The Effect of Practicing Pelvic Rocking Exercise on Lowering Disability Level through Decreasing Pregnancy Related Lower Back Pain

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Abstract: Over 50 % of pregnant women experience low back pain during their pregnancy. This pain can be intolerable, preventing them from working, taking care of their home and children. **Aim** of the study: This study aimed at assessing the effect of practicing pelvic rocking exercise on lowering disability level through decreasing lower back pain in late pregnancy. The study **sample** comprised 100 pregnant women chosen according to the inclusion criteria. They were divided into two groups (50 study groups &50 control groups). **Research design**: Quasi experimental design. **Two tools** were used to collect data assessment sheet and the Oswestry disability index questionnaire. **Results** showed that there was a direct relationship between the period of making exercises and their effects on decreasing disability level regarding minimal disability level (34%, 50% & 62% after first, second and third meetings respectively) and reverse relationship regarding severe disability level (26%, 10% & 10 after first, second and third meetings respectively). **Conclusion**: Conclusion: Pelvic rocking exercise in management of lower back pain has an important value in decreasing disability level during pregnancy which worries the pregnant women.

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1. Introduction:

More than two-thirds of pregnant women experience low-back pain (LBP) and almost one-fifth experience pelvic pain. Pain increases with advancing pregnancy and interferes with work, daily activities and sleep. [1, 2]. The growing uterus disrupts the pregnant woman`s center of gravity, backache and lordosis can develop in late pregnancy as the woman tries to maintain her balance. The pregnant woman can relieve her back pain by several means including performing pelvic rocking exercises and walking with pelvis tilted backward. [3] Pelvic Rocking is a safe way to keep stomach muscles tone. In addition it helps to relieve a sore back by stretching the lower back muscles, pelvic rocking can be used as part of a regular pregnancy exercise routine, and can also be used in "backache emergencies [23].

Low back pain during gestation is a symptom that causes great discomfort and, depending on the level of pain, it generates insomnia [21], motor disability and impairs daily activities, besides causing problems to take care of the baby after birth [15, 16].

Exercise during second half of the pregnancy significantly reduced the intensity of low back pain, had no detectable effect on lordosis and had significant effect on flexibility of spine. [19].

Prenatal care is an opportune time to counsel women on how to achieve an active lifestyle to support their own health and the health of their developing fetus. [4]. Low-quality evidence suggested that exercise significantly reduced pain and disability from LBP [2]. Pain catastrophizing and pain intensity at gestational age 24 weeks and time (from 28-36 weeks) were associated with increases in pregnancy-related low back pain intensity [5]. Some types of lumbopelvic pain in pregnancy seem to have an increased risk of persistent pain. Likewise, subgroups of lumbopelvic pain seem to have different consequences in terms of pain intensity, disability and health-related quality of life (HRQL) in early pregnancy. [6]

Exercises during pregnancy are associated with higher cardiorespiratory fitness, prevention of urinary incontinence and low back pain, reduced symptoms of depression, gestational weight gain control, and for cases of gestational diabetes, reduced number of women who required insulin. [7]

The Oswestry Disability Index (ODI) is one of the principal condition-specific outcome measures used in the management of spinal disorders. The ODI is the most commonly outcome measures in patients with low back pain. It has been extensively tested,

showed good psychometric properties, and applicable in a wide variety of settings. [8]

It was found that, in the third trimester, pregnant women with back pain (PBP) with low pain intensity and moderate functional limitation did not have an impact on quality of life but decreased physical ability when compared to pregnant women with no back pain (NBP). [9]

Aim:

The aim of the study was to assess the effect of practicing pelvic rocking exercise on lowering disability level through decreasing lower back pain in late pregnancy.

Research design:

Quasi experimental design was used to carry out this study.

Subjects & Methods:

Sample Size:

100 volunteer pregnant women, divided into two groups (50 study groups &50 control groups).

Sample type:

Selecting the control group and study group done randomly as the first three to five attendants joined experimental and the next three to five joined the control group and so on until the study sample completed.

Inclusion criteria:

Primigravida, complain of low back pain, their gestational age ranged from 28-32 weeks of gestation (third trimester), free from medical, orthopedic problems, and not used any pain relieving drugs.

Setting:

The study was conducted at the antenatal MCH, at Bahteem Kaloupia governorate.

Tools

Two tools were used to collect data after reviewing literature.

Tool I: Oswestery disability index questionnaire

Oswestery disability index questionnaire, consisted of ten sections (pain intensity, personal care, lifting, walking, setting, standing, sleeping, social life, travelling and employment) each section consisted of five questions. Each of the 10 sections is scored separately from (0 to 5 point), with maximum total = 50 points. Where, 0-4 No disability, 5-14 Mild disability, 15-24 Moderate disability, 25-34 Severe disability, > 35 Complete disability. [10]

Tool II: Assessment sheet

The assessment sheet is developed by the researcher and consisted of two parts: Part I: The socio demographic variables among the study sample, such as (age, gestational period, medical and obstetric history etc…..). Part II: Observational checklist, to observe the practice of pelvic rocking exercise steps. It involved 10 steps marked as not done, done incorrectly, and done correctly.

Administrative design:

To carry out the study, the necessary approvals were obtained from the General Director of MCH at Bahteem Kaluopia Governorate, after explaining the aim of the study in order to obtain permission and help. The study protocol was approved by the pertinent official authorities at the Faculty of Nursing, Zagazig University.

Ethical considerations:

This study was conducted under the approval of the Faculty of Nursing Ethics Committee, Zagazig university, oral informed consents were secured from each woman to participate after explaining the nature, and purpose of the study. Women were informed that participation is voluntary, with no obligation to continue. Confidentiality and anonymity were ensured. The study maneuvers would improve women's health, with no potentials of harmful effects.

Method of data collection:

Collection of data covered a period of 3 months from June 2013, to August 2013. Two days per week were specified for data collection. The researcher attended MCH to meet women (in the ante -natal period) who came for pregnancy follow up.

The researchers met the pregnant women three times for both groups, control and study groups. At the first meeting the following steps were done:

After taking oral consent, first part of tool II was used to collect demographic data for both groups. Then, Tool I was used to assess disability level by using Oswestry disability index form for both groups. For the study group, teaching sessions was done for a small group consisted of three to five women, during which the researcher used PowerPoint presentation to explain the exercise and distributed hand out containing pictures explaining the steps of the exercise. Followed by demonstration of the exercise's steps.

Re-demonstration of the pelvic rocking exercise was done by each participant; the pre-prepared exercise performance checklist was used to evaluate the accuracy of practicing the exercise. Women were asked to stop exercise if they had vaginal bleeding, dyspnea, dizziness, headache, chest pain, muscle weakness, calf pain or swelling (need to rule out thrombophlebitis), preterm labor, decreased fetal movement, amniotic fluid leakage.

Each session took from 30 to 45 minutes for both demonstration and re-demonstration.

Tool I (Oswestery disability index questionnaire) was used for both groups to assess disability levels at the second and third meetings with 2 weeks interval between each meeting. Women's satisfaction was considered according the number of participants who completed all sessions with 70% correct re-demonstration.

Data analysis:

Data analysis was performed using IBM SPSS statistical software version 15. The data were explored. Descriptive statistics with mean and standard deviation (SD) for continuous variables and frequency for categorical variables were analyzed. Qualitative variables were compared using qui square test (X^2) as the test of significance and independent (t) test was used to compare mean score between two groups .the p-value is the degree of significant. A significant level value was considered when p-value ≤ 0.05 and a highly significant level value was considered when p-value ≤ 0.001, while p-value > 0.05 indicates non-significant.

3. Results.

Table (1): This table showed that around half of the study sample were in the age group of 25-30 years old (44% & 46% for study and control groups respectively), most of the study sample are moderately educated (58% & 48% for study and control groups respectively). Also the table revealed that 70% of the study group & 76% of the control group are working women. There was no significant difference between the two study groups regarding all of sociodemographic data.

Table (2): This table displayed that both study and control group complaining from back pain that affect their disability level, most of the study sample in both study and control groups complaining from back pain that results in moderate disability (40% & 46%) respectively. Statistically there was no significant difference.

Table 1: socio-demographic data for both control and study groups

		Control group		Study group		Chi square	P Value
		No	%	No	%		
Age	20->25	11	22	15	30	.472	1.500
	25->30	22	44	23	46		
	30-35	17	34	12	24		
Education	illiterate	15	30	13	26	.117	5.900
	read and wright	0	0	5	10		
	Moderate education	29	58	24	48		
	High education	6	12	8	16		
Working condition	working	35	70	38	76	.499	.457
	not working	15	30	12	24		
Working hours	6 hrs.	0	0	8	16	.125	4.153
	8 hrs.	12	24	20	40		
	More than 8 hours	23	46	22	44		
Presence of helper	present	19	38	25	50	.227	1.461
	Not present	31	62	25	50		
Following antenatal schedule	yes	37	74	33	66	.383	.762
	No	13	26	17	34		
No of visits	4 times	27	54	23	46	.716	.667
	5 times	8	16	10	20		
	According to schedule	15	30	17	34		
Resting hours per day	2	36	72	34	68	.358	2.057
	3-4	0	0	2	4		
	>5	14	28	14	28		
Pre-pregnancy weight	60 ->70	24	48	17	34	.257	2.720
	70->75	4	8	8	16		
	>75	22	44	25	50		
information about back pain:	yes	2	4	5	10	.240	1.382
	No	48	96	45	90		
sources of medical information:	Doctors	13	26	20	40	.960	.298
	MCH nurses	6	12	15	30		
	Relative and friends	31	62	12	24		

*statistical significance (p value<0.05).

Table (2) - Comparison between disability level for both study and control groups before beginning of the study.

Disability level	Study group n= 50		Chi-square	Sig.	Control group n= 50		Chi-square	Sig.
	No	%			No	%		
0 - 20% Minimal disability	17	34	1.480	0.477	14	28	3.640	0.162
>20 - 40% Moderate disability	20	40			23	46		
>40 - 60% Severe disability	13	26			13	26		
>60 - 80% Crippled back pain	--				--			

***statistical significance (p value<0.05).**

Table (3): This table revealed that there was a direct relationship between the period of making exercises and their effects on decreasing disability level regarding minimal disability level (34%, 50% & 62% after first, second and third meetings respectively) and reverse relationship regarding severe disability level (26%, 10% & 10 after first, second and third meetings respectively) .

Table (4): This table showed that the effect of the pelvic rocking exercise on disability level was obvious as more than two thirds of the study group complaining of back pain that results in minimal disability (62%) and only 10 % of them their back pain results in severe disability. In control 6% of them have minimal disability while 34% have severe disability. Statistically there was significant difference.

Table (3) - Comparison between the disability levels after the three meetings of the study group

Disability level	First meeting N= 50		Second meeting N= 50		Third meeting N= 46		Chi-square	P-value
	No	%	No	%	No	%		
0 - 20% Minimal disability	17	34	25	50	31	62	10.69	0.01*
>20 - 40% Moderate disability	20	40	20	40	14	28	1.24	0.5
>40 - 60% Severe disability	13	26	5	10	5	10	6.03	0.05*
>60 - 80% Crippled back pain	0	0	0	0	0	0	0	0

*statistical significance (p value<0.05).

Table (4) - Comparison between the disability level of both study and control group at the end of the study.

Disability level	Study group N= 46		Control group N= 42		Chi-square	P-value
	No	%	No	%		
0 - 20% Minimal disability	31	62	3	6	33.61	0.000**
>20 - 40% Moderate disability	14	28	22	44	4.37	0.04
>40 - 60% Severe disability	5	10	17	34	10.26	0.001**
>60 - 80% Crippled back pain						

**highly statistical significant difference p value at <0.001

4. Discussion:

Over 50 percent of pregnant women experience low back pain during their pregnancy. This pain can be unbearable, preventing them from working, taking care of their home, and taking care of their children. Pelvic rocking exercise can help to reduce or even eliminate pregnancy-related low back pain and improve women`s function. Women receiving prenatal education had higher level of cheerfulness and satisfaction in their overall quality of life and health [11].

Exercises are well tolerated by a healthy woman during pregnancy; it promotes a feeling of wellbeing, improves circulation, helps reduce constipation, and promotes muscle tone. Also exercises during pregnancy increases energy level; improves posture and relieves the lower back discomfort that often arises as the pregnancy progresses.

This study aimed to assess the effect of practicing pelvic rocking exercise on lowering disability level through decreasing lower back pain in late pregnancy.

The present finding revealed that the majority of the study sample was aged from 25 to 30 years' old, educated and they are working mothers. Kate et al, found that education and income are an important factors affecting mothers participation in the antenatal exercises [22].

Moreover, women who took instructions about how to perform pelvic rocking exercises, experience lower disability levels than those who didn`t perform the exercises. Gjestland et al, and Van Beneten, reported that there was an association between exercising mid-pregnancy and lower prevalence of low-back pain [12, 13]. On the other hand, Stafne et al, found that exercise during pregnancy does not influence the prevalence of lumbopelvic pain, but women offered a regular exercise course seem to handle the disorder better [18].

It was reported that lower back pain affects women`s quality of life during late pregnancy as well as at early postpartum period. [20]

Low back pain during pregnancy is normal event which is worsening as the pregnancy progress and worsening due to low quality antenatal care. As the study progresses it was observed that lower back pain were more decreased among study group post intervention. Moreover, this finding could be explained as the study group received the instruction guidelines, and this followed by more improvement regarding outcome measure (disability, intensity and duration of lower back pain),.these findings could be attributed to the fact that guiding patients how to record outcome measures are important step to evaluate their condition. [14] As well as, information, education and advice are basic strategies and are the responsibility of all involved care takers.

The American College of Obstetricians and Gynecologists published exercise guidelines for pregnancy, which suggested that in the absence of medical or obstetric complications, 30 minutes or more of moderate exercise a day on most, if not all, days of the week is recommended for pregnant women. [17]

Conclusion:

From the present study we can conclude that the lower back pain is common in late pregnancy with the age group 25-30 years and educated, obese and primiparous women. After intervention, the study revealed a significant reduction regarding lower back pain and disability level.

Pelvic rocking exercise in management of lower back pain has an important value in decreasing disability level during pregnancy thus improving their quality of life.

Recommendations:

The pregnant women can follow gradually, safe physical exercise in the third trimester of pregnancy under nursing and medical supervision. Further studies are suggested to test the safety effect of practicing exercise for high risk pregnancy as (Diabetes, Hypertension and Heart disease).

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