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Original Article

Obstetrics and Gynaecology Section

Effectiveness of Prenatal Education Regarding Practice on Antenatal Exercises and Minor Ailments among Pregnant Mothers

AT SAJITHA[1], ANJU T PHILIP[2], TK SARIKA[3]

ABSTRACT

Introduction: Antenatal excersises are essential aspect of antenatal care in most settings and these have a powerful and positive contribution to pregnancy when applied correctly.

Aim: To find out the effectiveness of prenatal education regarding practice of antenatal exercises and prelevance of minor ailments during the third trimester among pregnant mothers.

Materials and Methods: A Quasi experimental pre-test–post-test control group study was conducted among 60 antenatal women (30 in control and 30 in experimental) between 28-30 weeks of gestation attending obstetrics and gynaecology OPD, Amrita Institute of Medical Sciences and research centre, Kochi, Kerela, India. The antenatal women were selected by using non-probability convenience sampling technique and the data was collected using a self reported checklist to assess the practice of exercise and a self administered rating scale to assess the level of minor ailments experienced by antenatal mothers. On day-1, pre-test measure of minor ailments were done. Then prenatal education regarding antenatal exercises was given to the mothers in experimental group. During follow up visit, on day-14, re-teaching was given. The practice of antenatal exercise was assessed using a self reported check list and the minor ailments of antenatal mothers was assessed using rating scale on day-28. Statistical Analysis was done by using mean, frequency, percentage and paired t-test.

Results: Out of 60 antenatal mothers, majority of the mothers were within the age group of 18-25 years. The mean post-test score of practice in control group was (24.63+4.5) and the mean post-test score in experimental group was (66.3+8.4) and it is significant at the level of p-value <0.001. The mean post-test score of minor ailments in control group was (33.1±1.47) and in experimental group (25.27±2.12). Noticeably the comparison between mean post-test score of minor ailments shows statistically significant difference at the level of p< 0.001 .

Conclusion: Performing exercise during pregnancy helps the mother to be healthy and free from minor ailments.

Keywords: Breathing exercises, Brisk walking, Foot and ankle exercise, Kegel exercise, Pelvic exercise, Squatting exercise, Stretching exercise, Tailor sitting

INTRODUCTION

Exercises are regular and structured physical activity, which help to improve and maintain health. Exercises which are practices during antenatal period are called antenatal exercises. They are planned, structured and repetitive bodily movements, done during antenatal period to improve or maintain one or more components of physical fitness of mother as well as foetus [1].

Pregnancy is a crucial period where the mother tend to take care of herself so as to prepare herself for a safe delivery. Most of the women (99%) uses maternal and child health services effectively [2]. Regular exercise is an essential way of helping body to cope with the physiological changes during pregnancy.A well-conditioned woman who regularly performs aerobics or exercises has a beneficial effect on the course and outcome of labour [3]. Antenatal exercises has several advantages for both mother and foetus. The positive outcome is mainly depend upon the type, intensity, frequency and duration of the antenatal exercises. Advantages to mother include improved cardio vascular function, relief from minor problems during pregnancy, controlled weight gain and fat retention, positive attitude and mental state, less complicated delivery, quick recovery and improved fitness. Foetal benefits may include improved stress tolerance, and advanced neurobehavioural maturation. In the absence of medical contraindication, women should be encouraged to maintain their pregnancy activity level [4]. Many women experience discomforts during pregnancy that are not serious but diminishes the woman's feeling of comfort and well being. They experience a variety of physiological and psychological symptoms such as nausea and vomiting, frequency of micturition, breathing difficulty, ankle oedema, haemorrhoids, back ache, heartburn, constipation and leg cramps. These are termed as minor ailments or discomforts of pregnancy. These minor ailments can be troublesome on a day to day basis [5].

The main purposes of the study was to compare the level of practice of exercises among control group and experimental group using a self reported practice checklist, compare the selected outcome among control group and experimental group using a rating scale and to find out association between pre-test score of selected outcome and demographic variables.

MATERIALS AND METHODS

The study was conducted from February 2016 to April 2016 using Quantitative research approach through quasi experimental pre-test–post-test control group design. Non probability convenience sampling technique was used to select 60 antenatal mothers (28-30 weeks gestation), 30 each in experimental and control group with an inclusion criteria of age group within 18 to 45 years irrespective of their parity, between 28-30 weeks gestation, and able to read and write English and Malayalam. Antenatal mothers with complications like history of abortion, preterm birth, hypertension, placenta praevia, unable to read and write English and Malayalam, with history of

previous abdominal or pelvic surgeries and practicing antenatal exercises regularly at the time of data collection were excluded from the study. The data collection instruments included the following.

Tool I

A Self administered rating scale to assess the level of minor ailments (fatigue, breathing difficulty, low back pain, leg cramps, constipation, swelling of ankles, frequency of micturition, sleeplessness, numbness of extremities) experienced by antenatal mothers. It consists of three sections, in which data is collected directly from the client and from the clinical record.

Section A: Socio demographic data of the mothers which includes age, education, occupation, Area of residence, Source of information about antenatal exercises.

Section B: Clinical data of the mothers which includes order of pregnancy and gestational age.

Section C: Rating scale to assess the level of minor ailments experienced by the antenatal mothers.

This tool was developed by the researcher to find out the level of minor ailments experienced by the women. It is a 5 point rating scale with 10 items. The total score is 50.

Tool II

A self reported checklist to assess the practice of exercises among antenatal mothers.

This tool developed by the researcher is intended to assess the self reported practice of exercise marked by the antenatal mothers. The total score is 105 and grading is given as 0-35 (poor practice), 36-70 (average practice), 71-105 (good practice).

The content validity of the tool were made from eight experts: three gynaecologists; three nursing faculties; and two physiotherapists who are experts in training antenatal exercises. The reliability of the tool was found to be r = 0.92.

Procedure for Data Collection

After obtaining formal permission and ethical clearance from the concerned authority, 30 subjects who met the inclusion criteria were allocated into control group using convenient sampling technique. After establishing rapport with the participants, a detailed explanation was given on the nature and purpose of the study, repeated observations made during study and their freedom to withdraw from the study at any point of time if they want. An informed consent from each subject was taken before the commencement of data collection. The demographic data was collected by interviewing the subjects and clinical data were obtained by record review. Level of minor ailments experienced by the mothers were obtained using a self administered rating scale. Post-test was done four weeks after pre-test to assess the level of practice using a self reported checklist and level of minor ailments was measured by using a self reported rating scale.

Experimental group also underwent the same procedures. In addition to it a prenatal teaching programme regarding antenatal exercises was given and a leaflet on antenatal exercises was distributed among mothers. Reinforcement was given over phone. On subsequent visit (two weeks later) follow up teaching was given for the mothers and their practice was observed.

The prenatal teaching programme comprises of providing classes to antenatal mothers with the assistance of video and power point developed by the researcher. Along with this the researcher demonstrates each exercise being taught (40 minutes duration), which are safe to perform during pregnancy in order to improve the muscle strength and circulation of the mother in a way preparing a safe motherhood. Prescribed exercises includes:

Brisk Walking: Convenient paced walking in a ventilated area for a duration of 20-30 minutes a day.

Stretching: Stretching is a form of physical exercise in which a specific muscle or tendon is deliberately flexed or stretched in order to improve the muscle's felt elasticity and achieve comfortable muscle tone. It Includes Arm Stretch, Neck rotation, Shoulder rotation and Leg shake [6].

Foot and Ankle Exercise: Bending and stretching of ankles at least 12 times. Circle both feet at the ankle at least 20 times in each direction. Brace both knees, hold for a count of four, then relax. Repeat 12 times.

Breathing Exercises: Take deep breath through nostrils expanding abdominal muscles. Hold the breath for sometime. Slowly exhale through mouth, tightening abdominal muscles [6].

Pelvic Exercise: It includes Pelvic tilting or rocking exercises. In a half lying position, knees bent and feet flat. Place one hand under the small of the back and the other on the top of abdomen. Take a deep breath and tighten the abdominals, buttocks and press the small of the back on to the underneath hand. Slowly exhale by relaxing the musles. Repeat upto 10 times [6].

Kegel Exercise: This exercise is done by contracting the anal sphincter and the vagina at the same time as if preventing a bowel action or trying to stop urine. While you contracting the muscles of the pelvic floor, hold for 10 seconds and then relax. Repeat for a count of ten [6].

Tailor Sitting: Try sitting or stretching in this pose whenever you feel it would ease discomfort and/or a few times a day- (during commercials while watching TV, after sitting for long periods of time) [6].

Squatting Exercise: Try 10-30 squats a day holding onto waist level support or sit in a squatting position until the position is no longer comfortable [6].

Left Lateral Resting Position: This is a safe and comfortable position for sleeping and relaxation [6].

STATISTICAL ANALYSIS

Items related to demographic variable was analysed in terms of frequency and percentage. The pre-test and post-test score on selected outcomes and practice was assessed by frequency and percentage. Unpaired t-test was applied to determine the significance of mean difference in post-test score of practice between experimental and control group and minor ailments. Chi-square was applied to determine the association between pre-test level of selected outcome scores and demographic variables.

RESULTS

Distribution of Socio Demographic Variables and Clinical Data

It had been observed that 40% of antenatal mothers in control group and 56.7% in experimental group were in the age group between 18-25 years. Regarding education 40% in control group and 36.7% in experimental group had secondary education. Distribution of sample based on occupation was 73.3% in control group and 63.3% in experimental group were home makers. Interestingly 66.7% of sample in control group and 63.3% in experimental group hailed from rural area and 70% mothers in control group and 50% in experimental group reported to have obtained information on antenatal exercises from mass media as against an insignificant proportion from health worker, friends and relatives. Clinical data shows that 53.3% of pregnant women in control group were multi gravid mothers unlike experimental group where majority of the samples (56.7) were primi mothers. Regarding the gestational age 50% in control group and 50% in experimental group were in their gestational age of 29 weeks.

While compairing the practice level of antenatal exercise during post-

test, in contrast to the 70% of subjects in experimental group who report average practice of exercise and 30% with good practice, 100% in the control group were poor in their physical activity.

Distribution of antenatal mothers based on the practice of antenatal exercise among control and experimental group is revealed in [Table/Fig-1]. It shows that walking is the most practised exercise in the experimental group (76%) and control group (43.3%) as compared to squatting exercise which is the least practised, accounted for (36%) in experimental group and (3.3%) in control group.

The [Table/Fig-2] shows the comparison of mean score of level of practice on antenatal exercise among control group and experimental group. The maximum possible score of exercise is 105. The t-value is 24.040 which is significant at the level of p<.001, hence the practice of mothers were improved with prenatal education on antenatal exercises.

[Table/Fig-3] reported that in pre-test mothers in control group experiences minor ailments like fatigue, low back pain, frequency of micturition (100%) as against a minor proportion with (33.3%) numbness of extremities. Whereas in experimental group the level of minor ailments accounted for fatigue (99.2%), low back pain (96.3%), frequency of micturition (97.7%), Numbness of extremities was the least experienced (46.7%).

In post-test mothers in control group fatigue (100%) was the most experienced. Numbness of extremities was the least experienced (66.6%). Similarly in experimental group the level of minor ailments accounted for fatigue (93.3%), Numbness of extremities was the least experienced (43.3%).

Comparison of mean score of post-test level of minor ailments among control group and experimental group shows in [Table/Fig-4]. Noticeably the comparison between mean post-test score of minor ailments shows statistically significant difference at the level of p=0.024. From the above data it is clear that the antenatal exercises are effective in reduction of minor ailments during pregnancy.

The association between age and level of minor ailments is computed as χ^2= 0.781 (p=0.512). As it is not significant at the level p=0.05, there is no association between age and level of minor ailments. Similarly the association between order of pregnancy and level of minor ailments is computed as χ^2=0.567 (p=0.295). The value is not significant at the level p=<0.05.

Type of Exercise	Control Group	Experimental Group
Squatting exercise	3.3%	36%
Tailor sitting exercise	3.3%	42.7%
Pelvic tilt exercise	13.2%	54.6%
Breathing exercise	16.6%	54%
Stretching exercise	6.6%	55.3%
Foot and Leg exercise	13.3%	58.7%
Pelvic floor exercise	6.6%	60%
Walking	43.3%	76%

[Table/Fig-1]: Distribution of samples based on practice of antenatal exercises during post-test, n1 = n2 = 30.

S.no	Level of practice	Maximum possible score	Range	Mean±SD	p-value	t-value
Practice	Control group (n1)	105	16-34	24.63±4.537	<0.001	24.040*
	Experimental group (n2)	105	59-88	66.3±8.356		

[Table/Fig-2]: Comparison of mean post-test score of practice between experimental and control group, n1 = n2 = 30.
*significant

Minor ailments	Pre-test		Post-test	
	Control Group	Experimental Group	Control Group	Experimental Group
Fatigue	100%	99.2%	100%	93.3%
Low back pain	100%	96.3%	96.6%	93.3%
Frequency of micturition	100%	97.7%	96.6%	80%
Breathing difficulty	98.3%	94.7%	96.6%	70%
Leg cramps	95%	89.8%	96.6%	60%
Heart burn	88.3%	86%	93.3%	60%
Constipation	85%	87.2%	93.3%	56.6%
Sleeplessness	80%	83.2%	76.6%	53.3%
Swelling of ankles	70%	72.1%	93.3%	66.6%
Numbness of extremities	33.3%	46.7%	66.67%	43.3%

[Table/Fig-3]: Comparison of pre-test and post-test level of minor ailments among antenatal mothers in control group and experimental group.

Category	Group	Maximum possible score	Mean+SD	p-value	t-value
Minor ailments	Control group	50	33.1±1.47	0.024*	6.45
	Experimental Group	50	25.27±2.12		

[Table/Fig-4]: Comparison of post-test level of minor ailments between control group and experimental group, n1 = n2 = 30.
*significant

DISCUSSION

The present study showed that in post-test, 70% of subjects in experimental group reported average practice of exercise and 30% with good practice, 100% in the control group were poor in their physical activity. The results of the present study are supported by a study conducted by Nkhata LA et al., on 300 pregnant women. The result shows that 67% reported practising some form of exercise during current pregnancy, Walking was the most prevelant type of exercise commonly identified by respondents [7].

The present study showed that in pre-test control group 100% mothers were suffering from minor ailments like fatigue, low back pain, frequency of micturition and 33.3% of mothers were suffering from numbness of extremities. Whereas in experimental group mothers were suffering from fatigue (99.2%), low back pain (96.3%), frequency of micturition (97.7%), and Numbness of extremities (46.7%). According to Kaur A and Gagandeep 37% mothers in first trimester and 21% in second trimester experiences nausea and vomitting during pregnancy and 16% of mothers had backache in first trimester and 30% of mothers in second trimester. Minor ailments like leg cramps (22%) and heartburn (14%) usually occurs in 1st trimester [8]. Vazquez JC, in his article quoted that 11% to 38% of pregnant women were suffering from constipation and 17% to 45% of pregnant mothers reported heartburn [9]. In a study conducted by Sreedevi A et al., the majority (96%) of the study participants perceived that yoga to be beneficial for women with Diabetic Mellitus [10]. A case-control study on maternal recreational physical activity and risk of gestational diabetes mellitus by Dempsey JC et al., explored the relation between recreational physical activity and the risk of GDM among 386 women in 20 weeks of pregnancy. The results showed 48% reduction in risk of GDM {odds ratio (OR)=0.52; 95% confidence interval (CI) 0.33–0.80} [11].

The mean post-test score of minor ailments in control group was (33.1±1.47) and in experimental group was (25.27±2.12) Noticeably the comparison between mean post-test score of minor ailments shows statistically significant difference at the level of p=0.024.

The results of the present study are supported by a study conducted on the effects of participation in a six week Aerobic Exercise Program (AEP) on depression, self-esteem, and physical discomforts of pregnancy. The sample was comprised of 58 subjects ranging

in age from 24 to 40 years. Subjects in the AEP were observed to have a significant decrease (p=0.02) in depressive symptoms over time and an increase in total self-esteem (p=0.05); those in the comparison group reported a significant increase in physical discomforts associated with pregnancy [12].

LIMITATION

The study is limited to antenatal mothers between 28-30 weeks gestation and to the study setting, Obstetrics and Gynaecology OPD of selected hospital.

CONCLUSION

Mother's body undergo lots of physiological changes during pregnancy. Minor ailments are common during this period. From the study it was evident that effects of minor ailments can be reduced with systematic antenatal exercise programme.

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PARTICULARS OF CONTRIBUTORS:
1. Postgraduate Student, Department of Obstetrics and Gynecologic Nursing, Amrita College of Nursing, Amrita Vishwa Vidyapeetham, Kochi, Kerala, India.
2. Assistant Professor, Department of Obstetrics and Gynecologic Nursing, Amrita College of Nursing, Amrita Vishwa Vidyapeetham, Kochi, Kerala, India.
3. Assistant Professor, Department of Child Health Nursing, Amrita College of Nursing, Amrita Vishwa Vidyapeetham, Kochi, Kerala, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Mrs. Anju T Philip,
Assistant Professor, Department of Obstetrics and Gynecologic Nursing, Amrita College of Nursing,
Amrita Vishwa Vidyapeetham, Health Sciences Campus, Amrita Institute of Medical Sciences and Research Centre,
Kochi-682041, Kerala, India.
E-mail: anjuphilip@aims.amrita.edu

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