IJNRD.ORG ISSN : 2456-4184
INTERNATIONAL JOURNAL OF NOVEL RESEARCH AND DEVELOPMENT (IJNRD) | IJNRD.ORG
An International Open Access, Peer-reviewed, Refereed Journal

A Study to Assess the Effectiveness of Computer-Assisted Teaching Programme on Knowledge Regarding Danger Signs During Pregnancy Among Antenatal Mothers Attending ANC at Sri Chamarajendra Hospital, Hassan

Ms. Roopashree K S
Vice Principal, Department of Obstetrics and Gynecological Nursing
Moodlakatte College of Nursing, Kundapura, Karnataka, India
Email: ksrshree@gmail.com

Abstract

Background:
Pregnancy, though a natural physiological process, is often associated with health risks to the mother and fetus. The lack of awareness regarding danger signs during pregnancy contributes significantly to maternal morbidity and mortality, especially in developing countries like India.

Objectives:

1. To assess the knowledge regarding danger signs during pregnancy among antenatal mothers.
2. To evaluate the effectiveness of a Computer-Assisted Teaching Programme (CATP) on this topic.
3. To find the association between post-test knowledge scores and selected demographic variables.

Methods:
A pre-experimental one-group pre-test post-test design was used with a convenience sample of 50 antenatal mothers attending the ANC clinic at Sri Chamarajendra Hospital, Hassan. Data were collected using a structured knowledge questionnaire. CATP was administered after the pre-test, and a post-test was conducted on the 8th day. Data were analyzed using descriptive and inferential statistics.

Results:
The mean percentage of post-test knowledge score (79.6%) was significantly higher than the pre-test score (38.0%). The calculated paired *t*-value was greater than the table value at $p<0.05$, indicating significant improvement. Chi-square analysis showed a significant association between educational status and post-test knowledge scores.

Conclusion:
The study concludes that antenatal mothers had inadequate knowledge about danger signs during pregnancy, and the CATP was effective in enhancing their awareness.

Keywords:
Effectiveness, Computer-Assisted Teaching Programme (CATP), Knowledge, Danger Signs, Pregnancy, Antenatal Mothers

Introduction

Pregnancy, while a natural physiological process, carries significant risks for both mother and child, particularly in developing countries. Many women enter pregnancy with expectations of joy, yet complications can evoke fear, helplessness, and confusion. Open communication, involvement in decision-making, and clear explanation of complications and treatments are essential for empowering patients[1].

Globally, maternal mortality remains a major public health concern. The World Health Organization reports 430 maternal deaths per 100,000 live births worldwide—480 in developing countries compared to 27 in developed nations[3]. India alone accounts for over 20% of global maternal and child deaths[2], with a current maternal mortality rate (MMR) of 407 per 100,000 live births[4,8]. This translates to over 100,000 maternal deaths annually, often due to home deliveries by untrained personnel, poor emergency obstetric care, and lack of timely referrals[4,8].

Danger signs in the second and third trimesters—such as vaginal bleeding, severe vomiting, pregnancy-induced hypertension, preterm labor, and reduced fetal movement—are often unrecognized[5]. Nearly 90% of maternal deaths in developing nations result from complications that could be prevented with timely and adequate care[6]. Many families and communities lack awareness of these danger signs, further exacerbating risks[6].

The WHO's Safe Motherhood Initiative emphasizes antenatal care, clean and safe delivery, family planning, and emergency obstetric services. Its goal aligns with this study's objective: to assess the awareness of danger signs among women attending antenatal clinics.

As Gupta notes, although motherhood is natural, it can be life-threatening. About 40% of pregnant women face complications requiring immediate care[7]. Maternal death impacts not just the woman but also her children's survival and well-being. In India, illiteracy, poverty, and poor access to care and transport systems leave many mothers vulnerable[8]. Despite being primary caregivers and key contributors to societal well-being, their fundamental right to health is frequently denied[8]

Objectives

1. Assess the knowledge regarding danger signs during pregnancy among antenatal mothers.
2. Evaluate the effectiveness of a CATP in improving knowledge.
3. Find the association between post-test knowledge scores and selected demographic variables.

Materials and Methods

Research Design:
Pre-experimental, one-group pre-test post-test design.

Setting:
Sri Chamarajendra Hospital, Hassan, Karnataka.

Sample & Sampling:
50 antenatal mothers selected using a convenience sampling method. Inclusion criteria included antenatal mothers attending ANC who understood Kannada and were willing to participate.

Data Collection Tool:
A structured knowledge questionnaire (40 items) covering areas such as pregnancy information, causes, signs, complications, prevention, and management of danger signs.

Intervention:
Computer-Assisted Teaching Programme developed based on expert inputs and literature review. The session covered topics like danger signs (vaginal bleeding, pallor, swelling, severe vomiting, etc.), their complications, and self-care strategies.

Data Collection Procedure:

- **Pre-test:** Conducted using structured questionnaire (Day 1).
- **Intervention:** CATP administered after the pre-test.
- **Post-test:** Conducted on Day 8 using the same questionnaire.

Data Analysis:

- **Descriptive statistics**: Frequencies, mean, percentage, standard deviation.
- **Inferential statistics**: Paired *t*-test to evaluate effectiveness; Chi-square test for association with demographic variables.

Validity & Reliability:
Content validity was established by 10 experts. Reliability of the questionnaire was 0.84 (Split-half method with Karl Pearson correlation).

Ethical Considerations:
Informed consent was obtained. Permission granted by hospital administration.

RESULTS

This chapter presents the analysis and interpretation of data collected from 50 antenatal mothers attending the Antenatal Clinic at Sri Chamarajendra Hospital, Hassan. The primary aim of the study was to evaluate the **effectiveness of a Computer-Assisted Teaching (CAT) programme** on knowledge regarding **danger signs during pregnancy**. The data were analyzed using both descriptive and inferential statistics to address the study objectives and hypotheses.

Objectives of the Study

1. To assess the knowledge regarding danger signs during pregnancy among antenatal mothers.
2. To evaluate the effectiveness of the computer-assisted teaching programme.
3. To find the association between post-test knowledge scores and selected demographic variables.

Section I: Analysis of Socio-Demographic Data

The socio-demographic characteristics of the respondents are summarized as follows:

- **Age:** Majority of the participants (48%) were aged between 23–27 years, followed by 40% in the 18–22 years group, and 12% in the 28–32 years group.
- **Type of Family:** 58% belonged to nuclear families and 42% to joint families.
- **Religion:** Most participants were Hindu (56%), followed by Muslim (30%) and Christian (14%).
- **Educational Status:** 58% had primary education, 28% had secondary education, 10% had completed PUC, 4% were graduates, and none were illiterate.
- **Family Income:** 70% had a family income above ₹2501 per month.
- **Area of Residence:** 58% of the respondents were from rural areas, while 42% were from urban areas.

Section II: Analysis of Knowledge Scores

A. Pre-Test Knowledge Scores

- **Knowledge Levels (Pre-Test):**
  - Inadequate knowledge: 98%
  - Moderate knowledge: 2%
  - Adequate knowledge: 0%

B. Post-Test Knowledge Scores

- **Knowledge Levels (Post-Test):**
  - Inadequate knowledge: 0%
  - Moderate knowledge: 32%
  - Adequate knowledge: 68%

These findings indicate a significant improvement in knowledge following the CAT programme.

C. Comparison of Pre-Test and Post-Test Scores

Test Type	Mean Score	SD	Mean %	SD %
Pre-Test	15.2	2.0	38.0%	5.12%
Post-Test	31.8	2.1	79.6%	5.32%
Enhancement	16.6	2.2	41.6%	5.55%

The **paired 't' value** calculated was **47.27**, which is greater than the table value ($t_{0.05}$, df=49 = 1.96), indicating a statistically **significant increase in knowledge** post-intervention. Hence, **H_1 is accepted**.

Section III: Aspect-Wise Analysis

Aspect-wise mean percentages of knowledge improvement:

Area	Pre-Test %	Post-Test %	Enhancement %	t-value	Inference
General knowledge	44.4%	84.2%	39.7%	26.6	*Significant*
Causes of danger signs	40.0%	78.8%	38.8%	16.2	*Significant*
Signs & symptoms	36.0%	80.5%	44.5%	12.9	*Significant*
Diagnostic measures	36.0%	76.8%	40.8%	19.1	*Significant*
Prevention	34.4%	80.0%	45.6%	21.2	*Significant*
Complications	38.5%	76.0%	37.5%	14.4	*Significant*
Management	33.7%	77.7%	44.0%	25.0	*Significant*

All areas showed significant improvement post-intervention (**$p < 0.05$**), confirming the effectiveness of the CAT programme.

Section IV: Effectiveness of CAT Programme

The **Chi-square test** comparing pre- and post-test knowledge levels yielded a value of $\chi^2 = 73.33$, which is greater than the table value ($\chi^2_{0.05}$, df=2 = 5.99), indicating a statistically **significant improvement in knowledge levels** following the CAT intervention.

Thus, the CAT programme was **highly effective** in enhancing the knowledge of antenatal mothers on danger signs during pregnancy.

Section V: Association Between Post-Test Knowledge and Demographic Variables

Demographic Variable	χ^2 Value	df	Significance
Age	0.910	2	Not Significant
Type of family	0.010	1	Not Significant
Religion	3.505	2	Not Significant
Family income	1.585	3	Not Significant
Area of residence	0.010	1	Not Significant
Educational Status	**7.90**	**3**	**Significant at p<0.05**

Only **educational status** showed a statistically significant association with post-test knowledge scores, indicating that education level influences the effectiveness of the CAT programme. Hence, **H_2 is accepted** only for **education**, and rejected for all other variables.

Summary of Findings

- Majority of antenatal mothers had **inadequate knowledge** regarding danger signs during pregnancy in the pre-test.
- The CAT programme significantly **improved knowledge levels** in the post-test.
- All aspects of knowledge (general, symptoms, complications, prevention, etc.) showed **statistically significant enhancement** post-intervention.
- **Educational status** was the only demographic factor significantly associated with post-test knowledge scores.
- The **research hypotheses H_1 and H_2 (for education)** were accepted, confirming the effectiveness of the intervention and its dependency on the participant's education level.

DISCUSSION

The study aimed to assess the effectiveness of a Computer Assisted Teaching (CAT) Programme on the knowledge of antenatal mothers regarding danger signs during pregnancy at Sri Chamarajendra Hospital, Hassan.

- **Pre-test findings** revealed that 98% of the respondents had inadequate knowledge.
- **Post-test findings** showed significant improvement, with 68% having adequate knowledge and 32% moderate knowledge.
- The **mean knowledge score** increased from **38% (pre-test)** to **79.6% (post-test)**, indicating a substantial gain.

- **Chi-square test** showed a significant association between **education level** and post-test knowledge scores, while no significant association was found with other demographic variables. These findings are consistent with previous research, highlighting that structured education interventions like CAT significantly enhance awareness of danger signs during pregnancy.

SUMMARY

- **Objective**: To evaluate the effectiveness of a Computer Assisted Teaching Programme on knowledge regarding danger signs during pregnancy.
- **Design**: One group pre-test, post-test design with 50 antenatal mothers using convenient sampling.
- **Tools**: Structured questionnaire and CAT programme.
- **Results**: Significant increase in knowledge scores post-intervention, with 41.6% improvement. Hypotheses H1 was accepted; H2 was partially accepted (significant for education).
- **Implication**: CAT is effective and can be used widely in nursing education, practice, and administration to promote maternal health.

CONCLUSION

- Antenatal mothers initially had **inadequate knowledge** about danger signs during pregnancy.
- The **CAT programme was effective** in significantly improving their knowledge.
- There was a **statistically significant difference** between pre-test and post-test knowledge scores.
- **Education level** showed a significant association with knowledge gain. Thus, CAT is proven to be a **valuable tool** for educating antenatal mothers.

BIBLIOGRAPHY

1. Adele Pillitteri. Maternal and Child Health Nursing. 1st ed. Philadelphia: J.B. Lippincott; 1992. P [14]

2. WHO. The safe motherhood initiative. A decade after Nairobi. Achievements in the WHO Eastern Mediterranean Region; 1998.

3. Carroli G, Rooney C, Villar J. How effective is antenatal care in preventing maternal mortality and serious morbidity? An overview of the evidence. Paediatric and Perinatal Epidemiology; 2001.P [1-42].

4. Dutta D C. Text Book of Obstetrics. 6th ed. Calcutta: New Central Book Agency; 1994. P [226-27].

5. Jacob Annamma. A Comprehensive Text Book of Midwifery. 1st edi. New Delhi: Jaypee brothers; 2005. P [321].

6. Kavitha P, Aroun Prasath R, Krishnaraj P. A study to assess the effectiveness of structured teaching programe on warning signs during pregnancy. Journal of science [internet]. 2012. [cited on nov21 2013]; / vol 2 / issue 1/2012/ 1-5. Available from URL.www.journalofscience.com.

7. Gupta. N. Maternal Mortality Magnitude, Causes and Concerns. Journal of obstetrics & Gynaec today: September 2004; 9: p555-8.

8. Park. K. Text book of Preventive and Social Medicine. 17th ed. Jabalpur: Banarsidas Bhanots; 2002. P [420]