

 <p>INNOVATIVE JOURNAL ЮНКВТ</p>	<p>Contents lists available at <a href="http://www.innovativejournal.in">www.innovativejournal.in</a></p> <p><b>INTERNATIONAL JOURNAL OF NURSING DIDACTICS</b></p> <p>homepage: <a href="http://innovativejournal.in/ijnd/index.php/ijnd">http://innovativejournal.in/ijnd/index.php/ijnd</a></p>	 <p><b>IJND</b> ISSN: 2231-5454</p>
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## Utilization of Different Partograms in Labor Monitoring: its Effect on Maternity Nursing Students' Performance

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DOI: <http://dx.doi.org/10.15520/ijnd.2017.vol7.iss4.210.47-55>

**Abstract:** The Partogram is considered a valuable tool in the improvement of maternity service by displaying intrapartum details in a pictorial manner followed by an accurate decision for intervention to ensure safe delivery. Training on using partogram in a right way in terms of teachable, applicable and friendliness should be start from the under-graduation nursing courses. **Aim:** was to compare the utilization of different partograms in labor monitoring: its effect on maternity nursing students' performance. **A Quasi experimental research** study carried out in the labor ward at Maternity Hospital affiliated to Fayoum University, Egypt. **Convenience sample** of 125 students enrolled in the academic year (2015-2016). The first term consists of 62 students adopted the modified WHO partogram. While the second term consists of 63 students adopted graphless (paperless) partogram. Four **tools** were used: 1) Student's demographic data assessment tool, 2) labor monitoring tool; Different format of partograms (graphless, and modified WHO), 3) Labor monitoring performance checklist, 4) Nursing students' opinionnaire sheet. **Results:** There were a statistically significance difference between the groups regarding completely recording and plotting common partogram parameters favor for graphless partogram. In addition the student who adopted the graphless format able to detect, reporting and recording the abnormal findings as insufficient uterine contraction and poor labor progress. Regarding to overall nursing students' opinions concerning their adopted partogram, 74.6% of students whom adopted graphless partogram exhibit their agree regarding to their use for this format against 39.9% of students adopted WHO format. **Conclusion:** The students adopted the graphless partogram able to track all the parameters of labor monitoring by complete manner than the WHO format as well as enable them to early detect and report the abnormalities. **Recommendations:** Conduct the research on utilization of the graphless partograph as labor monitoring tool at a wider scale to enable generalization for undergraduate students in all Egyptian nursing faculties.

**Keywords:** Labor monitoring- Partogram-Performance.

### INTRODUCTION

Despite the continued focus on the reduction of maternal mortality by national development programs, it remains a major public health problem (MOHP 2014). Maternal Mortality Rate (MMR) is mostly institutional. It varies from one geographical zone to another and it worse in the rural, when compared to the urban areas (WHO 2014).

Available data show that MMR, in Egypt 2013 was 52/100,000 live births, whereby 36% of these deaths are related to prolonged or obstructed labor (MOHP, 2013). Effective labor monitoring assumed to prevent the majority of these deaths through early detection & prevention of the abnormal progress of labour (Penumadu, 2014).

A partograph is a pre-printed paper that provides a visual display of recorded observations carried out on the mother and fetus during labour. It serves as an early warning system and assists in early decision regarding augmentation, termination and referral of labor which help in preventing maternal and perinatal morbidity and mortality. (Kavitha et al, 2015).

There are many versions of the Partogram available today. Friedman's labor curve is a crude version that is used by many midwives and healthcare professionals. It was later modified by Philpott and Castle by inclusion of the alert and

action lines then WHO developed its own Partogram as an adaptation of the Philpott Partogram, it includes a latent phase of eight hours and active phase starts at 3 cm cervical dilation. A simpler and more user friendly second version of it was created in 2000 (Fig. 1), removing the latent phase, active phase starting at 4 cm cervical dilation (Beenu et al, 2013).

In addition, there is a new format of partograph called "Graph-less Partogram" is a new designed for use by clinicians/ midwives in low resource areas developed by Dr. Debdas. Even after the WHO simplified the partograph model to make it more user-friendly in 2000, the partograph is still rarely used in low-resource areas, and, when used, it is rarely interpreted correctly (Mishra and Nayak, 2014). Appropriate use of partograph requires adequate number of skilled health workers with a positive attitude towards its use.

Several factors affecting the utilization of the partograph include poor knowledge, non-availability of the partographs in the labour wards, lack of adequate staff, an additional time consuming task and lack of motivation of the health workers. In this context, Dr. Debdas has proposed the "Graphless (Paperless) Partograph", which is a simple, graphless, non-time consuming, two step calculation that identifies slow progress of labour and helps in appropriate decision making as; terminate labor or to transfer a woman to higher centers with facilities for caesarean section.

Paperless partograph monitors labour based on calculation of an Alert expected date delivery(ETD) and Action ETD based on Friedman’s well accepted rule that the cervix dilates at the rate of 1 cm/ hour in active phase of labour (Lingegowda, et al, 2014).

Although it’s been almost 20 years since WHO recognized partogram as an essential tool in labour monitoring and management, its use has been very inconsistent and incorrect. In addition, because the nurse is considering as main team health care member so the training of using partogram in a right way should be in place right from the under-graduation courses while they are learning the basics of labour room protocols. Students' nurse should be using the Partogram records under supervision and be told about the necessary intervention if required. Moreover, be trained to accurately plot dilation on the Partogram, and to analyze and use the data to make decisions about referral and emergent actions(Engida et. al, 2013).

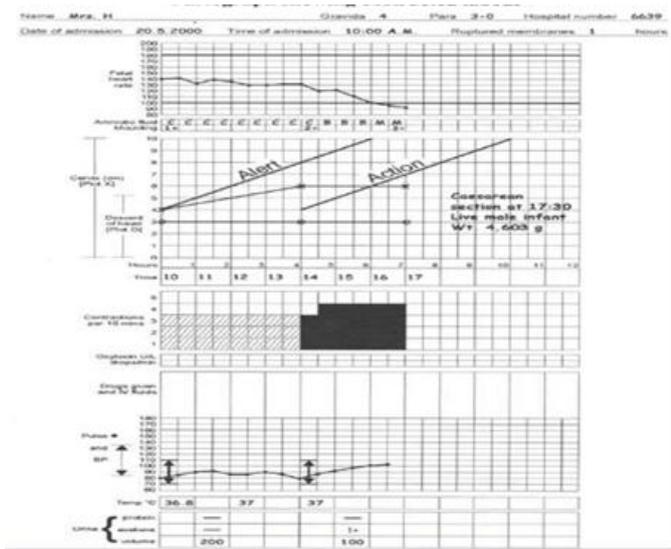
Studies have shown the proper utilization of partogram can be a highly effective to under graduate nursing students for many reason; firstly to fulfill their course description, objectives; in assessing, monitoring, managing laboring woman, secondly; give comprehensive care for laboring women and identifying the deviation from the normal as well as reducing complications. All of this competencies' considering when evaluates nursing students' performance in labour area(Abebe et. Al, 2013&Salama, 2010).

Empowering undergraduate nursing students regarding proper utilization of partogram in easily hopeful way very important so that this study aimed to compare the utilizing of different partogram format as labor monitoring tool: its' effect on maternity nursing students' performance.

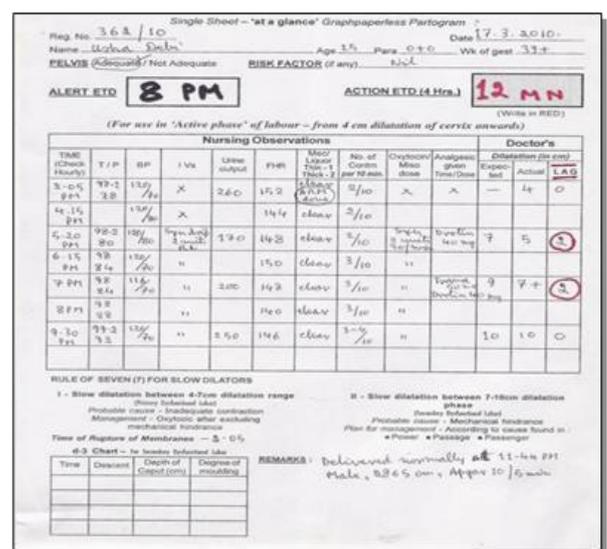
**SIGNIFICANCE OF THE STUDY**

Egypt's sustainable development strategy, vision, 2030 will more focus on the mobilization of resources, the follow-up and review of the implementation goals and advanced protocols of care to decrease maternal and neonatal deaths by 60%(Salama 2010). Most of the maternal and neonatal morbidities are avoidable by applying very basic principles to our day to day practice and by revisiting the basic practices. Revitalization of partogram is one of them, which despite being very helpful to avoid the maternal and neonatal complications related with prolonged and obstructed labour; not being utilized properly. The partogram is one of the data collection tool used in labour area training for undergraduate, maternity nursing students' faculty of nursing, Fayoum University. Students' proper utilization and documentation of this tool is reflecting proper monitoring and managements' labor. Moreover, the quality of their using is used in evaluating their performance and achievement level of course objectives.

In addition the analysis of student course evaluation through the student's opinionnaire at the end of the semester before as one of the requirements for quality, the students reported that, the WHO format difficult to use through labor monitoring during the clinical area, for many reason one of them the digit in the sheet very small as well as the difficulty of using printed WHO partograph due to blurred and slanted due to multiple photocopy, also the evaluation of the student portfolios regarding to their documentation in the clinical area of labor reflects that. Moreover the shortest in the nursing staff in the maternity unit, so the staff in the maternity ward consider the undergraduate nursing student as helper for them from this point the undergraduate nursing student must use the suitable format to help them in monitoring the labor progress to safe the delivery and from this point the researchers aimed in the current study to compare the utilization of different partograms in labor monitoring: its effect on maternity nursing students' performance.



(1) Modified WHO partograph



(2) Graphless partograph

Figure. (1) Types of Partogram were used in the current study:

**Aim of the Study:**

The current study aimed to compare the utilizing of different partograms in labor monitoring: its effect on maternity nursing students' performance.

**The Study Hypothesis:**

Graphless partogram has a positive effect on maternity nursing students' performance regarding the labor monitoring in the labor clinical area.

**Operational Definition:**

- **The Students' Performance:** That is adapted for this study; the abilities of students in standard utilization of partogram as; cervical dilation monitored at least once every four hours; fetal heart rate, blood pressure and maternal temperature monitored on hourly basis.

**Subjects and Methods:**

**Research Design:**

A quasi-experimental design was utilized for this study.

**Study Setting:**

The study was carried out at 1<sup>st</sup> stage of labor room - Fayoum University Hospital.

**Subjects:**

- Convenience sample of 125 students enrolled in the academic year (2015-2016) at Maternal and Neonatal Health Nursing Department, Faculty of Nursing, Fayoum University. The first term consists of 62 students adopted the modified WHO partogram. While the second term consists of 63 students adopted the graphless (paperless) partogram.
- Students in each group assigned on laboring women in the labor area who met the following criteria; gestational age 37- 42 weeks, singleton pregnancy with cephalic presentation, a living fetus, and inactive acceleration phase with cervical dilatation  $\geq 4$  cm (active phase). In addition, the high-risk women and women have a compromised fetus were excluded from the study.

**Tools of Data Collection:**

Four tools were used in this study:

**Tool (1): Students' socio-demographic assessment tool (Self-administered Questionnaire):** designed by the researchers, it was used to assess personal characteristics of students as: age, sex and previous educational certificate.

**Tool (2): Labor monitoring tool; Different format of partograms;** (graphless partogram adopted from Dr. Debda, 2008 and the modified WHO partogram, 2010).

**Description of the labor monitoring tool:**

**First format:** graphless partogram, based on calculates two times, an Alert Estimated Time of Deliver (ETD) and an Action ETD. The Alert ETD calculation uses Friedman's widely accepted rule that the cervix dilates at 1cm / hour while a woman is in active labour. Then add 6 hours to the time at which women becomes 4cms dilated to find Alert ETD. We add 4 hours to the Alert ETD to get the Action ETD. Both ETDs should be written in big letters on a woman's case management sheet, the Action ETD is circled in red. At the time of Alert ETD, clinician should be

sensitized to the fact that the woman has not yet delivered. For example, if uterine contractions are poor close to the Alert ETD, so should augment the labour either by artificial rupture of membranes/ by Oxytocic as necessary.

**Second format:** Modified WHO partograph plotting is started at cervical dilatation of  $\geq 4$  cm. and labour is monitored as described below as example-

**The fetal condition-**

- Foetal heart rate- is recorded at the top of the partograph, every half hourly with a dot. Each square represents half an hour.
- Membranes and Liquor (I-mean membranes Intact , R-means membrane rupture ,(CAF) means amniotic fluid is clear
- Moulding recorded as (0 means Bones are separate and the sutures are felt easily and (+-) means Bones are just touching each other).

**Alert Line-** A line drawn from a dilatation of 4 cm to 10 cm at a rate of 1 cm per hour.

**Action Line-** A line parallel and add 4 hours to the right of the alert line to decide action.

**Tool III. Labor Monitoring Performances Checklist:**

Designed by the researchers based on Standard Partogram Parameter quality protocols adopted from United States Agency for International Development (USAID) (Margaret, 2012). Its aim was to assess the students' performance in labor monitoring. It consists of 27 items grouped into five parts were used for extracting information from the partogram. **The first part:** consists of fourteen questions to assess the recorded of admission data as; (women's' demographic data, obstetric history, current obstetric data, medical history). **The second part:** consists of three questions to assess the recorded parameters regarding the fetal condition as fetal heart rate. **The third part:** Consists of four questions to assess the recorded parameter regarding the progress of labor, as; cervical dilatation, uterine contraction. **The fourth part:** Consists of three questions to assess the recorded parameter regarding maternal condition as vital signs. **The fifth part:** Consist of three questions to assess the recorded parameter regarding labor outcome as mode of delivery. Each parameter was assessed as not recorded, incomplete or complete recorded according to the protocol of standard care.

**Tool IV. Students' nurses' Opinionnaire sheet (Self-administered Questionnaire):**

developed by the researchers to assess students' personal experience regarding their randomly used partogram. The 3- point Likert Scale was used, scored as 1= not agree, 2= uncertain, and 3=agree, it consists of 15 questions and divided into four parts as the following; **User friendliness includes 5 statements as;** (alert for any deviation from normal, helping in-taking further decisions and communicating it's result easily). **Teachable includes 6 statements as;** (easy understanding and conducting, effortless and timeless). **Applicable includes 4 statements as;** (recognize complications early, perform essential basic interventions and make referrals when necessary). The scores of the items

were summed-up and the total divided by the number of the items, giving mean scores.

#### **Validity and reliability of the tool;**

The tools were submitted to three academic nursing expert in the field of maternity and neonatal health nursing to test the content and shape validity. There was no modification required. Tool reliability was tested using an Alpha Cronbach test. The tool reliability was 0.86 for tool number four (Students' nurses' Opinionnaire sheet).

#### **Pilot Study:**

A pilot study was done for six students (10 % of the total sample of each group). The purposes of the pilot study were to detect any problem peculiar to data collection tools that might faces the researchers or their assistant and interfere with data collection. The students were used in the pilot study were included in the main study sample because they cannot be excluded from the registration to this year as well as there were no modifications on the tools.

#### **Ethical Considerations:**

Official permissions were granted by the dean of the faculty before the beginning of the study. The objective of the study was explained to the students and it was confirmed to them that the goal is to develop a future course modification plan in choosing a simpler tool to assess labor progress among students. Students well knew that their performance in the clinical area will be done by the assistant lectures according to the department distribution and under the supervision of the researchers. The study in the both terms was conducted in the same manner, a person and the environment.

#### **The Field of Work:**

- The study was conducted at the labor ward at Fayoum University Hospital.
- An authorized permission was obtained by faculty of nursing based on the clinical training protocol. The study was carried out through the three following phases; preparatory, implementation & evaluation.

#### **Preparatory phase:**

- All students in the first and second term of the academic year (2015-2016) at Maternal and Neonatal Health Nursing Department, Faculty of Nursing, Fayoum University enrolled in the study. The first term consists of 63 students and they adopted the WHO partogram. While the second term consists of 62 students and they adopted the graphless partogram which adopted from Dr. Debdas .
- Through each term the students divided randomly in the schedule of the clinical area rotation at the department into three groups each group consist about 20 students. Each group spends in the labor area four weeks.
- Each group uses a different format for labor monitoring in the clinical area.
- The researchers used tool (I) to assess the students' characteristics.

#### **Planning phase:**

- According to the clinical rotations; the researchers accompanied by the assistant lecturers for explaining the parameters of the labor monitoring according to

the format of the partogram which adopted (mentioned in tool II), to each group separated and that's taken place in the skills lab in the first day of the clinical area. The researchers used examples, videos, and situation for clarification the partogram and how to use it.

- Then the student attend their clinical training in the hospital for 12 clinical days to assess the labour monitoring under supervision.

#### **Evaluation phase:**

- The assistant lecturers were evaluating all students' performance according to the Labour Monitoring Performances Checklist (Tool III) to differentiate between the two forms of the partogram according to the aim of the study.
- The evaluation of each student in both groups based on the most three complete partogram.
- Finally, the researchers distributed tool IV (Students' nurses' Opinionnaire sheet) for the students in each group at the end of each rotation to assess their opinions regarding friendliness; teachability & applicability of the partogram used.

#### **Statistical Analysis:**

The statistical analysis of the collected questionnaires was checked visually for completeness, data were done by using SPSS program (statistical package for social science) version 20.0. The data was tabulated and presented. The description of the data was done in the form of mean and standard deviation for quantitative data, frequency and proportion of the qualitative data. Qui square test used to reveal the P value and if it was <0.05 at 95% CI it considered statistically significant.

## **RESULTS**

**Table (1)** illustrate the students' characteristics in study groups, it showed that the mean age of the students adopted WHO partogram (G1) & graphless partogram (G2) was  $19.6 \pm 0.4$  &  $19.9 \pm 0.5$  respectively. As regard students' pre-faculty certificates, slightly less than two third of them in each group having secondary school certificate. In addition to about two third of each group were female students. There were no statistically significant differences between the both groups regarding their demographic characteristics.

**Table (2)** showed partogram parameters recorded among the groups for the most filled partogram charts. As regarding mother' admission data there was no significant differences between both groups ( $p=0.42$ ). While the difference is clear between the two groups favor for graphless partogram in completely recording and plotting of the other partogram parameters (fetal condition, progress of labor and the maternal condition).

**Fig. (1)** highlighted on the complete recorded parameters of partogram among the both groups; the results revealed that the graphless partogram was more complete than WHO in all parameters except in the admission data.

**Table (3)** represented the abnormal findings and taking actions derived from the partograms analysis. The results revealed that, there was a statistically significant difference

between both groups regarding their interpretation of the data in the adopted partograph.

As can be noted on **table (4)**no statistically significant difference between both groups regarding recorded data about the labor outcome as (mode of delivery, neonatal outcomes and maternal outcomes). The total P = (0.28).

**Fig. (2)** Showed the overall students' opinions (agree) regarding their adopted partogram, in relation to its applicability, teachability and user friendliness. The results revealed that the over all agree regarding the previous items represents 74.6 % of students adopted the graphless against 39.9% of students adopted the WHO partogram.

Table (1) Students' Characteristics in the Studied Groups:

Items:	G1 WHO partograph (n=62) %	G2 Graphless Partograph (n=63) %	p value
Age (in years) ± SD	19.6 ± 0.4	19.9 ± 0.5	0.78
Certificate:			
▪ Technical school	22 (35.5)	24(30.1)	0.81
▪ Secondary school	40(64.5)	39(61.9)	
Gender:			
▪ Male	18(29.0)	18(28.6)	0.42
▪ Female	44(71.0)	45(71.4)	

Table (2) Partogram Parameters Recorded among the Studied Groups:

Items:	WHO partograph (n=186) N (%)	Graphless Partograph (n=189) N (%)	p- value
<i>Admission data</i>			
<b>1. Mother data:</b>			
a. Not recorded	30 (16.1)	30 (15.9)	0.42
b. Incomplete	32 (17.2)	30 (15.9)	
c. Complete	124(66.7)	129 (68.2)	
<i>Fetal condition</i>			
<b>2. Fetal heart rate:</b>			
a. Not recorded	32(17.2)	14 (7.4)	0.000
b. Incomplete	34(18.3)	24(12.7)	
c. Complete	120(64.5)	151(79.9)	
<b>3. State of amniotic fluid:</b>			
a. Not recorded	18(9.1)	24(12.7)	0.000
b. Incomplete	49(26.3)	33 (17.5)	
c. Complete	119(64.0)	132(69.8)	
<b>4. Moulding:</b>			
a. Not recorded	28(15.0)	14 (7.4)	0.000
b. Incomplete	51 (27.4)	43 (22.8)	
c. Complete	107(57.6)	132 (69.8)	
<i>Progress of labour</i>			
<b>5. Cervical dilatation:</b>			
a. Not recorded	28 (15.1)	22(11.6)	0.004
b. Incomplete	45(24.2)	28(14.8)	
c. Complete	113(60.7)	139(73.6)	
<b>6. Descent of head:</b>			
a. Not recorded	32(17.2)	28(14.8)	0.000
b. Incomplete	47(25.3)	28(14.8)	
c. Complete	107(57.5)	133(70.4)	
<b>7. Uterine contractions:</b>			
a. Not recorded	22(11.8)	27(14.3)	0.001
b. Incomplete	55(29.6)	35(18.5)	
c. Complete	109 (58.6)	127(67.2)	
<b>8. Alert &amp; action lines:</b>			
a. Not recorded	55(29.6)	31(16.4)	0.000
b. Incomplete	46 (24.7)	43(22.6)	
c. Complete	85(45.7)	115(60.8)	
<i>Maternal Condition</i>			
<b>9. Blood pressure:</b>			
a. Not recorded	14 (7.5)	24(12.7)	0.000
b. Incomplete	45(24.2)	30(15.9)	
c. Complete	127 (68.3)	135(71.4)	
<b>10. Temperature recorded:</b>			
a. Not recorded	22(11.8)	14 (7.4)	0.000
b. Incomplete	45 (24.2)	24 (12.7)	
c. Complete	119(64.0)	151 (79.9)	

Items:	WHO partograph (n=186) N (%)	Graphless Partograph (n=189) N (%)	p- value
<b>Admission data</b>			
Complete recorded items:	113(60.6)	134 (70.9)	0.000

Figure. (1) Complete RecordedPartographs Parameters among the Studied Groups:

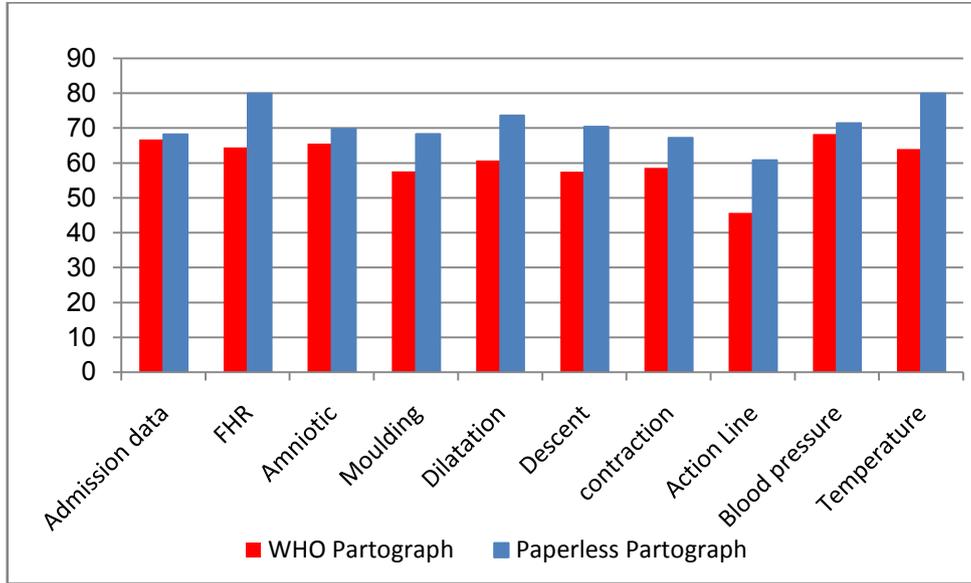


Table (3) Detected theAbnormal Findings and Actions taking Among the Studied Groups:

Items:	WHO partograph (%)	Graphless Partograph N (%)	p-value
<b>Abnormal finding detected</b>			
<b>1. Diagnosis of inefficient uterine actions:</b>	(*N=32)	(*N=41)	
• Yes	14(43.8)	29(70.7)	0.01
• No	18(56.2)	12(29.3)	
<b>2. Diagnosis of abnormal fetal heart rate:</b>	(*N=26)	(*N=63)	
• Yes	11 (42.3)	48(76.2)	0.05
• No	15(57.7)	15(23.8)	
<b>3. Diagnosis of poor progress:</b>	(*N=27)	(*N=43)	
• Yes	11(40.7)	29(67.4)	0.03
• No	16(59.3)	14(32.6)	
<b>Action taking recorded</b>			
<b>4. Taking actions as augmentation, amniotomy need etc.:</b>	(*N=36)	(*N=73)	
• Yes	17(42.2)	51(69.9)	0.02
• No	19(52.8)	22(30.1)	

\*(N) represents the numbers of partographs includes abnormal finding and the taking action .

Table (4) Recorded the Labour Outcomes Data among the Studied Groups:

Items:	WHO partograph (n=90) N (%)	Graphless Partograph (n=96) N (%)	p-value
<b>1. Mode of delivery:</b>			
a. Not recorded	22(24.4)	30(31.3)	0.35
b. Incomplete	21(23.3)	19(19.8)	
c. Complete	47(52.3)	47(49.0)	
<b>2. Neonatal outcome:</b>			
a. Not recorded	22(24.4)	31(32.3)	0.72
b. Incomplete	23(25.6)	24(25)	
c. Complete	45(50.0)	41(42.7)	
<b>3. Maternal outcomes:</b>			
a. Not recorded	27(30.0)	28(29.2)	

Items:	WHO partograph (n=90) N (%)	Graphless Partograph (n=96) N (%)	p-value
b. Incomplete	22(24.4)	30(31.25)	0.12
c. Complete	41(45.6)	46(47.9)	
<b>Complete recorded items.</b>	44(49.9)	44(45.8)	0.28

\*(n) represent the number of partograph which the students initiated and ended by delivery.

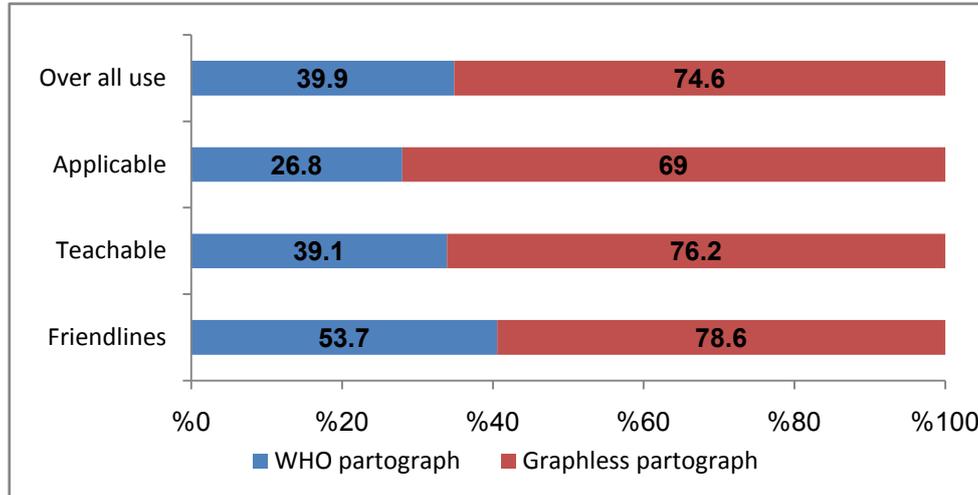


Fig. (2): Students' Opinions (Agree) about Their Adopted Partogram:

\*Numbers mutually exclusive.

## DISCUSSION

A continuously monitoring and handling labor progress is a part of guaranteeing quality service. Among these, partograph is one of the strongest and cost-effective tools to prevent unnecessary delay and serve as frontrunner for obstetric caregivers especially nurses. Used easier tool for monitoring labour is one of the key factors for adequate intrapartum care as well as would improve undergraduate nursing students' scores on partograph completion tasks. (Lavender, 2013). The aim of the current study was to compare the utilizing different partograms in labor monitoring: its effect on maternity nursing students' performance.

Concerning the students characteristics in the current study; the results revealed that, the age group for students who adopted WHO and paperless partograph was  $19.6 \pm 0.4$  and  $19.9 \pm 0.5$  respectively. More than half of the students in both groups were secondary nursing school and female students. The students in both groups similar in their characteristics.

The current study analysis for students' portfolio regarding their used partogram; indicated that there was a statistical significant difference between both groups regarding the completion of all parameters in the partograph favor to the graphless partograph except in the admission data. The analysis demonstrated that the graphless partogram was exhibit the most completely recorded labor parameters for about slightly less than three fourth of total group compared with slightly more than half of the sample adopted the WHO partogram. This may be due to, the graphless partograph was designed to address benefits of training and application in a simple way. While the WHO partograms has a multiple graphs and symbols blotted in small square can affect the

utilization of the partograph. Regarding the absence of difference in relation to the admission data, the researcher suggested that, may be due to, the kind of this data was easy for gathering through any format.

The current study findings are agreed with (Asibong *et al*, 2014), they found that most health institutions had partograph but was not used according to the standard. Furthermore, the observed labour sheets used WHO partograph were incomplete and poor recorded of parameters against the recommended standards. As well as, that contributes to poor utilization for the partographs. Our study results accepted by (Yisma *et.al*, 2013) they found the nurses placed more emphasis on the recording maternal demographics and obstetrics characteristics in standard than others labour parameters.

On the other hand (Deka *et. Al*, 2016) indicated the importance of having skilled health workers to take part in providing obstetric care needed a simple way for monitoring labour progress and they advocate graphless partogram in their study as a tool can overcome factors hindering compliance with partograph as more time consuming, complex graphical presentation and high patient loaded areas.

Regarding the parameters related to fetal condition (heart rate, molding and nature of liquor), there was a highly statistical differences between both groups regarding the complete recorded data that, was in favor of the graphless despite, all students demonstrate and re-demonstrate such competencies in skills lab. The researchers attributed these for difficulty of plotting some multiple symbols in WHO partograph as well as some blurred or slanted partographs duo to multiple photo copying.

This is in congruence with (*Opiah et al. 2012*), in their study which indicate respectively midwives' good knowledge of the partogram, yet their utilization of WHO partogram was substandard recorded & with (*Shinde, et. al, 2012*) whom stressed on training for utilization of WHO partogram and overcoming barriers in uses by new format as paperless led to a good practicing in diagnosing fetus condition early and prevent distress on time.

Our study analysis of using partograms related to the progress of labour as (cervical dilatation, head descent, uterine contraction & alert lines), the results showed that, the graphless was used easier among students and valid percentages of sheets were completely recorded as standards reflected the students ability to detect the expected time of delivery (ETD) and the alert lines than WHO. This may be related to the graphless was easy teaches, timeless in the monitoring the progress. The current results in the same line with (*Fatouh, 2015*) who mentioned that cervical dilation, uterine contraction and descent of head were the most frequently recorded parameter regarding the progress of labor by graphless than WHO due to improved friendliness use enable in early decision making for labour determinant.

Pertaining to maternal condition wellbeing as (blood pressure, pulse and nature of urine) were recorded as the standard; The analysis also presented positive results relating graphless in plotting such items than WHO. That means when less time used to graph and fill comprehensive data will reflect on the time of assessment and care with laboring woman. These results are accepted with (*Gans et.al, 2013*) mention that measuring blood pressure and vital signs for labor woman was substandard recorded by WHO partogram because presence of negligence by some professionals in assessing maternal condition and focusing only on expelling out the newborn baby.

The current study represented that more than two third of the students adopted graphless partogram were able to detect and diagnose the abnormal finding of labor as well as actions taking compared with less than half of the student adopted WHO partogram, and that evident from fully recorded forms. That's mean students found the graphless partogram as motivated tool and alarm wise for care. As (*Aalder 2012*), stating that using only Alert and Action ETD was found convenient to decline appropriate measures for the outcome of labor. So, the paperless partogram is a simplified method to manage the active stage of labor that could prevent prolongation of labor and its complications.

Concerned recorded data about the neonatal and maternal outcomes, the current study revealed that, there no statistically significant different between the both groups, the total complete data represents about half of the partograms in both groups. This may be due to the kind of this data not difficult in its registration. This results is contradict with (*Agarwal et.al, 2013*) who stated that there were no details in the WHO partograms compared with graphless concern those babies who had abnormal breathing, underweight as well as Apgar scores among residences assessed tool and stress on the graphless partogram was used to be bedside tool for monitor mother in labor.

Finally, our study highlighted on the overall student's 'opinions' according to their adopted partograms as three fourth of students agreed that the graphless was the most friendliness partogram, to be attributed from their opinionnaire; graphless was the most frontline, teachable and applicable tool that helps in identifying problems and recognizing complications early and easy to plot the acquired data rather than WHO, they stated it is more comprehensive for their level as undergraduates and the duration of clinical training about four weeks is very short to be trained.

The study analysis was accepted by several studies regarding using of graphless partogram in monitor lab progress compared by another different form as WHO. (*Deka et al., 2016*) found in their study concerning the use of graph less partogram among residents that it is easier to teach for staff on which signifies its applicability. And overall usefulness and effectiveness in detecting abnormal labor. This finding was supported by (*Elizabeth, 2012*) in her argues that the most health institution had partogram but was not used according to the standard. And WHO partogram that reflect poor skills of birth attendances on the use and need more skilled health workers to take part in providing obstetric care.

## CONCLUSION AND RECOMMENDATIONS

Based on the study findings, it apparent that the results support the research hypothesis as the following: the maternity nursing students who adopted the graphless partogram have better performance regarding labor monitoring in labor training area than those adopted the WHO partogram, and that evident from the percentages of complete the partogram according to the standards of labor parameters.

Based on the findings of the current study the researcher recommended that:

- Conduct the research on utilization of the graphless partogram as labor monitoring tool at a wider scale to enable generalization for undergraduate students in all Egyptian nursing faculties.
- In-services training programs for nurses in rural area at El Fayoum to enhance using of graphless partogram.
- Further study is necessary to study the effect of using the graphless partogram on the quality of maternity care and women satisfaction.

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