Original Article

Assessment of improvement in knowledge and skills amongst trainees of workshop on "labour and partograph"

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Abstract

Objectives: To assess the improvement in knowledge and skills amongst the trainees of the workshop on "labour and partograph."

Methods: Cross sectional study where 100 trainees were evaluated for improvement in knowledge and skills after workshops. Assessment tool selected for predefined objectives were a) feedback forms b)pre and post test questionnaire c)pre and post training assessment of skills. These competency based workshops were conducted at Hamdard university hospital and attended by 85 graduating final year students, 10 house officers and 5 labour room nurses. The data was entered and analyzed on SPSS.

Results: Eighty percent of the trainees strongly agreed that workshop had improved their knowledge and skills and appreciated the hands on practice session. In assessment of improvement in knowledge by pre and post test questionnaire it was found that only 14.9% scored >80% in pre test whereas in post test 87.8% scored >80% with a mean of 89.5 ± 9.1. In, overall, assessment of skills only 3.6% trainees scored >80% in pre-training assessment while in post training assessment almost 98.2% scored > 80%.

Conclusion: The overall results showed significant improvement in both knowledge and skills of the trainee after the workshop. Objectivity in teaching, learning and assessment gives good outcomes. We also feel that such training workshops should be done on a larger scale to train the staff in order to achieve the targets set under millennium development goals (JPMA 60:844; 2010).

Introduction

Medical education has undergone major transformation along with the change in concept of health and disease. It is becoming increasingly community oriented, learner-centered, self learning, and self peer assessing process. The traditional education system where the teacher is the sole provider of knowledge and the learner is a passive receiver is now being replaced by a model of structured teaching, training as well as assessment. Literature has also suggested that didactic sessions are less effective than are interactive small group discussions and hands on training in form of workshops, effectiveness of training should then be assessed by obtaining feedback from participants or analysis of pre and post training test.[1] This concept of teaching, learning has led us to conduct these workshops which included interactive teaching sessions as well as hands on practice sessions.

Effectiveness and evaluation of workshop in terms of improvement in knowledge and skills is objectively assessed by feed back forms, post test and practical demonstration.

The purpose of conducting the workshop on partograph was to increase the awareness about its importance in the management of labour in order to decrease maternal and perinatal morbidity and mortality. Partograph is basically a graphic representation of the events of labour plotted against time in hours. It is being modified now by WHO in which latent phase of labour has been removed.[2] It consists of three components (a) foetal condition b) maternal condition c) progress of labour (Figure). It can be used for all labours in hospitals and health centers and at domiciliary levels. It is designed for early detection of abnormal progress of labour and prevention of prolonged labour in order to reduce risk of Postpartum Haemorrhage (PPH), sepsis, obstructed labour and its sequels such as ruptured uterus, and

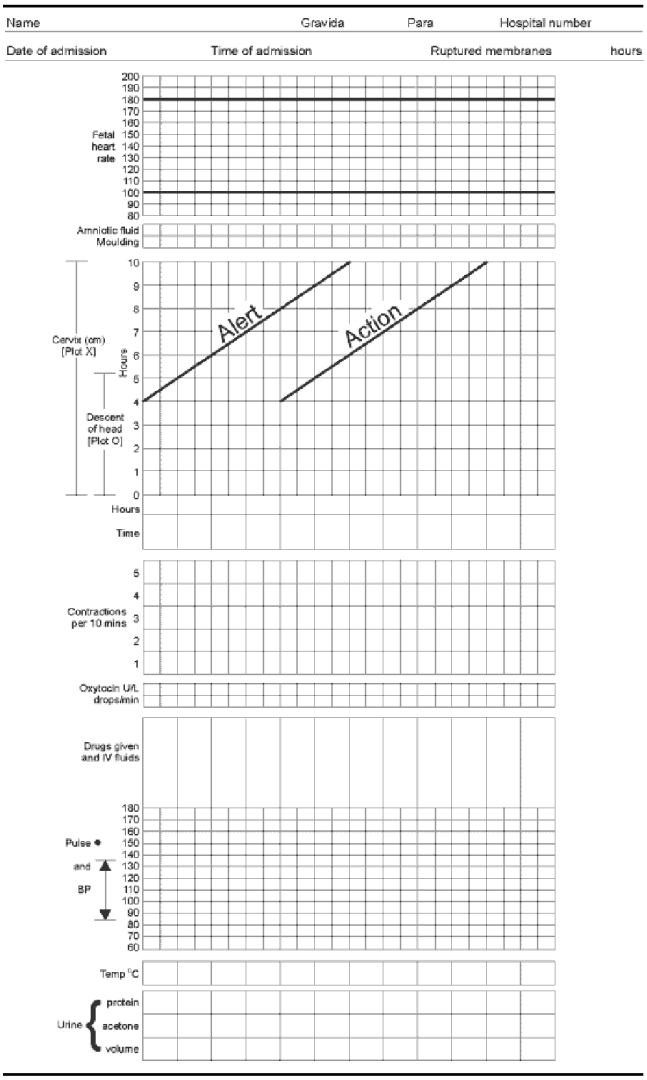

Figure: Modified partogragh — WHO.

obstetric fistula. In the foetus prolonged labour may cause asphyxia, brain damage, infection and death. WHO has used this tool in multicenter trials in resource constrained countries of sub Saharan Africa and south Asia and has confirmed its effectiveness, low cost and feasibility.[3]

In Pakistan the infant mortality rate (78 per 1000) maternal mortality ratio (376 per 100,000) are alarmingly high.[4] To achieve millennium Development Goals 4 and 5,[5] emphasis has been given on provision of universal access to clinical services in addition to preventive interventions.[6] An important strategy is effective training to improve the skills of the health care professionals in delivering clinical care at all levels.[7] The crucial role of partograph in management and monitoring of labour has motivated us to conduct its training among young doctors who are near to finish their medical school and will be serving community shortly.

This study examines the effect of interactive teaching and practical training sessions on improvement of knowledge and skills of the trainees.

Subjects and Methods

The workshop was conducted at skills lab of Hamdard university hospital with 100 participants out of whom 85 were graduating final year students, 10 house officers and 5 labour room nurses. They were divided into five groups of 20 each and workshop was conducted for five times, each with 6 weeks interval from August 2008 to March 2009. The selected group of students were those coming to obstetrics department for their clinical postings. Workshop was conducted with simultaneous theory and hands on practice. The teaching methods included presentations, practical demonstrations on models of maternal pelvis and foetus, videos of child birth, interactive sessions with question answers and hands on practice by every participant. The evaluation of the workshop was done by Kirkpatrick's four levels of programme evaluation criteria.[8,9] Kirkpatrick is now considered as an industry in training communities. The following are four levels.

Level one, Reaction evaluation: how the health care providers who received training felt about training or learning experience eg feed back forms, verbal reports or post training surveys. Level two, Learning evaluation: it is the measurement of increase in knowledge or intellectual capability from pre to post training learning. Level three, Behaviour evaluation: It is the extent to which the trainees applied the learning and changed their behaviours. It can be assessed immediately or several months after the training depending upon situation and level four Result evaluation: It is the effect on health facility or environment resulting from the improved performance of the trainee.

We did evaluation of our workshops in 3 ways which

corresponds to level 2 and to some extent level 3 of Kirkpatrick. In order to assess reaction evaluation we provided feedback forms to be filled by the trainees. It had 3 sections, section one regarding organization of the workshop, section two impact of the workshop and section three included comments of the learners. To assess improvement and retention in knowledge we gave a pretest and a post test questionnaire. The test included 10 questions on labour and partograph which were to be marked true or false, total marks were 10 and time allocated was 10 minutes. To assess improvement in skills a pre training and a post training assessment was done by giving them a scenario of prolonged and obstructed labour and participants were asked to fill in the partograph in front of an assessor. They were marked on a check list for performance of skills. Total marks were 20 and time given was 15 minutes. The data was then entered and analysed on SPSS.

Results

The workshop was attended by 100 participants including 85 final year students, 10 house officers and 5 labour room nurses. The replies to the feedback form are given in (Table-1) it clearly indicates that 80% of the participants strongly agree and 20% agreed that workshop had improved their knowledge and skills. Regarding their comments, about 90% appreciated hands on practice session and suggested it to be conducted on regular basis as part of the curriculum. More than 50% wanted more topics to be included as cardiotocograph, breech delivery etc.

Results of pre test and post test questionnaire were also promising which assessed the improvement in knowledge. In overall knowledge assessment it was found that only 14.9% scored >80% in pre test of the workshop whereas in post test 87.8% scored >80%. Mean 89.5 ± 9.1 (Table-2).

In assessment of skills, results showed that only 3.6% trainees scored >80% in pre training skills performance while in post training assessment 98.2 % scored >80%. Mean score was 46.2 ± 18.1% in pre assessment and 93.8 ± 6.3% in post training assessment (Table-2).

Table-2: Overall knowledge and skill assessment.

Percent Category	Pre Test	Post Test
Overall Knowledge Assessment		
<= 30%	11.4%	0.0
31-50%	24.6%	0.0
51-79%	49.1%	12.2%
>=80%	14.9%	87.8%
TOTAL	100	100
MEAN ± SD*	57.3 ± 18.0	89.5 ± 9.1
Overall Assessment of Skills		
Percent Category	**Pre Training**	**Post Training**
<=30%	19.8%	0.0
31 - 50%	39.6%	0.0
51 - 79%	36.9%	1.8%
>=80%	3.6%	98.2%
Total	100	100
MEAN ± SD*	46.2 ± 18.1	93.8 ± 6.3

* Standard deviation.

Table-1: Workshop Evaluation Form.

	Strongly agreed	Agreed	Disagree	Strongly disagree
Section One: Organization of the workshop				
1. Well organized	55%	45%	-	-
2.Objectives were relevant to participants needs	60%	38%	2%	-
3.Contents matched the objectives	70%	30%	-	-
4.Time allocation was appropriate	56%	40%	4%	-
5.Hand outs were helpful	54%	48%	2%	-
Section Two: Impact of the workshop				
1.Workshop objectives were clearly met	70%	30%	-	-
2.Enhanced my knowledge and skills	80%	20%	-	-
3.Learned procedure correctly	82%	18%	-	-
4. Information given is of practical value	60%	34%	4%	-
5.Presentations used were useful	60%	40%	-	-
6. Questions were adequately answered	50%	47%	3%	-

Discussion

This study provides evidence that an interactive intervention in form of workshop on partograph has resulted in improvement of knowledge and skills amongst trainees. This observation is clearly reflected in self assessment feedback forms in which 80% of the participants strongly agreed 20% agreed and none of them disagreed on the impact of the workshop in improving their knowledge and skills (Table-1). Thus almost all of the participants were satisfied with this method of teaching which is again encouraging for us as it agreed with objectives of the study. Eighty two percent again strongly agreed upon learning of correct

procedure i.e (plotting of partograph) and more than half of them were positive about its practical value to them in future. Participants views about institutionalization of this learning and performing it on regular basis with more topics to be included, is also encouraging.

Second tool, which is more objective and reliable and is free of bias for the assessment in the improvement in knowledge is pretest and post test. The results showed that 87.8% scored >80% marks in post test knowledge assessment compared to only 14.9% in pretest indicating marked improvement in knowledge. In skills assessment the participants actually filled in the partograph when clinical scenario was given to them and they were marked on a checklist by an observer. Before workshop only 3.6% knew how to fill partograph correctly but after training 98.2% scored >80% marks in post training skills assessment, which clearly indicates positive impact of the workshop on learning process, thus objectives of the study were met.

The limitation of our study is that we assessed the immediate effects of the training only. We could not assess the long term effects when these trainees will actually use partograph in their respective health care facilities. Literature review also supports that data on evaluation of training courses especially from poorly resourced countries is scarce while those conducted in developed countries have predominantly assessed immediate effects as we did in our setting. In a detailed systemic review of 217 evaluation studies from the developed world, undertaken by "learning and teaching support network" only 8% had a follow up component, the rest usually being made at a single time point, post intervention, or from before and after studies.[1] Similarly, a review by Jordan et al found course evaluation being focused on knowledge attitude and personal development.[10] We have also aimed to look at improvement in knowledge and skills as described by Kirkpatrick.[8] We have assessed up to level 2 and to some extent level 3 by seeing their application of knowledge in filling up partograph which clearly shows the improvement in knowledge and skills and assessed the behaviour change. The findings also suggests that "hands on skill based" training should be a regular component of all pre and in service continuous medical education in order to meet the targets set by millennium development goals.[4,5] It should start from medical schools where these young doctors can attain skill based competency before actual patient exposure. The training workshops should be a part of their curriculum so that they should develop skills along with theoretical knowledge. It is hoped that such courses would form an integral part in achieving competencies in a more efficient manner with modernizing of medical careers. Further, evaluations are needed to identify confounding factors and to determine the long term effects of such learning courses on improving maternal and neonatal indicators. We have done a small effort to start it from medical school but it should continue in all health care facilities. Another, limitation of our study was small sample size and including medical students only. It could have been more beneficial if practicing doctors , nurses and midwives be included in study with large sample size.

We also suggest to implement the training of maintenance of partograph during labour by skilled birth attendants, nurses/doctors in all maternity units. As in the WHO multicentre trial, introduction of the partograph reduced both prolonged labour, emergency caesarean section and intrapartum stillbirths.[3] In a country like Pakistan with high neonatal and maternal mortality and morbidity it is heartening to note that pregnant mothers and newborns are primary beneficiaries of such workshops and training in long term perspective. After training and clinical practice of six month clinical audits can be done to assess the improvement in care and decrease in maternal morbidity or mortality. Sustained encouragement and educational supervision are required to ensure the sustainability. Beyond the reach of aid through partograph are the millions who are delivered with no attendants or with assistance of untrained person. In these circumstances community education to recognize danger signs and move the woman in prolonged labour earlier than is now often the case are critical responsibilities of health workers.

Conclusion

The overall results showed significant improvement in both knowledge and skills of the trainee after the workshop suggesting, that structured and interactive teaching and practical training sessions are effective ways of learning. Objective assessment of the impact of training by using standard tools is also suggested. We also feel that such training workshops should be done on a larger scale to train the staff in order to achieve the targets set under millennium development goals.

References

1. Freeth D, Hammick M, Koppel I, et al. A critical review of evaluations of interprofessional education. London: Learning and teaching support Network for Health sciences and Practice; 2002.
2. Integrated management of pregnancy and childbirth; Managing Complications in pregnancy and child birth: A guide for midwives and doctors; normal labour & childbirth. Fig C-10: C-69. WHO RHR/00.7. (Online) (Cited 2009 March). Available from URL: http:// whylibdoc.who.int/hq/2000/WHO-RHR-00 pdf.
3. World Health Organization. World Health Organization partograph in management of labour. Lancet 1994; 343: 1399-404.
4. Pakistan Demographic and Health Survey 2006. National Institute of Population Studies. Islamabad, 2002.
5. Pakistan Millennium Development Goals Report 2006. Planning Commission, Government of Pakistan, Islamabad 2007.
6. Adam T, Lim SS, Mehta S, Bhutta ZA, Fogstad H, Mathai M, et al. Cost effectiveness analysis of strategies for maternal and neonatal health in

developing countries. BMJ 2005; 331: 1107.

7. Koblinsky M, Matthews Z, Hussein J, Mavalankar D, Mridha MK, Anwar I, et al. Going to scale with professional skilled care. Lancet 2006; 368: 1377-86.

8. Bates R. A critical analysis of evaluation practice: the Kirkpatrick model and the principle of beneficence. Eval Program Plann 2004; 27: 341-7.

9. McCallum M, Curran Smith J, Wojnar D, Williamson S. Evaluating the impact of organizational learning initiatives. J Nurses staff Dev 2002; 18: 177-83.

10. Jordan S. Educational inputs and patient outcomes: Exploring the gap. J Adv Nurs 2000; 31: 461- 71.