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EFFECT OF PARTOGRAM TRAINING PROGRAM ON VILLAGE MIDWIVES' KNOWLEDGE AND SKILLS FOR NORMAL AND ABNORMAL LABOUR

Amira Elnour Eltayeb Elbashir[1*] and Tag Elsir Mohamed Ali[2]

[1]Assistant Professor, Nursing Department, Faculty of Applied Medical Sciences, Albaha University, Saudi Arabia.

[2]Associate Professor of Obstetrics and gynecology, Faculty of Medicine, Albaha University, Saudi Arabia.

*Correspondence for Author

Dr. Amira Elnour Eltayeb Elbashir

Assistant Professor, Nursing Department, Faculty of Applied Medical Sciences, Albaha University, Saudi Arabia.

ABSTRACT

Background: Prolonged labor is a leading cause of maternal land newborns mortalities in the developing world. Skilled management of labour using appropriate tools such as Partogram is a key to the appropriate prevention and treatment of prolonged labour and its complications. **Objective:** This study was designed to evaluate the effect of Partogram Training Program (PTP) on village midwives' knowledge and skills, for normal and abnormal labour. **Methods:** A Quazi-experimental non-equivalent design (non-randomized control trial) was carried out in 7health facilities at Khartoum State ,from August to December 2012 among 220 selected village midwives (109 village midwives in intervention group and 111 in control group). A structured designed questionnaire was used to measure knowledge and a World Health Organization modified Partogram was used to assess skills regarding Partogram's components prior to and at the completion of the study. **Results:** The preliminary investigations showed similar results and no significance difference in all study variables between the two groups. The total mean of knowledge's score in post-test intervention group was significantly improved compared with the control group (13.45 ± 3.92 vs. $7.95\pm2.76; p<0.001$).The total mean of skills score of identifying the components of Partogram of VMWs was remarkably improved among intervention group compared to the controls (5.4 ± 1.03 vs. $0.45\pm0.45; P<0.001$). **Conclusion:** This study concludes that, Partogram

Training Programsignificantly improved knowledge and skills of participated village midwives and improved their ability to detect labor's abnormalities.

KEY WORDS: Partogram, Village midwife, Training, skills, knowledge.

INTRODUCTION

In 2008, WHO, UNICEF, UNFPA and The World Bank estimated that 358,000 maternal deaths occurred worldwide, this means that each day about one thousand women dieworldwide because of complications related to pregnancy and childbirth. Developing countries account for 99% of the deaths. Two regions, Sub-Saharan Africa and South Asia, accounted for 87% of global maternal deaths. Sub-Saharan Africa suffers from the highestMMR at 640 maternal deaths per 100,000 live births, followed by South Asia, with aMMR of 290. In stark contrast, MMR in industrialized countries is 14.[1]

Sudan is one of Sub-Saharan (WHO et al., 2010) countries that are still suffering from highmaternal mortality rate (More than 215 cases of maternal deaths per 100,000 live births.
 In Khartoum state the maternal mortality rate (MMR) is 175 maternal deaths per 100,000 live births.[2]

Many countries, including those with geo-political composition similar to Sudan, have succeeded to make considerable investment in midwifery services, because in Sudan 86.7% of deliveries are home birth which run by midwifery cadre. In addition to high qualification of caregivers, adequate resources and equipment with up-to-date technologies are necessary. [3]

Partogramis a valuable tool used to reduce maternal mortality and it improvesthe maternity care by allowing midwives and obstetricians to clearly record intrapartum details. It is widely introduced and applied in developed and developing countries.[4]

It is usually a pre-printed paper form, on which labour observations are recorded. This aims to provide a pictorial overview of labour, to alert midwives and obstetricians to deviations in maternal or fetal wellbeing and labour progress.[6,7]

The Partogram is an essential tool to assess the progress of labour and to identify when intervention is necessary. Studies have shown that using the Partogram can be highly effective in reducing complications from prolonged labour for the mother and for the

newborn. Prolonged labour, augmented labor, caesarean sections/ operative interventions, neonatal morbidity and intrapartum fetal deaths were reduced with the use of the Partogram. Easy and early recognition of poor progress of labour (with the use of Partogram) and the prevention of prolonged labour significantly reduce the risk of postpartum hemorrhage and sepsis, and eliminate obstructed labour, uterine rupture and thereby reduce the maternal morbidity and mortality.[5] In Sudan home delivery still constitutes 80.6% of all deliveries.[8]

Till now there is no scientific tool to follow the process of Labour at home level to be used by village midwives (there is no a Partogram included in village midwife Curricula). Also The culture of village midwives been neglected the registration & documentation, so Partogram will help in provide positive findings with evidence based practice.

This study aimed to introduce the concept of Partogram through the (PTP) to make contribution to midwifery field in Sudan by promoting the midwifery competencies through the development of innovative curricula and guidelines for home birth to improve the practices, since the vast majority of Sudanese mothers chose home delivery.

MATERIALS AND METHODS

This is a Quazi-experimental non equivalent design study (non-randomized control trial) conducted on 109 village midwives as intervention group and 111 as control group admitted to five health facilities (three for intervention and two for control) at Khartoum State were selected to be enrolled in the study. Following a letter of agreement from the Ministry of Health, MCH Department (Khartoum State), all midwifery coordinators of the five localities were given information about the study, including the purpose and procedures. Midwives' participation in the study was voluntary and that the midwife could withdraw at any time.

The study protocol was approved from University of Medical Sciences and Technology (Ethical committee) - Graduate college. Targeted village midwives were officially notified by letters from State Ministry of Health - Reproductive Health Department (RHD) before arrival of data collectors and written consents were obtained including full explanation of the study objectives, expected outcomes, rights of respondents and confidential processing of collected data.

This study primarily searched the knowledge of participated village midwives about Partogram's component, the skills in charting and plotting these components and then to examine their ability in detecting and diagnosing the labour abnormalities from the chart.

Participants were assigned to 2 groups, the standard (control) group, who had the progress of labour charted in written notes and the intervention group who had labour managed by using modified WHO Partogram and received training programme.

CONSTRUCTION OF THE PROGRAMME
The PTP was composed of four sessions, which aimed to achieve the study's objectives; Specific technique was used including combination of brain storming and participants' feed backs. WHO Partogram manual part II translated to simplified Arabic language. The PTP was divided into four sections
1. **Partogram**
2. **Progress of labour**
3. **Maternal condition**
4. **Fetal condition**

The modification of WHO Partogram was done by coloring the three areas (areas of decision making), colors can make understanding of Partogram easier. Three colors used are
1. **Green color**: which means charting of cervical dilatation and uterine contraction to the left of, or in alert line itself indicates that the mother is in the safe side and the progress of labour goes with normal curve of Partogram.

2. **Yellow color:** which means, plotting to the right of alert line, means this is warning area the midwife should "Pay attention" and this mother may go into abnormal labour.

3. **Red color:** means this area is the dangerous area which located to the right of line action (Hospital line) that means intervention is a mandatory.

Pre-test conducted at the beginning of the program, Followed by four time tutorial meetings. Post- test conducted four months at the end of the training program then the pre- and post-test's scores were compared between intervention and control groups.

RESULTS
As shown on **Figure 1**, the total mean of knowledge's score of village midwives (VMWs) who participated in PTP in identifying the components of Partogram was significantly

improved in intervention group compare to the control group (13.45±3.92 vs. 7.95±2.76, P <0.001). The eta square index indicated that 40.1% the variance of knowledge was accounted for by whether the village midwife was assigned to intervention or control group which was improved to 69.1% after intervention.

The total mean of skills score of identifying the components of Partogram of VMWs was remarkably improved among intervention group compared to the controls (5.4±1.03 vs. 0.45±0.45; P<0.001).The eta square index indicated that 87.9% the variance of knowledge was accounted for by whether the village midwife was assigned to intervention or control group and the improvement after intervention was 11%.

The ability of detecting abnormal Partogram curve as skill of VMWs among participants in Partogram training would be improved compared to control group. There were 65 cases (4.7%) out of 1310 laboring mothers referred to the hospitals as complicated cases within intervention group, while only 28 (2.3%) cases out of 1179 case referred as complicated cases among control group, and the improvement after intervention was 2.4%.
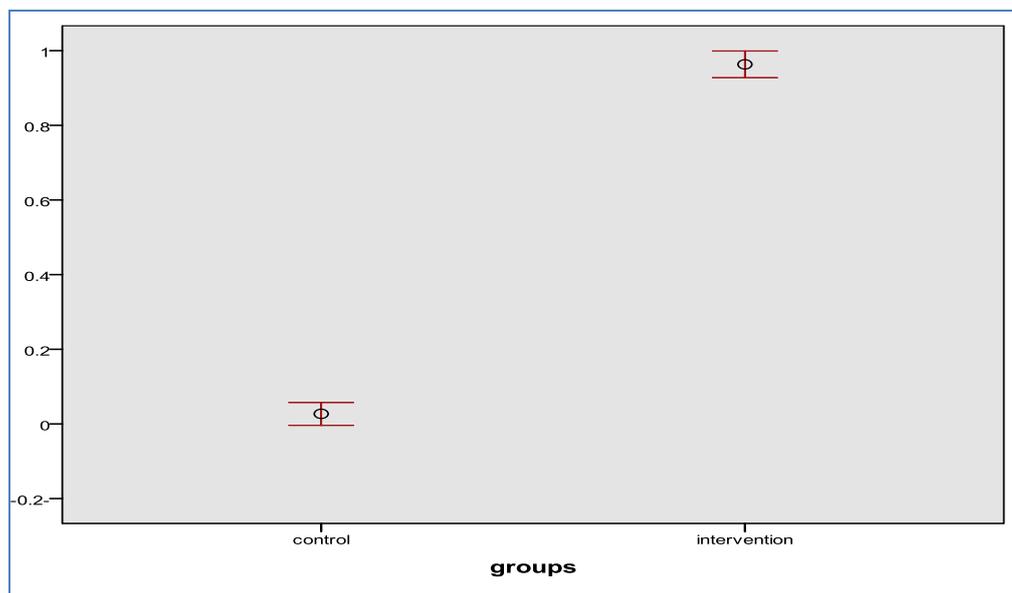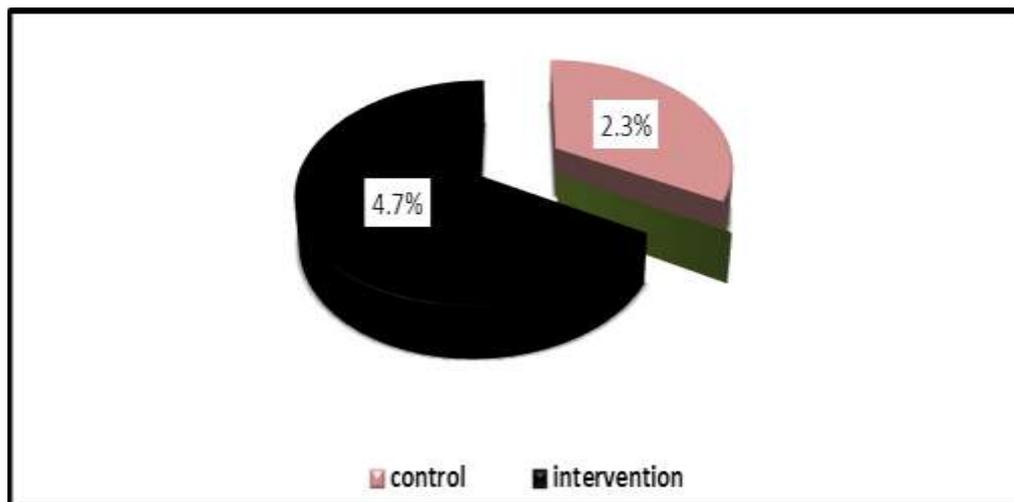

P Value= 0.05

Figure 1. The total mean for knowledge scores for intervention and control groups.
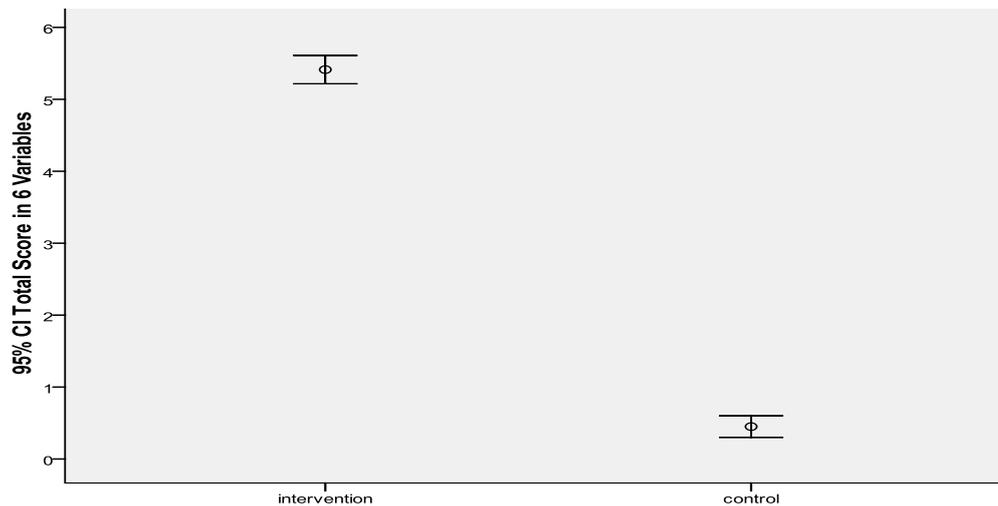
P Value= 0.05

Figure 2. Error bars (two standard deviations above and below the mean) for total skills scores for intervention and control groups.

The 95% confidence interval of the difference of mean was ranging from – 4.71 to -5.20 Ability of detection of abnormal Partogram curve as skill of VMWs, who participated in Partogram training, would be improved compared to control group.

P value = 0.001

Figure 3. Association Between Number of cases Referred as Abnormal Cases Among Control &Intervention Group – During Study Period- Using cross tabulation (n = 220)

DISCUSSION

The study's findings discussed accordingly to the research questions that should be examined and the hypotheses that need to be approved or to be rejected.

Performance and scores of participated village midwives in Partogram training program (PTP) were discussed to find out general overview of their total knowledge and skills that they have gained, and detailed discussion of selected six components was done to see the effects of training program on each component and finally these six selected components were assessed as three groups and categories, each group reflected parameter in labour as follow

1. Fetal heart rate and liquor reflected fetal well-being.

2. Dilatation of cervix, uterine contractions and descent of presenting part, assessed the Progress of labour. 3. Maternal vital signs explained the maternal condition.

This study revealed that there was no difference between control and intervention groups in Their demographic data.

The total knowledge's score by participated village midwives in identifying the components of Partogram was improved among intervention group compared to control group.

Data showed that 85% of participants had scored knowledge less than 50%, while only 1.8% scored 75% or above in pre test. After interventions the result of total knowledge score was completely different and it was highly significant, 81% score more than 75% (p = <0.001); the mean of intervention group was greater than control group (13.45 and 7.95 respectively) and also the standard deviation (SD) for intervention group was bigger than control group (3.92 and 2.76.respectively).

The total skills' score of charting the six components of Partogram among intervention group was improved in post test compared to control group.

The t-test showed that mean of intervention group was 5.4 and control group was .45, and the (SD) of intervention and control group were different too (1.03 and.79). That means the two groups were different in their total score of skills in posttest and the result was highly significant, p = 0.001.

Detection of labour's abnormalities, proper recording of Maternal and fetus parameters lead to timely diagnosis of labour's deviations and decreased the long time spent for referral. The correct recording of partogram's components plays an important role in enhancing correct decision- making.

From study's findings, (65 cases) out of 1310 (4.7%) were transferred due to early detection of labour abnormalities, by participated midwives in intervention group, (p =0.001),the improvement about 2.4% at the end of the study, While only 28 cases out of 1179,(2.3%) were referred by control group. This means the competencies of intervention group was improved compared to control group.

At the end, the study's findings approved that the effectiveness of Partogram training program on total knowledge, total skills and the ability of trained participated midwives in detecting labour abnormalities was clearly improved compared to control group.

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