applications can already be used as a tool to monitor the progress of birth and already accessible on Google Playstore. With the digital partograph, there is a change in midwife behavior in its use.

Keywords: Case Study, Community midwife, Digital Partograph, Normal Delivery.

PENDAHULUAN

Bidan sebagai salah satu tenaga kesehatan mempunyai peranan yang penting dalam program kesehatan, dan menjadi ujung tombak pelayanan kesehatan di masyarakat. Peran bidan sangat berpengaruh terhadap kualitas pelayanan, salah satu upaya strategis yang dapat dilakukan bidan untuk berkontribusi terhadap kualitas pelayanan kesehatan adalah dengan menggunakan partograf dalam melakukan pemantauan proses persalinan. Partograf dapat membantu bidan mengenali persalinan berjalan normal atau mendeteksi secara dini terjadinya penyulit.[1]

Partograf merupakan suatu alat untuk memantau kemajuan persalinan yang direkomendasikan World Health Organization (WHO) dan mampu melakukan pemantauan terhadap kemajuan persalinan, kondisi ibu, kondisi janin, dan setiap asuhan yang dilakukan pada saat persalinan, dan yang paling utama adalah mampu mendeteksi penyulit yang terjadi selama persalinan, sehingga dapat dicapai kondisi yang diharapkan yaitu *well born baby* dan *well health mother*.[2,3,4] Hal ini sesuai dengan hasil penelitian yang dilakukan oleh Neal Jeremy L dan Lowe Nancy K mengenai *Physiologic Partograf To Improve Birth Safety And Outcomes Among Low-Risk, Nulliparous Women With Spontaneous Labor Onset* yang yang hasilnya menunjukan bahwa penggunaan partograf dengan aman akan membatasi diagnosis distosia selama tahap pertama persalinan.[5]

Sampai saat ini penggunaan partograf dalam persalinan masih sangat rendah. Berdasarkan Kajian Kualitas Kesehatan Ibu dan Bayi yang dilakukan oleh Kementrian Kesehatan, WHO dan HOGSI tahun 2012 didapatkan hasil fasilitas pelayanan kesehatan yang menggunakan partograf dalam pertolongan persalinan masih rendah, yaitu 25% di Rumah Sakit, 45% di Puskesmas, dan 54% di Klinik Bersalin.[6] Hal ini sejalan dengan hasil monitoring dan evaluasi (monev) yang dilakukan oleh Bidan Koordinator Dinas Kesehatan Kabupaten Tasikmalaya pada tahun 2014, dari 490 bidan yang tersebar di wilayah Kabupaten Tasikmalaya hanya 20% bidan yang lengkap dan benar dalam dalam pengisian. Dari hasil monev tersebut sebagian besar bidan hanya mendokumentasikan partograf pada

beberapa persalinannya saja dan dalam pengisiannya pun tidak lengkap. Bahkan hasil survei memberikan gambaran sebagian besar bidan mendokumentasikan partograf setelah persalinan selesai.[7]

Banyak faktor yang memengaruhi bidan dalam penggunan partrograf. Hasil penelitian tentang *The Use Of The Partograf In Labor Monitoring: A Cross-Sectional Study Among Obstetric Caregivers In General Hospital, Calabar, Cross River State, Nigeria*, yang dilakukan oleh Udeme Asibong, et all menunjukan bahwa pengetahuan tentang partograf, ketersediaan partograf, keterampilan tenaga serta pelatihan merupakan faktor yang berpengaruh tehadap penggunaan partograf.[8]

Pengisian partograf diperlukan pemahaman, ketelitian, dan kecermatan, agar hasil dari pengisian tidak salah, dan akhirnya seorang bidan dapat memutuskan keputusan klinik yang akan diambilnya. Meskipun demikian, tidak sedikit bidan yang menilai bahwa pengisian partograf tersebut sulit dan membutuhkan waktu lama, sehingga pengisian partograf terkesan "gugur kewajiban" dan "asal ada", yang akhirnya berdampak pada kesalahan bidan dalam membuat keputusan klinik. Fenomena yang telah dijelaskan tersebut, memperlihatkan bahwa penggunaan partograf belum sepenuhnya berjalan sesuai prosedur. Bidan sebenarnya sudah mengetahui prosedur tersebut, namun belum sepenuhnya melakukan dengan baik, dalam arti bidan tidak menggunakan partograf dengan lengkap, benar dan tepat waktu. Padahal, apabila penggunaan partograf dilakukan secara benar oleh bidan maka kemungkina besar ibu dan bayinya akan mendapatkan asuhan persalinan secara aman, adekuat dan tepat waktu, serta membantu mencegah terjadinya penyulit yang dapat mengancam keselamatan jiwa mereka. [8,9]

Melihat berbagai permasalahan di atas, maka peneliti mencoba membuat suatu aplikasi bernama **"Partograf Digital"**. Partograf digital didisain untuk menyelesaikan berbagai permasalahan yang terjadi terkait dengan penggunaan partograf. Beberapa peneliti sebelumnya telah mengembangkan partograf dalam bentuk lain, seperti penelitian yang telah dilakukan oleh Bhatt *et.al.* yang membuktikan bahwa penggunaan partograf elektonik (e-partograf) lebih cepat dibandingkan dengan partograf

"manual".[10] Hasil penelitian Rahman *et.al.* membuktikan bahwa e-partograf memiliki tingkat pengguna yang lebih tinggi daripada kertas partograf. [11] Hasil penelitian *Underwood* et.al. membuktikan bahwa *PartoPen* (partograf berbentuk pulpen) mudah digunakan dibandingkan dengan partograf kertas.[12]

Aplikasi partograf digital yang dikembangkan peneliti menggunakan media telepon genggam berbasis *smartphone*. Partograf digital ini dilengkapi dengan sistem *alarm* sebagai notifikasi jika terjadi penyulit selama pemantauan persalinan, berikut dengan tatalaksana prarujukan yang harus dilakukan bidan apabila terjadi penyulit persalinan. Partograf digital dirancang untuk memudahkan bidan dalam melakukan pemantauan kemajuan persalinan, khususnya dalam melakukan pengambilan keputusan klinik saat ditemukan penyulit pada saat persalinan.

Sistem informasi yang dirancang dalam partograf digital mengacu kepada model DeLone and McLean, yang mana disain aplikasi partograf digital sangat memperhatikan kualitas sistem, kualitas informasi, kualitas layanan, penggunaan, serta kepuasan pengguna.[15] Dengan adanya aplikasi ini diharapkan bidan akan lebih mudah dalam melakukan pemantauan persalinan, sehingga terjadi perubahan perilaku dalam pengisian partograf, karena salah satu terjadinya perubahan perilaku adalah dengan adanya stimulus berupa partograf digital. [16]

TUJUAN PENELITIAN

Penelitian ini bertujuan untuk:

1. Melakukan evaluasi terhadap aplikasi partograf digital
2. Melakukan analisis terhadap perubahan perilaku dalam penggunaan partograf
3. Mengidentifikasi dukungan stakeholder dalam penggunaan partograf digital pada persalinan normal oleh bidan.

METODE PENELITIAN

Penelitian yang dilaksanakan oleh peneliti merupakan penelitian yang bersifat kulitatif dengan pendekatan studi kasus.[43] Pendekatan ini digunakan untuk mengeksplorasi permasalahan sehingga dapat menggambarkan atau memaparkan lebih detail mengenai penggunaan partograf digital.

Subjek dalam penelitian kualitatif disebut dengan subjek penelitian.[42] Subjek penelitian Primer pada penelitian ini adalah bidan desa, dan subjek

penelitian sekundernya adalah kepala puskesmas, bidan koodinator Puskesmas, Kepala Dinas Kesehatan Kabupaten Tasikmalaya, dan Ketua IBI Cabang Kabupaten Tasikmalaya.

Teknik pengambilan sampel dalam penelitian ini adalah menggunakan *Snowball sampling*, jadi dalam penentuan sampel peneliti akan memilih orang yang akan dijadikan sampel yang dipertimbangkan akan memberikan informasi, selanjutnya berdasarkan data atau informasi yang diperoleh dari sampel sebelumnya, peneliti dapat menetapkan sampel lainnya yang dipertimbangkan akan memberikan data lebih lengkap [43-45] pengambilan sampel berhenti sampai mencapai saturasi data dan tidak dapat lagi dilakukan pengkodean atau tidak ada lagi data baru yang terkumpul.[46]

Instrumen utama dalam penelitian ini adalah peneliti sendiri, mulai dari perencana, pelaksana pengumpul data, analis, penafsir data sehingga pada akhirnya menjadi pelapor dari hasil penelitian. Setelah fokus penelitian menjadi jelas maka kemungkinan akan dikembangkan instrumen penelitian sederhana, yang diharapkan dapat melengkapi data dan membandingkan dengan data yang telah ditemukan melalui wawancara. Dalam melaksanakan penelitian ini, peneliti akan terjun ke lapangan sendiri untuk melakukan pengumpulan data, menganalisis, dan membuat kesimpulan, dengan instrumen tambahan berupa pedoman wawancara, lembar ceklist, perekan suara, dan catatan lapangan.

HASIL

Berikut hasil penelitian yang didapatkan:

1. Sistem informasi

Sistem informasi saat ini telah berkembang sangat pesat. Penerapannya dapat menjadi sangat penting dan sangat membantu bagi pekerjaan manusia khususnya bidan.

Di dunia kesehatan khususnya kebidanan, pemanfaatan teknologi informasi dapat meningkatkan kualitas pelayanan agar lebih efektif dan efisien. Salah satu solusi yang ditawarkan terkait dengan sistem informasi dalam bidang kebidanan adalah dengan adanya partograf digital yang diimplementasikan melalui aplikasi *smartphone*. Dengan partograf digital, setiap pemantauan persalinan kala I fase aktif dapat dilakukan secara mudah, kelebihan yang lain adalah

terdapat notifikasi yang bunyi ketika terjadi penyulit persalinan.

Beberapa model untuk mengukur tingkat kesuksesan sistem informasi telah dikembangkan oleh banyak peneliti [4,5,6]. Dari beberapa model kesuksesan sistem informasi, yang mendapat perhatian lebih dari para peneliti adalah model DeLone and McLean, yang selanjutnya disempurnakan menjadi Delone and Mclean Models yang menyebutkan bahwa *information quality*, *system quality* dan *service quality* akan berpengaruh positif pada pengguna [7,8], penelitian tersebut didukung pada penelitian yang dilakukan oleh J.Iivari yang menguji secara empiris model DeLone dan McLean tersebut, hasilnya membuktikan bahwa kesuksesan sistem informasi dipengaruhi oleh kualitas sistem informasi dan kualitas informasi yang dihasilkan dari sistem yang bersangkutan.

Kualitas informasi mengukur kualitas keluaran dari sistem informasi. Sama halnya dengan kualitas sistem, kualitas informasi yang dimaksud adalah kualitas informasi yang diukur secara subjektif oleh pemakai. Skala pengukuran yang digunakan dalam penggunaan aplikasi partograf ini adalah sebagai berikut: kelengkapan (completeness), ketepatan (precision), keandalan (reliability), data selalu diperbaharui (currency), dan bentuk dari keluaran (format of output). [20]

Partograf digital memuat semua data yang ada dalam partograf manual, subjek sudah merasa data yang ada dalam pertograf digital mewakili hasil pemantauan yang dilakukan saat persalinan. Hal ini menunjukan data yang ada dalam partograf digital lengkap sesuai dengan kebutuhan bidan. Pengisian partograf digital dilakukan dengan cara memasukan data hasil observasi ke menu yang telah disediakan, dan kemudian hasilnya bisa dilihat di kesimpulan. Data yang dimasukan tadi secara otomatis tersimpan, dan kesimpulan akhir sesuai dengan partograf manual. Hal ini menunjukan ketepan aplikasi partograf digital dalam menyimpan data, sehingga hasil akhir seperti partograf manual. Kesimpulan akhir merupakan bentuk dari keluaran aplikasi. Melihat dari aspek kualitas informasi, partograf digital ini sudah sangat memenuhi, selain sangat mudah dalam penggunaan, partograf digital ini sangat dibutuhkan agar bidan lebih termotivasi dalam pengisian.

Menu yang terdapat dalam aplikasi partograf digital, sudah sesuai dengan kebutuhan data observasi. Untuk pembuatan menu ini disesuaikan dengan data yang terdapat dalam pertograf manual. Untuk isi yang termuat dalam partograf ini sudah mewakili kebutuhan bidan.

Kualitas sistem digunakan untuk mengukur kualitas informasi sistem itu sendiri, baik software maupun hardware. Kualitas sistem adalah performa dari sistem yang merujuk pada seberapa baik kemampuan perangkat keras, perangkat lunak, kebijakan, prosedur dari sistem informasi dapat menyediakan informasi kebutuhan pengguna. Kualitas sistem diukur secara subjektivitas oleh pemakai, sehingga kualitas sistem yang digunakan adalah kualitas sistem persepsian (*perceived system quality*).[20,19] Berdasarkan hasil yang diperoleh melalui wawancara, subjek penelitian sangat mudah menggunakan partograf digital, namun dari beberapa hasil uji coba masih terdapat revisi aplikasi, yang saat ini telah dilakukan revisi. Subjek penelitian telah mencoba kembali hasil aplikasi yang telah diperbaiki dengan menggunakan kasus yang dibuat peneliti. Hasil akhir menunjukan bahwa aplikasi sudah layak untuk digunakan. dan pada saat ini aplikasi partograf dogital sudah dapat diakses di *Google play store*.

Kepuasan pengguna *(User Satisfaction)* dihubungkan ke respon penerima dari penggunaan keluaran dari sistem informasi. Dalam penelitian ini bidan sebagai pengguna partograf digital merasa puas dengan aplikasi yang telah dibuat, terlebih aplikasi ini meningkatkan motivasi dalam pengisian partograf.

Kualitas sistem yang dibangun dalam aplikasi partograf digital ini meliputi ketepatan aplikasi dalam mengelola data yang dimasukan berdasarkan hasil obeservasi, sehingga menghasilkan kesimpulan yang sesuai seperti mengisi partograf secara manual. Indikator lain kualitas sistem aplikasi partograf digital ini adalah kemudahan dalam menggunakannya, serta menu yang dibuat sesuai dengan kebutuhan data yang akan diinput. [20]

2. Kegunaan partograf digital

Hasil penelitian menunjukan bahwa partograf digital ini mempunyai kegunaan sebagai pengambilan keputusan klinik. Dimana pada saat subjek melakukan observasi dengan menggunakan partograf

digital ini, kemudian memasukan data yang termasuk kategori penyulit, maka secara otomatis akan muncul bunyi notifikasi.

Hasil yang didapat dari observasi subjek terdapat 2 kssus yang dirujuk karena peyulit (S 3 dan S 4). Pada saat data dimasukan ke dalam aplikasi dan ternyata kesimpulan menunjukan pembukaan telah melewati garis waspada (S 4), maka notifikasi alarmnya berbunyi. Notifikasi yang muncul saat terjadi penyulit persalinan dijadikan sebagai dasar pengambilan keputusan klinik untuk melakukan rujukan. Dengan adanya notifikasi ini membantu bidan dalam mengambil keputusan secara tepat dan cepat, sehingga hal ini dapat berdampak kepada kualias pelayanan khususnya dalam persalinan.

Hasil partograf ini dapat di cetak dengan hasil menyerupai partograf manual, dapat disimpan sebagai arsip pendokumentasian. Dilihat dari aspek kegunaan, partograf ini sudah memenuhi kegunaan dalam hal pengambilan keputusan klinik, pemantauan kemajuan persalinan, pendokumentasian, pemantauan kondisi ibu dan janin.[22]

3. Perubahan perilaku

Dalam penelitian ini perubahan perilaku yang terjadi disebabkan oleh **kesediaan individu untuk berubah** karena adanya suatu stimulus berupa inovasi dalam bentuk partograf digital, maka yang terjadi adalah subjek penelitian sangat cepat untuk menerima inovasi atau perubahan, yang biasanya melakukan pengisian partograf setelah selesai persalinan, sekarang terjadi perubahan perilaku menjadi saat melakukan observasi. Hal ini tentunya memberikan dampak positif khususnya dalam kualitas asuhan pada persalinan.

4. Dukungan Stakeholder

Indikator dukungan *stakeholder* dalam penelitian ini adalah proses sosialisasi ke khalayak luas. Adanya partograf digital di apresiasi oleh para *stakeholder* utamanya diharapkan dengan adanya partograf digital ini mampu menurunkan kasus kematian khususnya di Kabupaten Tasikmalaya. Dinas kesehatan kabupaten Tasikmalaya dalam hal ini diwakili oleh Kepala bidang kesehatan masyarakat mengungkapkan dengan adanya partograf digital diharapkan akan membantu dalam proses rujukan, memudahkan bidan dalam proses rujukan.

Untuk itu sebagai upaya bentuk dukungan yang diberikan, dinas kesehatan akan membantu proses advokasi agar partograf digital ini menjadi bagian dari *SIRESIK*. SIRESIK merupakan program rujukan yang aada di kabupaten Tasikmalaya, dengan sisitem on line.

Dukungan juga diberikan dari ketua IBI cabang Kabupaten Tasikmalaya, dengan adanya partograf digital menurut ketua IBI akan meningkatkan kepatuhan dalam pemantauan persalinan. Karena masih banyak bidan yang tidak mengisi partograf pada saat persalinan. Namun tentu saja partograf digital ini masih banyak yang perlu dilakukan, yaitu dengan tahapan selanjutnya yaitu melakukan penelitian uji efektivitas.

Kepala Puskesmas Singaparna berikut dengan jajarannya, akan terus memotivasi bidan dalam penggunaan partograf digital, dan setiap laporan persalinan harus mengirimkan aplikasi melalui wa group kepada bidan koordinantor.

SIMPULAN

1. Sistem informasi yang terdapat dalam partograf digital sudah memenuhi aspek kualitas sistem, kualitas informasi dan kepuasan pengguna. Hasil penelitian menunjukan bahwa aplikasi partograf digital sudah layak untuk digunakan, dan untuk dapat mengakses aplikasi ini, pengguna bisa download melalui *google playstore* dengan cara ketik "**Partrograf Digital**".
2. Aplikasi partograf digital sudah memenuhi kegunaan dalam hal pengambilan keputusan klinik, pemantauan kemajuan persalinan, pendokumentasian, pemantauan kondisi ibu dan janin. Hasil penelitian menunjukan bahwa notifikasi alarm berbunyi pada saat terdeteksi terjadi partus lama, yaitu pembukaan melewati garis waspada.
3. Terdapat perubahan perilaku dalam penggunaan partograf digital, yang mana subjek penelitian biasanya mengisi partograf manual setelah persalinan selesai, pada penggunaan partograf digital, bidan mengisi pada saat obeservasi persalinan.
4. Dukungan stakeholder berupa kebijakan yang ditetapkan di puskesmas Singaparna, bahwa setiap observasi persalinan kala I fase aktif harus menggunakan partograf digital. Pengurus Cabang

IBI Kabupaten Tasikmalaya akan membantu melakukan advokasi ke Pengurus Daerah dan Pengurus Pusat, agar partograf digital menjadi salah satu kajian dalam Midwifery Up Date. Dinas Kesehatan Kabupaten Tasikmalaya akan melakukan advokasi ke Dinas Kesehatan Provinsi agar aplikasi partograf digital ini menjadi bagian dalam sistem rujukan SIRESIK.

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Manuscript for revision

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04 Januari 2019 at 10:03

Dear Mrs. Widya Maya Ningrum:

Thank you for submitting your article titled “Evaluation of Digital Partograph Application Case Study on Normal Labor by Community Midwife” Number of ABS: ABS-105. Upon review, we have identified a few areas that require revisions. Please find the details of the revisions in the attached file.

Kindly make the necessary revisions and resubmit the updated article at your earliest convenience. If you have any questions or need further clarification, please feel free to contact us.

Thank you for your attention and cooperation. We look forward to receiving the revised version of your article.

Best regards,

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Evaluation of Digital Partograph Application Case Study On Normal Labor by Community Midwife

Widya Maya Ningrum[1], Hidayat Wijayanegara[2], Suryani Soepardan[3]
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Abstract. The use of partograph in labor is still low, that is 25% Hospital, Community Health Centers 45%, and Maternity Clinic54%. The low use of partograph because it is considered difficult and takes a long time, for it needs the effort of using partograph become easier, faster, without losing the essence of partograph function. Digital partographs become one of the solutions for the use of partograph at the time of birth to be increased. The study has been done by using qualitative research method with case study approach. Sampling technique using Snowball sampling. Data collection with in-depth interviews, FGDs and document review. Analyze data with techniques, create keywords, categorize and create themes. Research shows that the information system contained in the digital partograph has met the aspect of system quality, information quality and user satisfaction. The application of digital partograph has fulfilled the use in clinical decision making, monitoring the progress of labor, documentation, monitoring of mother and fetal condition, digital partographs, and support from stakeholders for digital partograph applications. Based on the results of the study concluded digital partograph applications can already be used as a tool to monitor the progress of birth and already accessible on Google Playstore. With the digital partograph, there is a change in midwife behavior in its use.

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Commented [A.2]: It would be beneficial to briefly explain what a digital partograph is before stating it as a solution.

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1. Introduction

Midwives as one of the health workers have an important role in health programs and become the spearhead of health services in the community. The role of midwives is very influential on the quality of service, one of the strategic efforts that midwives can do to contribute to the quality of health services is to use partographs in monitoring the labor process. Partograph can help midwives recognize normal labor or detect early complications.[1]

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Partograph is a tool to monitor the progress of labor recommended by the World Health Organization [WHO] and is able to monitor the progress of labor, the condition of the mother, the condition of the fetus, and any care taken at the time of labor, and most importantly is able to detect complications that occur during delivery, so that the expected conditions can be achieved, namely *well-born baby* and *well health mother*. [2][3][4] This is consistent with the results of a study conducted by Neal Jeremy L and Lowe Nancy K regarding *Physiologic Partograph Birth Improvement Safety and Outcomes Among Low-Risk, Nulliparous Women With Spontaneous Labor Onset* which results showed that use of partograph safely will limit the diagnosis of dystocia during the first stage of labor.[5]

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Until now the use of partograph in labor is still very low. Based on the Maternal and Infant Health Quality Study conducted by the Ministry of Health, WHO and HOGSI in 2012, the results of health service facilities using partograph in labor assistance were still low, at 25% in hospitals, 45% in health centers and 54% in maternity clinics. [6] This is in line with the results of the monitoring and evaluation [monev] conducted

by the Midwives Coordinator of the Tasikmalaya District Health Service in 2014, from 490 midwives spread across the Tasikmalaya Regency area, only 20% of midwives were complete and correct in filling. From the results of the monitoring and evaluation, most midwives only documented partographs in some of their labor, and the filling was incomplete. Even the results of the survey illustrated that the majority of midwives documented partograph after labor has completed.[7]

Many factors influence midwives in their use of partograph. The results of the study on *The Use Of The Partograph In Labor Monitoring: A Cross-Sectional Study Among Obstetric Caregivers In General Hospital, Calabar, Cross River State, Nigeria*, conducted by Udeme Asibong, et al show that partograph knowledge, availability partograph, labor skills, and training are factors that influence the use of partograf.[8]

In filling Partograph requires understanding and accuracy, so that the results of filling are not wrong, and finally, a midwife can decide on the clinical decision to be taken. Even so, not a few midwives considered that filling partographs was difficult and took a long time, so filling partographs seemed to "fall out of obligation" and "as long as they existed", which ultimately had an impact on midwives' mistakes in making clinical decisions. The phenomenon that has been explained showed that the use of partograph has not been fully carried out according to the procedure. The midwife actually knows the procedure but has not fully done, it means that the midwife does not use partograph completely, correctly and on time. In fact, if partograph used correctly by the midwife, it is likely that the mother and baby will get a safe, adequate and timely labor care, and help prevent the occurrence of complications that can threaten the safety of their lives. [8][9]

Looking at the various problems above, the researcher tried to make an application called **"Digital Partograph"**. Digital Partograph is designed to solve various problems that occur related to partograph use. Some researchers have previously developed partographs in other forms, such as research conducted by Bhatt *et al.* which proved that the use of partographs electronic [e-partographs] is faster than "manual" partographs.[10] The results of Rahman's research *et.al.*. proved that e-partograph has a higher user level than partograph paper. [11] Results of *Underwood* et al. proved that *PartoPen* [pen-shaped partograph] is easy to use compared to paper partograph. [12]

Digital partograph application is developed by researchers using smartphone-based cellphone media. This digital partograph is equipped with a system *alarm* as a notification if there is a complication during labor monitoring, along with a pre-referral procedure that the midwife must perform if labor complications occur. Digital Partograph is designed to make it easier for midwives to monitor the progress of labor, especially in making clinical decisions when complications are found.

The information system designed in the digital partograph refers to the DeLone and McLean model, in which design digital partograph applications very concerned about system quality, information quality, service quality, usage, and user satisfaction.[13] With this application, it is expected that midwives will be easier to monitor labor, so there is a change in behavior in filling partographs, because one of the behavior changes occur due to a stimulus in the form of a digital partograph. [14]

2. Research Objectives

This study aims to:

- Evaluate the application of digital partographs
- Conduct an analysis of behavior changes in use of partograph
- Identify stakeholder support in the use of digital partographs in normal labor by midwives.

3. Research Methods

Research carried out by researchers is qualitative research with a case study approach.[15] This approach is used to explore problems so that they can describe or explain in more detail the use of digital partographs. Subjects in qualitative research are called research subjects.[16] Primary research subjects in this study were village midwives, and secondary research subjects were the head of the puskesmas [public health center], the coordinator of the Puskesmas, the Head of the Tasikmalaya District Health Office, and the Chairperson of the Tasikmalaya Regency IBI Branch. The sampling technique in this study is to use

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Snowball sampling, so in determining the sample, the researcher will choose the person to be sampled who is considered to be providing information, then based on the data or information obtained from the previous sample, the researcher can specify the other samples considered to provide data more complete [15][17] sampling stops until it reaches data saturation and can no longer be encoded or no new data is collected.[18] The main instruments in this study are the researchers themselves, ranging from planners, implementers of data collectors, analysts, data interpreters so that eventually they become reporters of the results of the research. After the focus of the research becomes clear, it is likely that a simple research instrument will be developed, which is expected to complete the data and compare it with the data found through interviews. In carrying out this research, researchers will plunge into their own field to conduct data collection, analyze, and make conclusions, with additional instruments in the form of interview guidelines, checklist, voice recorder, and field notes.

4. Results and Discussion

4.1. Information

Information systems nowadays have developed very rapidly. Its application can be very important and very helpful for human work, especially midwives. In the world of health, especially midwifery, the use of information technology can improve the quality of services to be more effective and efficient. One solution offered related to information systems in the midwifery field is the presence of digital partographs that are implemented through applications *smartphone.* With digital partograph, every monitoring of labor during the active phase can be done easily, another advantage is that there is a notification that sounds when labor complications occur.

Several models for measuring the success rate of information systems have been developed by many researchers [4][5][6]. Of the several success models of information systems, which received more attention from researchers was the DeLone and McLean model, which was further refined to Delone and Mclean Model which stated that *information quality*, *system quality*, and *service quality* would have a positive effect on users [7][8], the study supported by research conducted by J. Immari which empirically examines the DeLone and McLean models, the results prove that the success of information systems is influenced by the quality of the information system and the quality of information generated from the system.

Information quality measures the quality of output from information systems. Similar to system quality, the quality of information in question is the quality of information that is measured subjectively by the user. The measurement scale used in the use of this partograph application is as follows: completeness, precision, reliability, data always updated, and the form of output. [19]

Digital partographs contain all the data contained in the manual partograph, the subject already feels the data contained in the digital partograph represents the results of the monitoring carried out during labor. This shows the data in the complete digital partograph in accordance with the needs of the midwife. Completion of digital partographs is done by entering data from observations into the menu provided, and then the results can be seen in conclusions. The data entered is automatically stored, and the final conclusions are in accordance with the manual partograph. This shows the accuracy of digital partograph applications in storing data so that the final results are manual partograph. A final conclusion is a form of application output. Looking at the quality of information, this digital partograph has been very fulfilling, in addition to being very easy to use, this digital partograph is needed so that midwives are more motivated in filling.

Menus contained in digital partograph applications are in accordance with the needs of observation data. The menu creation is adjusted to the data contained in the manual partograph. For the content contained in this partograph, it already represents the needs of midwives.

System quality is used to measure the quality of information on the system itself, both software and hardware. System quality is the performance of the system that refers to how well the hardware capabilities, software, policies, procedures of the information system can provide information on user needs. System quality is measured subjectively by the user, so the quality of the system used *perceived system quality*.[19][20] Based on the results obtained through interviews, the subject of the study was very easy to

use digital partograph, but from the results of several trials, there were still revisions to the application, which has now been revised. The research subjects have tried the results of the application that has been corrected using the case made by the researcher. The final results show that the application is suitable for use, and at this time digital partograph applications can be accessed on *Google Play Store*.

User satisfaction *is* connected to the recipient's response from the use of the output from the information system. In this study midwives as digital partograph users were satisfied with the application that was made, especially this application increased motivation in filling partograph.

The quality of the system built in this digital partograph application includes the accuracy of the application in managing the data entered based on the results of observations, so it produces appropriate conclusions such as filling partographs manually. Another indicator of the quality of the digital partograph application system is the ease of using it, as well as the menus made according to the data needs to be inputted.[19]

4.2. use of digital partographs

The results of the study show that this digital partograph has useful as clinical decision making when the subjects observe by using digital partograph, then entering the data that belongs to complicating labor, then a notification will automatically appear.[21] Notifications that occur during labor complications are used as a basis for clinical decision making to make referrals. With this notification helps midwives to make decisions promptly and quickly, so this can have an impact on the quality of services, especially in labor.

The results of this partograph can be printed with the results resembling a manual partograph, and it can be stored as a documentation file. Judging from the usability aspect, this partograph has fulfilled the use of clinical decision making, monitoring the progress of labor, documentation, monitoring of maternal and fetal conditions.[22]

4.3. Behavior changes

In this study the behavior changes that occur are caused by an **individual's willingness to change** because of a stimulus in the form of innovation in the form of digital partograph, so what happens is that the research subject is very quick to accept innovation or change, which usually performs partograph after completing labor, now there is a behavior change when observing. This certainly has a positive impact, especially in the quality of care in labor.[23]

4.4. Stakeholder Support

An indicator of *stakeholder* support in this study is the process of socialization to a wide audience. The existence of digital partographs is appreciated by *stakeholders*, especially it is expected that with this digital partograph it can reduce death cases, especially in Tasikmalaya Regency. Tasikmalaya district health office in this case represented by the head of public health revealed that with the digital partograph it is expected to assist in the referral process, facilitating midwives in the referral process. For that as an effort to provide the form of support, the health office will assist the advocacy process so that this digital partograph will become part of *SIRESIK*. SIRESIK is a referral program in Tasikmalaya district, with an online system. Support was also given from the chairman of the IBI Tasikmalaya regency branch. Accrding to the chairman of IBI, digital partograph will increase compliance in monitoring labor because there are still many midwives who do not fill partographs at the time of labor. But of course, this digital partograph still needs a lot to do, namely with the next step, which is conducting effectiveness test research. The head of the Singaparna Health Center along with his staff will continue to motivate midwives in the use of digital partographs, and each delivery report must send the application through the WA group to the coordinating midwife [24]

Figure 1. Main menu of digital partograph application.

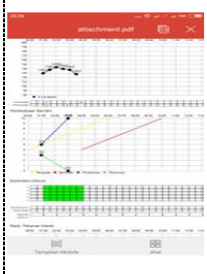

Figure 2. Conclusion is the final result of digital partograph

Figure 3. digital partograph notification system

5. Conclusion

1. The information system contained in digital partograph has fulfilled the aspects of system quality, information quality, and user satisfaction. The results show that digital partograph applications are suitable for use, and to be able to access this application, users can download via *google play store* by typing "Partograph Digital".
2. Digital partograph applications have fulfilled the use of clinical decision making, monitoring the progress of labor, documentation, monitoring of maternal and fetal conditions. The results of the study showed that the alarm notification rang when a long time period of detection was detected, namely the opening over the alert line.
3. There was a behavior change in using digital partograph which the research subjects usually filled out manual partographs after labor was completed. In using this digital partographs, midwives filled in when labor observation.
4. Stakeholder support in the form of policies established at Singaparna health center, that every observation of labor during the active phase must use a digital partograph. The IBI Branch Management of Tasikmalaya Regency will help conduct advocacy to the Regional Administrators and Central Administrators so that digital partographs will be one of the studies in Midwifery Up Date. The Tasikmalaya District Health Service will conduct advocacy to the Provincial Health Office so that this digital partograph application becomes part of the SIRESIK referral system.

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Resubmission of Revised Manuscript

1 pesan

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Dear Editor,

Thank you for your feedback on our article titled “Evaluation of Digital Partograph Application Case Study on Normal Labor by Community Midwife” Number of ABS: ABS-105.
We have completed the requested revisions and have attached the revised version of the article for your review. Please let me know if any further adjustments are needed or if there are additional steps I should take.

Thank you for your assistance and consideration.

Best regards,

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ACCEPTANCE OF MANUSCRIPT FOR PUBLICATION

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ICComSET <iccomset@umtas.ac.id> 28 Januari 2019 pukul 05.00
Kepada: Widya Maya Ningrum <widyamayaningrum@gmail.com>

Dear Mrs. Widya Maya Ningrum,

We are pleased to inform you that your article titled “Evaluation of Digital Partograph Application Case Study on Normal Labor by Community Midwife” has been accepted for publication in our journal. Congratulations!

Your article will be included in an upcoming issue, and we will notify you once it is published. If there are any final steps or additional information required, we will be in touch.

Thank you for your contribution to our journal. We look forward to sharing your work with our readers.

Best regards,

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Date : 30 August 2019

Letter of Acceptance

Dear Authors : Widya Maya Ningrum, Hidayat Wijayanegara, Suryani Soepardan

We are pleased to inform you that your paper entitled:

"Evaluation of Digital Partograph Application Case Study on Normal Labor by Community Midwife"

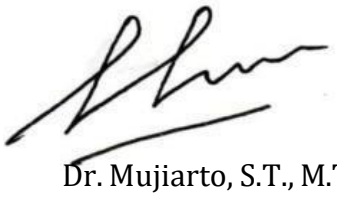
Number of ABS: **ABS-105**
was accepted for publication volume 1179 (2019) of International Conference on Computer, Science, Engineering.

We will submit an article in the AIP Conference Proceedings; ISSN: 0094-243XE-

ISSN: 1551-7616.

Thank You.

Best regards,



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The 1st ICComSET Chairperson