MEDICAL EDUCATION

IMPACT OF EMERGENCY OBSTETRIC CARE SKILL TRAINING WORKSHOPS FOR MEDICAL STUDENTS AT ZIAUDDIN UNIVERSITY. KARACHI. PAKISTAN.

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ABSTRACT

Background: Obstetric emergencies are usually sudden, unpredictable and may lead to maternal death and morbidity. Each year about 5,36,000 women die worldwide from complications of pregnancy and childbirth. Health professionals should be trained in emergency, life saving skills. Emergency obstetrics skills workshops for medical students were aimed to train them in providing care in emergency situations like antepartum and postpartum haemorrhage, eclampsia, shock, obstructed labour and abortion. Thus the purpose of our study was to evaluate the effect of emergency obstetrics workshop after providing training in team work in fourth year medical students to fulfil our future needs. We have evaluated the effect of hands-on training of emergency obstetrics skills in medical students in small groups and assessed the difference in their knowledge before and after the workshop.

Methods: This cross-sectional study was conducted at Obstetrics and Gynaecology Department of Ziauddin University, Karachi, Pakistan from 2015 to 2016. Fourth year MBBS students (n=146) were included in the study with their informed consent. The knowledge regarding pre & post workshop was evaluated regarding various emergency situations with the help of a questionnaire. A pre-workshop test of 10 multiple-choice questions was administered to all the participants. At the end of the workshop, the same 10 questions were administered and the two scores compared using Paired sample t-test for paired data on SPSS statistical software version-21. A paired-sample t-test was for pre & post test score.

Results: The results of pre test and post test showed profound improvement. We have been observed that the post test mean value of knowledge was higher than the pretest mean value of knowledge. Finally p-value <0.05 was considered statistically significance. Students were able to identify basic need of obstetric care that should be provided in obstetric emergency, compared with the situation before receiving the training.

Conclusion: Well defined and structured hands-on training is an effective way of improving skills of medical students and may reduce maternal mortality in Pakistan.

KEYWORDS: Emergency obstetric care workshop, Maternal mortality, Evaluation, lifesaving skills.

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INTRODUCTION

Obstetric emergencies are usually sudden as well as unpredictable, may lead to maternal death and morbidity. In principle, most maternal deaths are preventable, successful management responds in a quick, rapid and coordinated way. There is an increasing need to provide training in team coordination and communication. Approximately 800 women die every year globally, because of preventable causes primarily due to pregnancy and childbirth, from which around 99% of the deaths occurred in countries which are under developed[1, 2]. Pakistan contributes to high share of

these deaths with an approximate maternal mortality rate of 276 deaths per 100,000 live births[1]. Pakistan's rank is six among the most populous countries of the world, its estimated population is approximately 191.7 million in 2016[3]. The number of maternal deaths is estimated to be between 25000 and 30000 approximately, and this has been so since 1980s[4]. Whereas, globally approximately 500,000 women die every year because of pregnancy related causes. These deaths usually occur due to direct obstetric complications: haemorrhage, complications of abortion, hypertensive disorders of pregnancy, sepsis, ruptured uterus and ectopic pregnancy[5]. In addition to this, approximately 4 million neonatal deaths occur every year, it includes 40% of deaths of children who are below 5 years in age[6]. The secret to the success of any medical workshop lies in the effective transfer of knowledge from the faculty to the participants. A workshop on emergency of obstetrics and gynaecology was recently conducted at a tertiary care service hospital based on the latest international guidelines[7].The simplest method of testing effectiveness of training at a workshop is to administer the same set of objectively structured questions before and after the session and to analyze the difference[8]. Approximately 89,000 maternal deaths occurred globally in 2013, majority of which occurred in sub- Saharan Africa (SSA) i.e. 62% and southern Asia i.e. 24%[9], around 73% of global maternal deaths were due to direct obstetric causes[10].Obstetric emergencies are the cause for most of the maternal and perinatal mortality i.e. 70.6% and 86% respectively. According to the World Health Organization (WHO) and UNICEF, 340 per 100,000 live births was MMR in less developed counties in 2006[11]. Additionally, according to WHO, globally, 73% of total maternal deaths during 2003 to 2009 occurred due to direct obstetric causes. Similarly, haemorrhage was the reason of maternal deaths in 27% cases, hypertension 4%, sepsis 10%, abortion 7.9%, embolism 3.2% and all other causes of death were responsible for 9.6% of the total maternal deaths. Majority of deaths occurred in low or middle income countries and were avoidable. Maternal mortality is more common in under developed countries, however accurate number may not be known due to poor data collection, poor maintenance of record and improper use of statistical tools[5, 9]. Training for emergency obstetrics and gynaecology plays a pivotal part in increasing quality of care and reducing maternal and perinatal mortality and morbidity[12].The simplest method of testing effectiveness of training at a workshop is to administer the same set of objectively structured questions before and after the session and to analyze the difference. There is no published comprehensive evaluation of EmONC in-service training packages in low resourced countries. An evaluation of the effectiveness of an (EmOc) training intervention in comprehensive EmOC in Pakistan. A set of 10 multiple choice questions was administered before and after the workshop to assess the knowledge gained by this mixed group of participants[13].Many organizations in the world spent considerable amounts of their resources on training. The effects of these training programs is often not acknowledged due to non-measurement, however recent studies show training evaluation is far more important today than it was ever. The significance of this study is that it assesses a training program to determine its effectiveness. Literature shows that, such evaluations are not carried out usually and if they are, the results are for internal consumption purposes only. The objective of this study was to evaluate the effectiveness of an "in workshop training" program at a health care hospital. There is therefore an increased need for training of trainees, medical students to provide emergency care in obstetric emergencies – such as postpartum haemorrhage (PPH), eclampsia, sepsis and antepartum haemorrhage – to reduce maternal mortality.

METHODS

This cross-sectional validation study was conducted at Obstetrics and Gynaecology Department of Ziauddin University, Karachi, Pakistan from 2015 to 2016. All the fourth year MBBS students were included in the study. The training included two days' workshop. The whole course material comprising of 10 modules, divided into 5 modules each day. Day One: 5 modules were covered on initial resuscitation like cardiopulmonary resuscitation (CPR), neonatal resuscitation, fluid balance and common obstetrical problems. Day Two: specific obstetrical emergencies and their management were taught-Each module comprises of 20 minute lecture followed by 30 minute interactive breakup sessions for active hands on practice of each participant, preformed close ended structured questionnaire was used to obtain the views and recommendations of the respondents by using one group pretest & posttest conducted before and after the workshop with an evaluative approach. Non-probability purposive sampling technique was used to select the participant students. Fourth year students of MBBS with a small group size on the effectiveness of EMOC training in a group of five or eight medical students per tutor was included in the study. Data was collected by structured knowledge questionnaire. The sample size was calculated using a statistical calculator "Open Epi calculator version 2.3.1". Keeping the level of significance at 5% with study power at 80%, a minimum of 146 participant were required to deduct a minimum difference of standard deviation 2 units. Hence, the final sample size was 146 participant. The study consists of structured knowledge questionnaire of 10 items related to selected obstetric emergencies and their management; each correct answer was awarded with a score of "1" and a score of "0" was awarded for

the incorrect answer. The data was later analyzed by Statistical Package for Social Sciences (SPSS) 21 program (SPSS Inc., Chicago, IL, USA) in terms of descriptive and inferential statistics. A paired-sample t-test was applied for post-test and was compared with those of the pre-test p-value <0.05 was considered to represent statistically significance.

RESULTS

One hundred and forty six 4th year medical students contributed for the workshop on emergency Obstetrics and gynecology MCQ test.The post test mean value of knowledge was 8.74±1.20, which was higher than the pretest mean value of knowledge 5.91±1.39. The mean difference between pre test and post test knowledge was -2.83 and the obtained„t" value was -26.3 which was calculated at 0.05 level of significance. The calculated "t" value was more than the table value, which was significant at 0.05 level. Hence, the planned teaching programme was found to be effective in improving the knowledge regarding management of selected Obstetric emergencies had average knowledge and 11(7.5%) had poor knowledge (Table 1) revealed that in pre test majority of the subjects 85(58.2%) had average knowledge, 40(27.5%) had poor knowledge and 21(14.3%) had good knowledge. In post test, majority 89 (61%) of them had good knowledge, 46(31.5%) had average knowledge and 11(7.5%) had poor knowledge (Figure 1). The mean scores for each of the 10 MCQ questions are shown in Table 4. All questions resulted in mean scores of 8 or more, except for 4; these were: 'Complication of Abortion?' (Mean score = 7.4), the assisted delivery module (mean score = 7.36), and the module on Obstetrics Haemorrhage and Pre-eclampsia and eclampsia (mean score = 7.75 & 7.71).

DISCUSSION

One of the immediate effects of emergency obstetric training' is boosting confidence of participants in dealing with obstetric emergencies. Now, medical teachers need to promote active learning, for that purpose, small group methods are optimal[14]. Modern era requires medical student who are active, eager for independent lifelong learning and teamwork. Current educational innovation and to generating free communication between the group leader and the members small group work is a suitable method, and among all the members

themselves. EMOC can be effectively taught in small groups[15, 16]. Pre and post test showed significant increase in knowledge, more so in the group shown the slides. The authors conclude that use of audiovisual aid increases the transfer of knowledge[17]. In our study too, multimedia presentations were used for the lecture sessions and the fact that our study subjects were more qualified than the subjects in the above quoted study probably helped in better transfer of knowledge. Related methods for assessing effectiveness of workshops and teaching sessions have been used and proved beneficial for learning of general practitioners18. Our study showed a mean pre-workshop score of 9.03 out of a maximum possible of 20 (45.15%) and this increased to a mean of 15.53 (77.65) post-workshop.The post-workshop increase in score, though highly significant, was 77.65% as compared to 85% in Agarwal's study; this is probably a pointer to the fact that we have to improve our method of conducting future workshops. Age: The present study showed that 60% i.e 30 (of the final year GNM students were from the age group of 19-21 years, 34% i.e. 17 of them were from the age group of 22-24 years and 6% i.e. 3 students were from the age group of 25-27 years. The above result was supported by the study conducted by Garika M to evaluate the effectiveness of planned teaching programme among Female Health Assistants regarding obstetric emergencies at selected health centres, Gulbarga district, Karnataka where most of them16(53.33%) of them were in the age group of 21-30years[19, 20].

The post test mean value of knowledge was 28 with SD of 5.85 which was higher than the pretest mean value of knowledge (21) with SD of 4.86. The findings of the study were supported by a similar study conducted by Jijimole M to evaluate the effectiveness of a structured teaching programme, for antenatal women, on high risk conditions in pregnancy, at the antenatal clinics of St, John"s Medical College Hospital. Bangalore [21]. Interprofessional learning is beneficial even when the participant groups are at variable levels of learning and have different learning goals and expectations.

CONCLUSION

To improve the skills in medical students, we should have structured hand-on-training program which could lead to modification of clinical practice and may reduce maternal mortality in Pakistan.

Table 1: Frequency and percentage distribution of knowledge scores of fourth year medical students regarding management of Obstetric emergencies during the pre test and post test

Knowledge Score	Pre test	Post Test
	Frequency (%)	
Good (X+SD)	21(14.3%)	89(61%)
Average (X-SD)(X+SD)	85(58.2%)	46(31.5%)
Poor (X-SD)	40(27.5%)	11(7.5%)

Table 2: Mean difference, standard deviation and paired "test of knowledge scores of the fourth year medical students, n=50

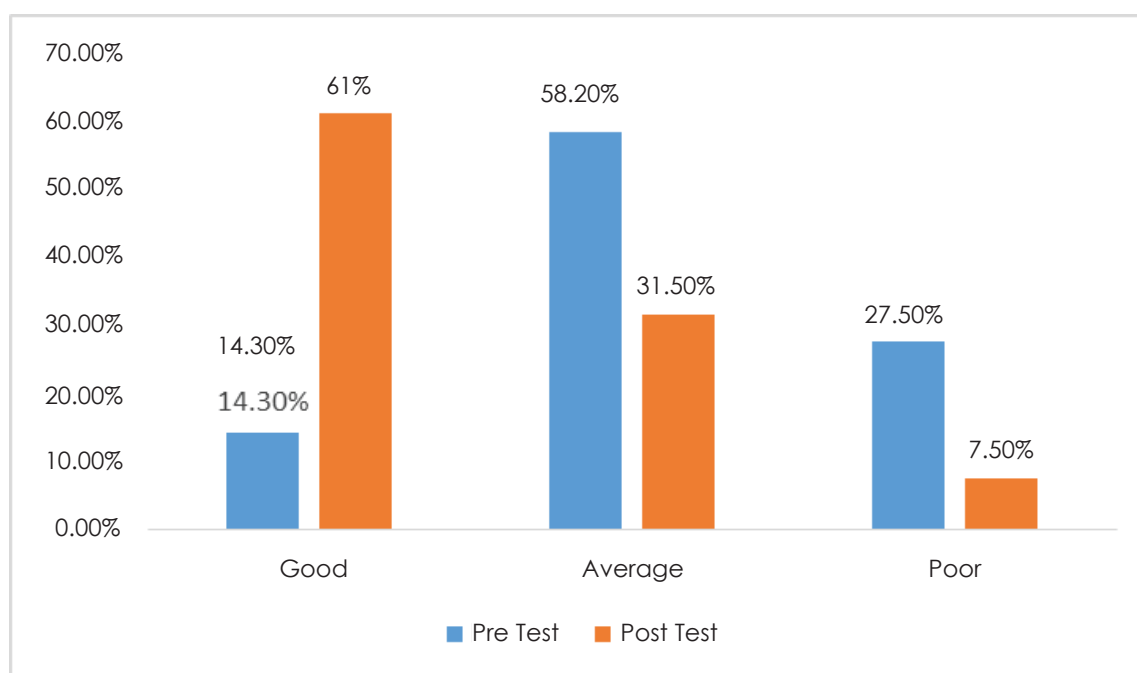| Paired Samples	Pre and post Score Test		P- value
	Mean±SD	Mean Difference	
Pre Score Test	5.91±1.39	-2.83	P<0.001*
Post Score Test	8.74±1.20	t=-26.3	

Figure 1: A column graph showing percentage distribution of pretest and post test knowledge scores of subjects regarding management of Obstetric emergencies among the fourth year medical students.

Table 3: Assessments on a mutiple MCQ questions, for 10 questions that assessed the ESMOE course, from contributing interns at the end of the course (N=46)

General Comments	Mean Score
Was the course enjoyable	8.4
Was it easy to make the most of the course	9.1
Was it easy to join the interacticve course sessions?	9.5
Did you feel comfortable and at ease during the course?	7.9
Was the course a good use of your time?	9.4
How good was the location venue?	8.7
How good was the apparatus delivered for knowledge?	9.7
Evaluation on the modules	
Lecture on Emoc and the sytematic approach	8.3
Material Resuscitatin	6.9
Care of the newborn	8.4
Shock and the unconscious patients	7.8
Pre-eclampsia and eclampsia	7.1
Obstetrics Haemorrhage	7.75
Sepsis	8.6
Assisted Delivery	7.36
Obstructed Labour	9.8
Medical Surgical Assistances	8.3
Complication of Abortion	7.3

Table 4: Mean and Standard deviation for the MCQ questionnaire for the pre-post-tests of course attendees

Question	Pre Score Mean±SD	Post Score Mean±SD	Difference Confidence interval	P-value
while managing an unconscious patient, we will do all of the following, except:	3.85±0.86	8.86±2.85	-5.01(-5.4790 to -4.5410)	0.0001*
Which one of the following is not the possible Cause of Cardiopulmonary Arrest	5.12±0.56	7.79±2.5	-2.67 (-3.0736 to -2.2664)	0.0001*
Regarding communication and triage, which one of the following is incorrect:	4.69±1.36	9.31±1.45	-4.62(-4.9332 to -4.3068)	0.0001*
Prioritization for the order of treatment and allocation of staff is divided into 3 categories, which one of the following defines priority 2:	2.8±1.42	7.55±1.23	-4.750(-5.0460 to -4.4540)	0.0001*
In a patient with hemorrhage, fluid management is crucial, which of the following is defined as rapid rate infusion:	6.38±1.2	7.75±1.15	-1.370(-1.6318 to -1.1082)	0.0001*
For rapid assessment of conscious level, AVPU is applied. Which of the following is in correct	2.45±0.46	7.85±1.24	-5.40(-5.6084 to -5.1916)	0.0001*
The next dose of magnesium sulphate should not be given in the presence of any of these signs except	3.45±0.29	5.3±2.35	-1.850(-2.2230 to -1.4770)	0.0001*
Causes of fever in pregnancy and labor includes all of the following except:	4.3±1.1	9.97±0.17	-5.67(-5.8453 to -5.4947)	0.0001*
One of the following definition is incorrect:	2.8±0.65	6.58±1.8	-3.78(-4.0815 to -3.4785)	0.0001*
Which one of the following is not a pre requisite of instrumental delivery?	6.01±1.56	7.36±0.72	-1.35 (-1.6207 to -1.0793)	0.0001*

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