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Obstetrical Management For Midwives Through "Midewifery Case Management Software" – A Pre-Experimental Study

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ABSTRACT

The population consisted of trained midwives working in maternity units. A sample size of 30 midwives was selected by using purposive sampling technique. Data were collected with the help of Self administered questionnaire. MCM software was installed and administered in their desktop computers in nursing stations of maternity units.

A Pre experimental study was adopted to determine the effectiveness of Midwifery Case Management software on the knowledge of obstetrical management among trained midwives at selected hospitals.

Objectives for this study were:

- To assess the knowledge of trained midwives regarding obstetrical management.
- To prepare and administer MCM Software for trained midwives on obstetrical management.
- To find out the association between pre-test knowledge score and selected demographic variables on obstetrical management.
- To evaluate the effectiveness of MCM software for trained midwives on obstetrical management.
- To obtain the feedback from the trained midwives regarding the acceptance of the MCM software

The findings of the study revealed that 23(77%) of samples were under the age group of 21-25 years, only 7(23%) samples are in the age group of 26-30 years and none of them were in the age group of >30 years. Majority of trained midwives i.e. 18(60%) samples were B.Sc. (N) whereas less than half i.e.9(30%) samples were GNM and only 3(10%) were Post basic (N). Majority of the midwives 25(83%) of samples who had professional experience between 1-5 years. Most of the trained midwives 26(87%) had total years of experience in maternity unit between 1-5 years. Out of 30 trained midwives only 4(13%) samples were exposed to in-service education where as 26(87%) were not exposed to in-service educations regarding obstetrical management. Mean knowledge score of pre test was 18.96 and post test was 28.43. Calculated mean difference is 9.47, SD was 4.01, SE was 0.73 and df was 29, the paired t test value ($t_{29} = 12.97$) which was significant at $P < 0.001$ level. This indicates that there is significant difference between the pre test and post test knowledge level of trained midwives at the level of $p<0.05$.

Keywords: Midwives, Obstetrical management, Maternity unit, Knowledge, Midwifery Case Management Software

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1. INTRODUCTION

The immediate management of the obstetric emergencies is dependent on the prompt action of the midwife. The speed of this action while calling for medical aid will often help to determine the outcome for the mother or the baby. Recognition of the problem and the investigation of emergency measure allow time for help to arrive. The midwife should remain alert to the possibility that the emergency, as in case of sudden collapse, may not directly associate with mother's pregnancy. The management of emergencies is usually the responsibility of hospital obstetricians and the nurse midwives.[1]

Computers have effected marked change in the health care industry and particularly the nursing profession. Computers are becoming a part of our everyday existence and are influencing "Man" by their human-like characteristics.[2]

The 21st century is both an information and knowledge age. Nursing and medical professions are facing the increasing usage of information technology in day-to-day operations with the overall aim of improving the quality of patient care.[3] Computer software or simply software is any set of machine-readable instructions that directs a computer's processor to perform specific operations. Computer software contrasts with computer hardware, which is the physical component of computers.[4]

When a woman becomes pregnant, she is very aware that a new life is growing within her for the next nine months. Millions of women give birth to healthy babies every day. On the other hand, one often hears of women who have miscarriages, or who give birth to stillborn children or children with birth defects. This acts as a constant reminder of just how fragile and delicate the process from conception to childbirth is. It is a long road with pitfalls at every turn.[5] Desktop computers have evolved to permit physicians in practice and/or training to access and manage information to enhance knowledge, understanding, and learning. There are compelling reasons why the personal computer is key to learning and important in medical education. Above all, the computer enhances and amplifies the learning process. Some tools are critical for medical students. For some time, all medical students have needed a black bag and microscope.

Now every medical student needs a computer. Ample courseware is available and expanding rapidly for basic sciences and clinical disciplines. The explosion in biomedical information will continue. Finding information is key to understanding and learning rather than depending solely on memory, recall, or library trips for information. The desktop computer will benefit students, faculty, and future physicians and other health professionals as life-long learners.[6]

The use of mobile technologies in nursing education is rapidly increasing. Handheld computers are the most frequently used of these technologies as they can provide students with information for point of care clinical reference, such as diagnostics, medical terminology, and drug references. Integrating the management and processing of information into clinical practice is an effective learning approach for students and reflects a changing paradigm in nursing education. Traditionally, nursing programs have the tendency to separate the acquisition of academic knowledge from clinical practice, and the process of integrating academic information into the decision making processes in the clinical area has been difficult for student nurses.[7]

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Computerized information systems that incorporate structured documentation provide tremendous opportunities for improving resource management and refining clinical and administrative processes. Documentation of nursing activities, including the timing of task completion and information about the patient for whom nursing activities were performed, enables modeling and analysis of nursing practice patterns.[8] Increasingly there is an educational shift to provide students with more learning opportunities to create innovative teaching practices and to promote current, accurate information retrieval systems for clinical nurses.[9]To address the problem of limited access to childbirth preparation methods, especially for under-served Californians, the author investigated, designed, created, and evaluated two tools:

The Prepared Partner and Digital Birth. The Prepared Partner is an online Flash game, and Digital Birth is a free iPhone application that is still undergoing revision and testing. Both games allow the user to practice various supportive actions in the realm of childbirth support for a mother in labor. The author found that players met the learning goals due to The Prepared Partner, and answered positively on the survey questions about their enjoyment of the game.[10]

Emphasis need to be laid on facilitating individual self care management skills through teaching regarding warning signs during pregnancy, skill and ability to take self care at home. Worldwide, an estimated 50,000 pregnant women die each year from complications related to pre-eclampsia.[11]

2. MATERIAL AND METHODS

In this study, Pre experimental one group pre test post test design is selected and samples were all Trained Midwives working in maternity units of hospitals. The sample was selected through Non probability purposive sampling technique.

Tool: The tool used for data collection in Research study was organized in three sections-
Section 1: Socio-Demographic data of Midwives
Section 2: Self administered questionnaire regarding midwifery management
Section 3: Opinionnaire

Procedure for Data Collection: Written permission was obtained from the administrative authorities of the hospitals prior to the data collection. Pre test was administered to trained midwives and data was collected. Then MCM software installed into computers of nursing station of labor wards, midwives informed about the points like: how to use MCM software & instructed to read & use this software thoroughly. On 8^{th} day post test conducted with the same tool to assess the gain in knowledge scores & Structured Opinionnaire to get the feedback of trained midwives on acceptability of the MCM software.

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3. FINDINGS

Socio-demographic data of trained midwives

Out of 30 Midwives, more than half i.e. 23(77%) of samples are in the age group of 21-25 years, only 7(23%) samples are in the age group of 26-30 years and none of them were in the age group of >30 years.

Regarding Professional qualification, out of 30 samples less than half i.e.9(30%) samples were GNM, 3(10%) were Post basic (N) and majority of them 18(60%) samples were B.Sc (N).

Total years of professional experience, out of 30 samples, more than half i.e. 25(83%) of samples who had experience between 1-5 years, 5(17%) had experience between 6-10 years and none of them had experience more than 10 years.

About total clinical experience in maternity unit, out of 30 samples, more than half i.e. 26(87%) of samples who had experience between 1-5 years, 4(13%) had experience between 6-10 years and none of them had experience more than 10 years.

On exposure to in-service education on obstetrical management, only 4(13%) samples were exposed to in-service education where as 26(87%) were not exposed to in-service education.

DESCRIPTION OF PRETEST KNOWLEDGE SCORES ON MIDWIFERY MANAGEMENT AMONG TRAINED MIDWIVES

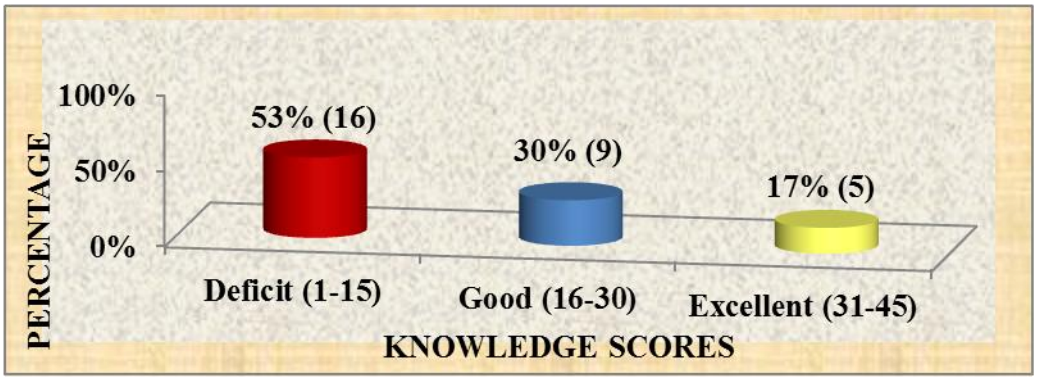

FIG 1 CYLINDRICAL DIAGRAM SHOWING PRETEST KNOWLEDGE SCORES REGARDING MIDWIFERY MANAGEMENT

Fig.1 shows that Out of 30 samples, more than half i.e. 16(53%) had deficit knowledge (1-15 score), 9(30%) had good knowledge (16-30 score) and 5(17%) had excellent knowledge (31-45 score).

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DESCRIPTION OF POST TEST KNOWLEDGE SCORES ON MIDWIFERY MANAGEMENT AMONG TRAINED MIDWIVES

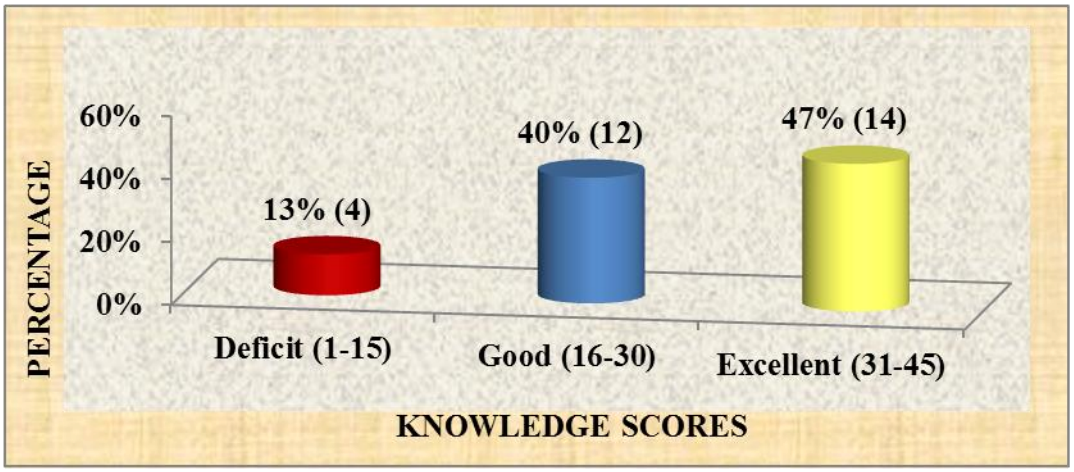

FIG 2 CYLINDRICAL DIAGRAM SHOWING POST TEST KNOWLEDGE SCORES REGARDING MIDWIFERY MANAGEMENT

Out of 30 samples, more than half i.e. 14(47%) had excellent knowledge (31-45 score), 12(40%) had good knowledge (16-30 score) and 4(13%) had deficit knowledge (1-15 score).

ASSESSMENT OF EFFECTIVENESS OF MCM SOFTWARE BY COMPARING THE PRETEST AND POSTTEST KNOWLEDGE SCORES AMONG TRAINED MIDWIVES

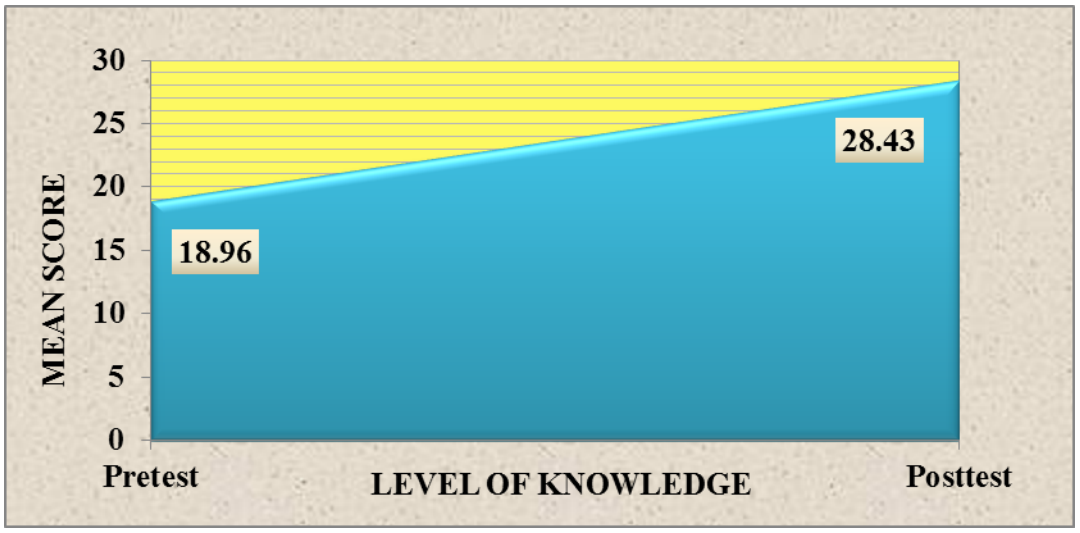

FIG 3 AREA DIAGRAM SHOWING MEAN PRE TEST AND POST TEST KNOWLEDGE SCORES

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Mean post knowledge score 28.43 was higher than mean pre test knowledge score 18.43, and computed 't' value (t_{29} = 12.97) was more significant at the level of P≤ 0.001, thus indicating highly significant difference and effectiveness of MCM software in increasing the knowledge of trained midwives. Hence H_2, there is significant difference between the pretest and posttest knowledge level regarding obstetrical management among trained midwives at the level of P≤ 0.05 was accepted.

Structured opinionnaire to determine the opinion of trained midwives on acceptability of the MCM Software for midwifery management.

The opinion of midwives regarding the MCM Software like 25(84%) believes that MCM is a good source of learning & easy to understand about midwifery case management. 25(84%) found that this Software includes all important drugs, procedures, calculators and protocols on managing obstetrical conditions. 30(100%) said that the images in MCM Software interpret the information clearly. 27(90%) believes that the Software's content is self explanatory. 24(80%)said that this MCM software saves time for managing case. 25(84%) found that, written instructions of MCM software are helpful when they require. 27(90%) found that MCM software is user friendly & stimulates interest in nursing care. 24(80%) said that interactive nature of the MCM software made their nursing care more interesting. 29(97%) believes that MCM software is very effective way to apply technology (computer) in nursing practice & education. 27(90%) said that this type of software can be recommend for teaching nursing staff about case management.

4. DISCUSSION

Association between pre tests knowledge score and selected socio-demographic variables

H1: There is significant association between pretest knowledge scores and selected demographic variables at the level of p≤0.05. The present study was undertaken to find association between pre test knowledge score regarding obstetrical management and selected socio demographic variables.

The computed chi- square values between the pretest knowledge scores and the socio demographic variables like professional qualification and exposure to in-service education on obstetrical management are not associated with knowledge. The association of Age in years was found statistically significant with chi-square values of 6.87 respectively at P≤ 0.05. The association of Total years of professional experience and total clinical experience in maternity unit also found statistically significant with chi square values of 10.16 and 11.92 respectively at P≤ 0.05. Hence H1, there is significant association between the knowledge scores regarding midwifery management and selected socio demographic variables like Age in years, Total years of professional experience and total clinical experience in maternity unit, at the level of P≤ 0.05 is accepted.

The above finding was supported by the study conducted by **Bijapurkar M et al (2009)**[12] conducted a study to assess the effectiveness of self instructional module on the knowledge of Obstetric Drugs among Nurses working in maternity unit. Findings revealed that the total years

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of experience in maternity unit showed an association with pretest knowledge at 0.05 level of significance. No association was found between the variables, i.e. age, professional qualification, total years of professional experience and in-service education attended; at 0.05 level of significance.

Effectiveness of MCM software on knowledge regarding obstetrical management among trained midwives

H2 : There is significant difference between the pretest and posttest knowledge level regarding obstetrical management among trained midwives at the level of $P \leq 0.05$.
The mean post knowledge score 28.43 was higher than mean pre test knowledge score 18.43, and computed 't' value (t_{29} = 12.97) was more significant at the level of $P \leq 0.001$, thus indicating highly significant difference and effectiveness of MCM software in increasing the knowledge of trained midwives regarding obstetrical management. Thus the hypothesis made by the researcher i.e. H_2 is accepted.

The above finding was supported by the study conducted by **Nadel E(1997)[13]** conducted to assess the effectiveness of obstetric emergency training programme on knowledge regarding obstetric emergencies among medical graduates in Bristol Medical Simulation Centre, England. One hundred and forty samples have selected by non-random method for the study. Data were collected by using questionnaire. The tesult of the study showed significant difference between pre-test and post-test. Post-test score was (23.1) more while comparing to pre-test score (18.1) and $P < 0.001$.

5. CONCLUSION

After the detailed analysis, this study leads to the following conclusions:

The result revealed that MCM Software regarding Obstetrical Management among trained midwives was effective and brought about the excellent changes in their level of knowledge.

Pre-test mean knowledge score was 18.43 and Post-test mean knowledge score was 28.43 of the trained midwives. The finding of the study showed that there was association found between Age in years, total years of professional experience, total clinical experience in maternity unit and pre-test knowledge score.

It is concluded that there is less knowledge regarding obstetrical management in trained midwives. So the trained midwives working in maternity units should be trained regarding the obstetrical management by using MCM Software so that the nurse midwives can gain more knowledge about case management.

The MCM Software is developed with the objective that the midwives will gain knowledge on Obstetrical Management and improve their skills in case management. They will refer this Software during their day to day practice.

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Ethical approval
Informed consent was obtained from participant and assured for anonymity. Since the study involved human subject, a formal ethical approval was received from institutional ethical committee.

Conflict of Interest
The authors declare no conflict of interest.

Source of Funding
The study is not funded by any external sources and all expenses were borne by the investigators.

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