

‘Effectiveness of strengthening exercises on level of low back pain perception among women (35-55 years) residing in selected areas of the city.’

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Abstract:

Problem Statement:

‘Effectiveness of strengthening exercises on level of low back pain perception among women (35-55 years) residing in selected areas of the city.’

Objectives:

1. To assess the level of low back pain perception among women (35-55 years) residing in selected areas of the city.
2. To assess the effect of strengthening exercises on level of low back pain perception among women (35-55 years) residing in selected areas of the city.
3. To find association between study findings with selected demographic variables.

Material and methods:

The research approach adopted in this study is Quantitative research approach. Quasi experimental Non-Randomized control group design was used. The samples were selected by Non-probability purposive sampling technique. Sample size was 60 women’s with low back pain perception (35-55) years in selected areas of the city.

Result:

Researcher applied two sample t-test for the effect of strengthening exercises on level of low back pain perception among women. Average change in low back pain score in experimental group women was 1.8 which was -1 for control group women. The pain was worsened in control group. T-value for this test was 12.9 with 58 degrees of freedom. Corresponding p-value was small (less than 0.05), null hypothesis is rejected

Conclusion:

Strengthening exercises were significantly effective in reducing the level of low back pain perception among women.

Introduction / Background:

Low back pain (LBP) is one of the most prevalent medical complaints, affecting nearly every individual at some point in his or her lifetime. At any given time, it is estimated that up to one third of the population is experiencing some form of back discomfort that impacts quality of life by interfering with recreational activities, daily living routines, and a person's ability to work productively.

A systematic review of the literature was conducted in accordance to the PRISMA guideline. Allied and Complementary Medicine Database, Cumulative Index of Nursing and Allied Health Literature, MEDLINE, Sport Discuss and Scopus electronic databases were searched using specifically developed search strategies to identify studies using patients' electronic medical records published in English up to February 2019.

Review of literatures: The review of literature will be divided under following headings: A) Review of literature related to low back pain B) Review of literature related to strengthening exercises and low back pain.

A) Review of literature related to low back pain

1. Heidi L. Venegas-Rios, (2009), a study conducted on effectiveness of low back pain manipulative therapy in combination with physical therapy as compared to standard physical therapy, this included Spinal manipulative therapy is one of these new approaches to acute LBP treatment. Results from this study identified and estimated different values for the mean and standard deviation of baseline Oswestry disability, as well as, change in Oswestry disability scores parameters in this particular population of injured workers with chronic Low back pain.

2. Rebecca Gordon * and Saul Bloxham, (2016) conducted a study on a systematic review of the effects of exercise and physical activity on non-specific chronic low back pain, this study included Back pain is a major health issue in Western countries and 60%–80% of adults are likely to experience low back pain. A review of the literature was carried out using the databases SPORTD discuss, Medline and Google Scholar. A general exercise programme that combines muscular strength, flexibility and aerobic fitness is beneficial for rehabilitation of non-specific chronic low back pain

B) Review of literature related to strengthening exercises and low back pain.

1. Ms. Asha .K. Thomas,(2016).conducted a study on to evaluate the effectiveness of backstrengtheningexerciseto relievelowbackpainamongnursingstudentsinselected hostel. This study

aimed at relieving low back pain among nursing students by back strengthening exercise. The pre-experimental study was conducted by using one group pretest posttest research design in selected nursing hostel. The mean pretest level of low back pain among the samples before the practice of back strengthening exercise was 5.50 and the mean posttest level of low back pain among the samples after the practice of back strengthening exercise was 0.03. There was no association between the mean pretest level of low back pain among samples with their BMI but there was association between the mean pretest level of low back pain among samples with their age and class.

2. P.Sumathy, (2016) conducted a study on effectiveness of exercises on low back pain among middle aged women, this study included Women in their 30's, 40's and 50's have a higher incidence of low back pain. The objectives of the study were to assess the level of low back pain among middle aged women and to determine the effectiveness of selected exercises on low back pain among middle aged women. A quasi experimental research design was adopted. The data were collected using Demographic proforma and McCaffery pain scale. 40 subjects with low back pain were identified and exercises that consisted of abdominal strengthening, back strengthening and hip stretching exercises were taught and practiced by them daily for half an hour for a period of one month. Frequency, Percentage 't' tests & chi-square were used for analysis. The results showed a significant difference in pre-test and post-test, pain levels at $p < 0.001$ level.

Material and methods:

The research approach adopted in this study is Quantitative research approach. Quasi experimental non randomize control group design was used. The samples were selected by Non-probability purposive sampling technique. Sample size was 60 women's with low back pain perception (35-55) years in selected areas of the city.

Result: Description of samples (women) based on their personal characteristics in terms of frequency and percentages N=30, C=30

Section I
Table 4.1 Distribution of demographic data of samples in a group according to their age.

Demographic variable	Experimental		Control	
	Freq	%	Freq	%
Age in years				
30-35years.	12	40.0%	9	30.0%
36-40years	11	36.7%	13	43.3%
41-45years	5	16.7%	6	20.0%
45-55years	2	6.7%	2	6.7%

In experimental group, 40% of the women had age 30-35 years, 36.7% of them had age 36-40 years, 16.7% of them had age 41-45 years and 6.7% of them had age 45- 55 years. In control group, 30% of the women had age 30-35 years, 43.3% of them had age 36-40 years, 20% of them had age 41-45 years and 33.3% of them had age 45-55 years.

Table 4.2 Distribution of demographic data of samples in a group according to their
Education:

Demographic variable	Experimental		Control	
	Freq	%	Freq	%
Education:				
Primary	5	16.7%	9	30.0%
Secondary	9	30.0%	6	20.0%
Higher secondary	7	23.3%	7	23.3%
Graduation	9	30.0%	8	26.7%

In experimental group, 16.7% of them had primary education, 30% of them had secondary education, 23.3% of them had higher secondary education and 30% of them had graduation. In control group, 30% of them had primary education, 20% of them had secondary education, 23.3% of them had higher secondary education and 26.7% of them had graduation.

Table 4.3 Distribution of demographic data of samples in a group according to their Occupation:

Demographic variable	Experimental		Control	
	Freq	%	Freq	%
Occupation:				
Unemployed	9	30.0%	11	36.7%
Business	6	20.0%	6	20.0%
Government employee	7	23.3%	3	10.0%
Private employee	8	26.7%	10	33.3%

In experimental group, 30% of them were unemployed, 20% of them had business and 23.3% of them were government sector employees and 26.7% of them were private sector employee. In control group, 36.7% of them were unemployed, 20% of them had business and 10% of them were government sector employees and 33.3% of them were private sector employee.

Table 4.4 Distribution of demographic data of samples in a group according to their Type of work:

Demographic variable	Experimental		Control	
	Freq	%	Freq	%
Type of work:				
Sedentary	12	40.0%	8	26.7%
Standing	9	30.0%	8	26.7%
Both sedentary and standing	9	30.0%	14	46.7%

In experimental group, 40% of them had sedentary work, 30% of them had standing work and 30% of them had sedentary and standing work. In control group, 26.7% of them had sedentary work, 26.7% of them had standing work and 46.7% of them had sedentary and standing work

Table 4.5 Distribution of demographic data of samples in a group according to their Duration of low back pain:

Demographic variable	Experimental		Control	
	Freq	%	Freq	%
Duration of low back pain:				
Less than 1 year	7	23.3%	7	23.3%
1-2 years	14	46.7%	13	43.3%
2-3years	9	30.0%	10	33.3%
More than 3 years	0	0.0%	0	0.0%

In experimental group, 23.3% of them had back pain for less than 1 year, 46.7% of them had back pain for 1-2 years and 30% of them had back pain for 2-3 years. In control group, 23.3% of them had back pain for less than 1 year and 43.3% of them had back pain for 1-2 years and 33.3% of them had back pain for 2-3 years.

4.6 Distribution of demographic data of samples in a group according to their Gravida of women

Demographic variable	Experimental		Control	
	Freq	%	Freq	%
Gravida of women				
Primi	9	30.0%	7	23.3%
II nd gravida	9	30.0%	15	50.0%
III rd gravid	10	33.3%	7	23.3%
IV th gravid	2	6.7%	1	3.3%

In experimental group, 30% of them were primigravida, 30% of them had IIndgravida and 33.3% of them had IIIRDgravida and 6.7% of them had IVthgravida. In control group, 23.3% of them were primigravida, 50% of them had IIndgravida and 23.3% of them had IIIRDgravida and 3.3% of them had IVthgravida.

Table4.7 Distribution of demographic data of samples in a group according to their History of obstetric illness

Demographic variable	Experimental		Control	
	Freq	%	Freq	%
History of obstetric illness				
Pelvic inflammatory diseases	2	6.7%	1	3.3%
PCOD	8	26.7%	7	23.3%
Fibroid uterus	1	3.3%	22	73.3%
No history of obstetric illness	19	63.3%	0	0.0%

In experimental group, 6.7% of them had pelvic inflammation diseases, 26.7% of them had PCOD, 3.3% of them had Fibroid uterus and 63.3% of them did not have any history of obstetric illness. In control group, 3.3% of them had pelvic inflammation diseases, 23.3% of them had PCOD and 73.3% of them had Fibroid uterus.

Table4.8 Distribution of demographic data of samples in a group according to their History of Menstruation

Demographic variable	Experimental		Control	
	Freq	%	Freq	%
Menstruation				
Normal	17	56.7%	20	66.7%
Scarcity	6	20.0%	4	13.3%
Excessive	7	23.3%	6	20.0%

In experimental group, 56.7% of them had normal menstruation, 20% of them had scarcity menstruation and 23.3% of them had excessive menstruation. In control group, 66.7% of them had normal menstruation, 13.3% of them had scarcity menstruation and 20% of them had excessive menstruation.

SECTION II

Table 4.9 Level of low back pain perception among women (35-55 years) N=30, C=30

Group	Pain	Pretest	
		Freq	%
Experimental group	No pain (Score 0)	0	0.0%
	Mild (Score 1-3)	4	13.3%
	Moderate (Score 4-6)	21	70.0%
	Severe (Score 7-10)	5	16.7%
Control group	No pain (Score 0)	0	0.0%
	Mild (Score 1-3)	9	30.0%
	Moderate (Score 4-6)	17	56.7%
	Severe (Score 7-10)	4	13.3%

In experimental group, 13.3% of the women had mild low back pain (score 1-3), 70% of them had moderate low back pain (score 4-6) and 16.7% of them had severe low back pain (Score 7-10). In control group, 30% of the women had mild low back pain (score 1-3), 56.7% of them had moderate low back pain (score 4-6) and 13.3% of them had severe low back pain (Score 7-10).

SECTION III

Table 4.10 Effect of strengthening exercises on level of low back pain perception among women (35-55 years) residing in selected areas of the city N=30, C=30

Group	Pain	Pre-test		Post-test	
		Freq	%	Freq	%
Experimental group	No pain (Score 0)	0	0.0%	1	3.3%
	Mild (Score 1-3)	4	13.3%	18	60.0%
	Moderate (Score 4-6)	21	70.0%	11	36.7%
	Severe (Score 7-10)	5	16.7%	0	0.0%
Control group	No pain (Score 0)	0	0.0%	0	0.0%
	Mild (Score 1-3)	9	30.0%	2	6.7%
	Moderate (Score 4-6)	17	56.7%	23	76.7%
	Severe (Score 7-10)	4	13.3%	5	16.7%

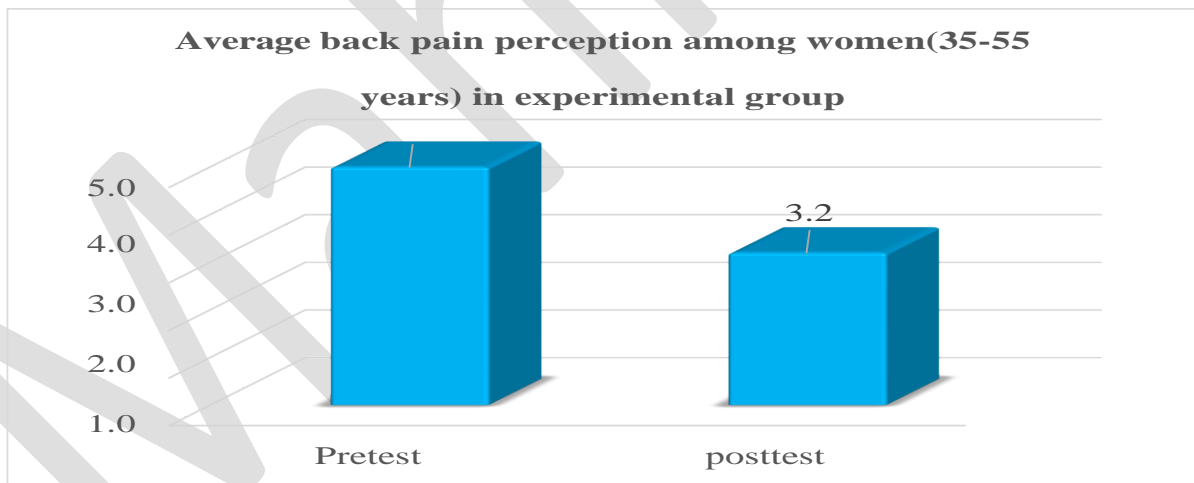
In pretest, in experimental group, 13.3% of the women had mild low back pain (score 1-3), 70% of them had moderate low back pain (score 4-6) and 16.7% of them had severe low back pain (Score 7-10). In posttest, 3.3% of them did not had pain (score 0), 60% of them had mild pain (score 1-3) and 36.7% of them had moderate pain (score 4-6).

In control group, 30% of the women had mild low back pain (score 1-3), 56.7% of them had moderate low back pain (score 4-6) and 13.3% of them had severe low back pain (Score 7-10). In posttest, 6.7% of the women had mild low back pain (score 1-3), 76.7% of them had moderate low back pain (score 4-6) and 16.7% of them had severe low back pain (Score 7-10). In control group, the pain worsened and in experimental group, pain reduced remarkably.

This indicates that the pain among the women reduced remarkably after strengthening exercises.

Table 4.11 Paired t-test for the effect of strengthening exercises on level of low back pain perception among women N=30, 30

	Mean	SD	T	Df	p-value
Pretest	5.0	1.5	17.9	29	0.000
Posttest	3.2	1.6			

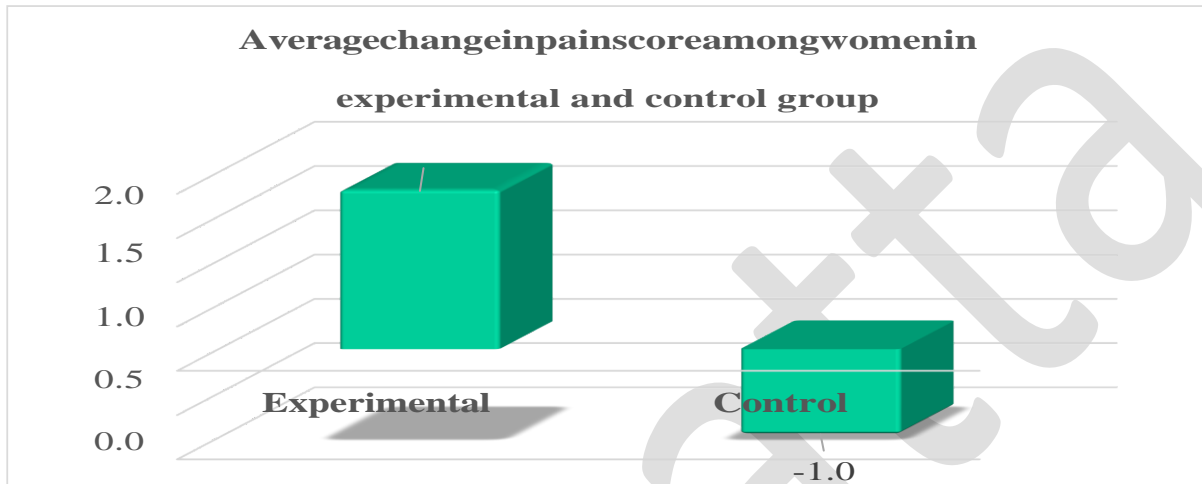


Researcher applied paired t-test for the effect of strengthening exercises on level of low back pain perception among women. Average low back pain score in pretest was 5 which decreased to 3.2 in posttest. T-value for this test was 17.9 with 29

degrees of freedom. Corresponding p-value was small (less than 0.05), null hypothesis is rejected. It is evident that the strengthening exercises were significantly effective in reducing the level of low back pain perception among women.

Table 4.12 Two sample t-test for the comparison of experimental and control group N= 30, 30

Group	Mean	SD	T	df	p-value
Experimental	1.8	0.6	12.9	58	0.000
Control	-1.0	1.0			



Researcher applied two sample t-test for the effect of strengthening exercises on level of low back pain perception among women. Average change in low back pain score in experimental group women was 1.8 which was -1 for control group women. The pain was worsened in control group. T-value for this test was 12.9 with 58 degrees of freedom. Corresponding p-value was small (less than 0.05), null hypothesis is rejected. It is evident that the strengthening exercises were significantly effective in reducing the level of low back pain perception among women.

Section IV

Analysis of data related to association between study low back pain with selected demographic variables

Table 4.13: Fisher’s exact test for association between study low back pain with selected demographic variables N=60

Demographic variable		Low back pain			p-value
		Mild	Moderate	severe	
Age in years	30-35years.	4	15	2	0.309
	36-40years	6	16	2	
	41-45years	2	6	3	
	45-55years	1	1	2	

Education:	Primary	4	7	3	0.488
	Secondary	2	9	4	
	Higher secondary	2	11	1	
	Graduation	5	11	1	
Occupation:	Unemployed	6	10	4	0.354
	Business	1	8	3	
	Government employee	1	9	0	
	Private employee	5	11	2	
Type of work:	Sedentary	4	13	3	0.298
	Standing	2	14	1	
	Both sedentary and standing	7	11	5	
Duration of low back pain:	Less than 1 year	3	10	1	0.803
	1-2 years	7	15	5	
	2-3years	3	13	3	
Gravida of women	Primi	1	13	2	0.042
	II nd gravida	9	11	4	
	III rd gravida	3	13	1	
	IV th gravida	0	1	2	
History of obstetric illness	Pelvic inflammatory diseases	0	2	1	0.613
	PCOD	2	12	1	
	Fibroid uterus	0	1	0	
	No history of obstetric illness	11	23	7	
Menstruation	Normal	10	22	5	0.175
	Scarcity	3	5	2	
	Excessive	0	11	2	

Since p-value corresponding to Gravida is small (less than 0.05), demographic variable 'Gravida of women' was found to have significant association with the low back pain among women (35-55 years)

SUMMARY

This analysis and interpretation of the data, tables and diagrammatic presentation of data. The analysis showed that strengthening exercises has decreased level of low back pain.

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