



## **Effectiveness of Mckanzie Exercise on Lower Back Pain Among Elderly Persons**

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### **ABSTRACT**

*Old age is the golden age and often referred to as second childhood. They require special care during this period. Frailty becomes a common health condition among the older adults in our society. Regular physical activity can prevent function decline and reduce frailty symptoms. A true experimental research design with one group with pre and post test study was conducted among Sixty number of elderly person with lower back pain among the residents of old age home in Cuddalore. Data were collected by using structured questionnaire and Oswestry pain scale and disability questionnaire. Initially clients were assessed for the level of pain and they were allotted randomly for both group. Study subjects in the experimental group were taught and allowed to perform Mckanzie exercises in front of the investigator for 20 mts daily for a period 4 weeks, whereas the control group received only routine institutional care. The post-test was conducted at the end of the 4<sup>th</sup> week using the same instrument for both the groups. Data were analyzed with the help of descriptive and inferential statistics. The study results revealed that the pretest means score in experimental group was 24.6 and control group was 25.3 was higher than the post-test mean score in the experimental group (22.7) control group (28.6). The calculated 't' value of experimental and control group was 0.081 and 0.094 respectively, which was statistically significant at level of  $p > 0.05$ . Therefore the study concludes that the Mckanzie exercise was effective in reducing the lower back pain among elderly persons.*

**Key words:** Effectiveness, Lower back pain, Mckanzie exercise, Oswestry low back pain, Disability

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### **INTRODUCTION**

India's senior citizen population may increase drastically over the next four decades. The number of senior citizen age 60 and above in India is estimated to climb from 8 percent in 2010 to 19 percent in 2050 [1]. India's population age 50 and above is relatively small around 16 percent, but it was noted that India may experience decrease in mortality of infant and survival of older adults in reply to public health improvements (Arokiasamy et al, 2014) in future. By mid-century, India's 60 and older population is expected to encompass 323 million people, a number greater than the total U.S. population in 2012. The profound shift in the share of older Indians taking place in the context of changing family relationships and severely limited old age income support brings with it a variety of social, economic, and health care policy challenges. As India's population increases the nation will face a shrinking pool of working-age people to support the elderly population, such burden can be reduced by training the elderly to take care of by practicing exercise to retain the strength and balance (Campbell (2013). The McKenzie method is popular amongst physiotherapists for spinal pain as a management approach. So the investigator tried to test the effectiveness of the same.

A study to assess the effectiveness of McKenzie exercise in reducing lower back pain among elderly persons residing at selected old age home, Cuddalore.

### **OBJECTIVES OF THE STUDY**

- ✓ To assess the level of lower back pain among elderly persons residing at selected old age home in experimental and control group.
- ✓ To assess the effectiveness of McKenzie exercise in reducing lower back pain among elderly persons in experimental group.

✓ To determine the association between pretest level of lower back pain among elderly persons with selected demographic and health profile variables in both groups.

#### **HYPOTHESES:**

**H<sub>1</sub>:** There is significant difference between pre and post interventional test level of lower back pain among elderly persons in experimental group.

**H<sub>2</sub>:** There is significant association between pre and post test level of lower back pain with selected demographic variables and health profile among elderly persons in control and experimental group.

#### **MATERIALS AND METHODS:**

A true experimental research design with one group with pre and post test study was conducted among Sixty number of elderly person with lower back pain among the residents of old age home in Cuddalore. Data were collected by using structured questionnaire and Oswestry pain scale and disability questionnaire.

**Part I -Demographic profile:** Data were collected by using structured questionnaire includes 8 items age, gender, BMI, education, marital status, dietary pattern, residence, religion.

**Part II - Health profile:** Structured questionnaire such as duration, frequency, radiation, treatment, operation done, co-morbid illness, current treatment for co-morbid illness, exercise practice for low back pain.

**PART III - Oswestry pain scale and disability questionnaire were** used to asses' lower back pain. It consisted of 10 items such as Pain intensity, Personal care, Lifting, Walking, Sitting , Standing, Sleeping , Sex life (if applicable), Social life, Travelling . The maximum score for each item was 5 and minimum score was 0. Total score was 50 and they were classified as:

- 1. 0% to 20% - minimal disability:** The patient can cope up with most living activities. Usually no treatment is indicated apart from advice on lifting, sitting and exercise.
- 2. 21% to 40% - moderate disability:** The patient experience more pain and difficulty with sitting, lifting and standing. Travel and social life are more difficult and they may be disabled from work. Personal care, sexual activity, and sleeping are not grossly affected and the patient can usually be managed by conservative means
- 3. 41% to 60% - severe disability:** Pain remains the main problem in this group but activities of daily living are affected. This patient requires a detail investigation.
- 4. 61% to 80% - crippled:** Back pain impinges on all aspects of patient's life. Positive intervention is required.
- 5. 81% to 100% -** These patients are either bed bound or exaggerating their symptoms.

Initially clients were assessed for the level of pain and they were allotted randomly for both group. Study subjects in the experimental group were taught and allowed to perform Mckanzie exercises in front of the investigator for 20 mts daily for a period 4 weeks, whereas the control group received only routine institutional care. The post-test was conducted at the end of the 4<sup>th</sup> week using the same instrument for both the groups. Data were analyzed with the help of descriptive and inferential statistics.

#### **RESULTS AND DISCUSSION:**

##### **1. Findings related to demographic variables**

**In the experimental group,** the majority of the elderly persons 17(56.67%) belonged to the age group of 60-65 years, with regard of gender, 18(60%) of them were females. 14(46.67%) of elderly persons had BMI between19-24. Also 16(53.3%) of elderly persons had no formal education. About 17(56.67%) of elderly persons were married. 22(73.33%) of the elderly persons were vegetarian. 22(73.33%) of them were residing at rural place 16(53.3%) were Christian.

**In the control group,** majority of the elderly persons 18(60%) were belonged to the age group of 60-65 years with regard of gender, 17(56.67%) of them were females. 17(56.67%) of elderly persons had BMI between19-24. Also 12(40.0%) had primary education, 23(76.67%) of elderly persons were married. About 28(93.33%) of the elderly persons were vegetarian and 19(63.33%) of elderly person were residing at urban place 17(56.67%) were Hindu.

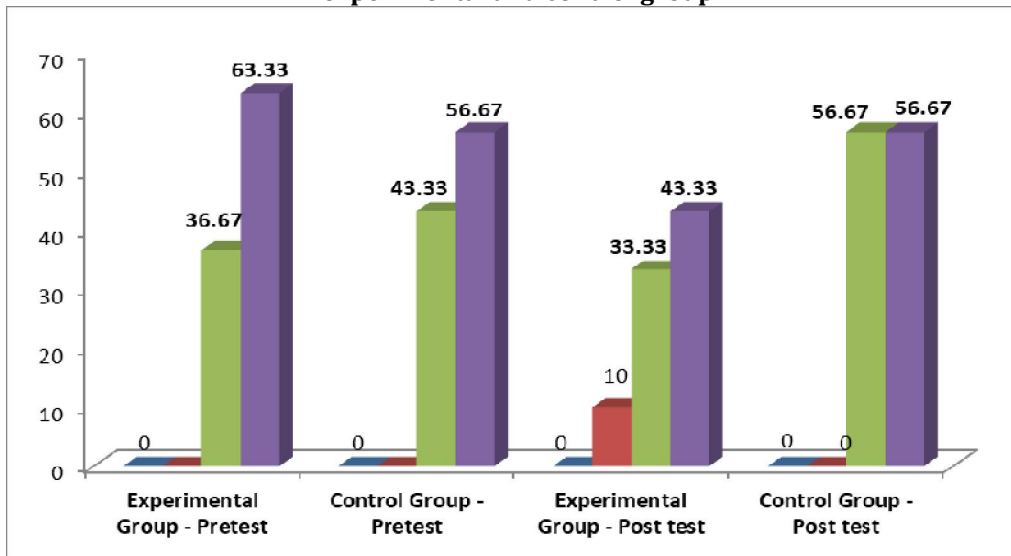
##### **2. Findings related to health profile**

**In experimental group** 10 (33.33) had low back pain for 1-3 years among all 26(86.67) had whole day with high frequency and mostly all 30 elderly had radiating pain. Majority 26(86.66) of them had no history of treatment for pain. 18(60.00) had no history of co-morbid illness, 18 (60.00) had no history of current medication, 30 (100) had no history of any exercise for lower back pain,

**In control group** 25 (83.33) of them had low back pain 1-3 yrs , 14 (46.67) elderly person had less than half a day with less pain frequency and around 26 (86.67) persons said no radiating pain. Majority 26(86.67) had no history of treatment for pain. 19 (63.33) had no history of co morbid illness. 21 (70.00)

had no history of current medication. All 30 of them (100) had no history of exercise for back pain and no history of operation.

**Figure 1. Findings related to the assessment of pretest level of pain among elderly person in experimental and control group**



The above chart shows that 11(36.67%) of them had severe disability level and 19(63.33%) had crippled level of disability in the experimental group whereas in control group 13(43.33%) had severe disability level and 17(56.67%) had crippled level of disability. experimental group 03(10%) had moderate disability level, 10(33.33%) had severe disability and 17(56.67%) had crippled level of disability where as in control group 13(43.33%) had severe disability level and 17(56.67%) had crippled level of disability.

This study findings were in agreement with findings of a study [3] conducted to evaluate low back pain among 105 samples over the age of 30-65 years and found that 64(60%) had moderate disability, 25(23.8%) had severe disability, 13(12.4%) had minimal disability and 3(2.8%) were crippled. And another study by Anand kumar (2015), a true experimental study to assess back pain among 212 older adult over 60 years of age. The study revealed that 28% had moderate disability, 55% had severe disability, and 27 % were having crippled disability.

**Table 3: Effectiveness of McKenzie exercise on reducing lower back pain among elderly persons (n = 60)**

Area		Mean	Mean difference	Standard deviation	T test	
					Calculated p-value	Tabulated p-value
Experimental group	Pre test	24.6	1.9	3.75	0.081	0.05
	Post test	22.7		2.79		
Control group	Pre test	25.3	3.3	2.94	0.094	0.05
	Post test	28.6		2.02		

This table show's that there was a significance difference between pre test and post test level of lower back pain among elderly persons between experimental and control groups. The study showed that the comparison of pretest and post test score of Oswestry low back pain disability questionnaire. In the pre test, the experimental group had mean score of 24.6 and the post test mean score was 22.7. The mean difference score was 1.9 (19%). The standard deviation of pretest was 3.75 and the post test was 2.79. In the t-test calculated t value was 0.081 was found to be statistically significant at p>0.05.

Whereas in the control group, the study showed that the pre test mean was 25.3 and the post test mean score was 28.6. The mean difference score was 3.3 (33%). The standard deviation of pretest was 2.94 and the post test was 2.02. In the t-test calculated t value was 0.094 was found to be statistically significant at p>0.05. From the above study, it was concluded that there was a significant difference in the lower back pain among elderly persons between experimental and control group after Mckanzie exercise [5].

The study results were supported by a study conducted by Saira Waqqar et al [6] titled “Comparative study to assess the effectiveness on McKenzie treatment versus mulligan Sustained Natural Apophyseal Glides (SNAGs) for chronic mechanical low back pain among 37 patients and found that McKenzie EEP was clinically more effective in the management of pain and disability when compared with Mulligan SNAGs. The same was supported by another study conducted by De Campos TF et al [2] to determine the effectiveness of a McKenzie method-based self-management approach in the secondary prevention of LBP among 396 participants aged 18 years in community and primary care centre, Sydney, Australia and revealed that McKenzie exercise was found to be effective in the managing the of LBP. Also it is effective in treating the short term LBP when comparing other measures [7]. Hence the stated hypothesis (H<sub>1</sub>) was accepted by the investigator.

#### **Findings on association between pre- test level of lower back pain and selected demographic variables among elderly persons in both group.**

The study results showed in the experimental and control group revealed that chi -square calculated p-value( age, gender, BMI, dietary pattern) is greater than chi -square tabulated p value, the study indicated that there was no significant association between pretest level of lower back pain and selected demographic variables .

#### **Findings on association between pretest level of lower back pain and selected health profile among elderly persons in the experimental group and control group**

The study results showed in the experimental group reveals that chi -square calculated p-value (duration of pain, frequency of pain, radiation of pain) was greater than chi -square tabulated p value, so shown no significant association with pre test level of lower back pain. Hence the hypothesis (H<sub>2</sub>) was rejected. The study finding recommends the following for further research:

- ✓ The study can be conducted on a larger sample in different settings to validate and generalize the findings.
- ✓ A same study can be conducted on other age groups
- ✓ A comparative study can be done between rural and urban areas.
- ✓ A study can be done to assess the knowledge about importance of Mckanzie exercise among elderly persons.
- ✓ A cohort study can be done to understand the effect of long term Mckanzie exercise on reducing lower back pain among elderly persons.

#### **CONCLUSION**

A physically active individual lives much healthier and active life than people who are physically inactive. Physical exercise is important for maintaining physical fitness and can contribute to maintaining a healthy life, weight building and maintaining healthy bone density, regulating digestive health, promoting physiological well-being, muscle strength, and joint mobility, reducing surgical risks, and strengthening the immune system. the study concluded that Mckanzie exercise was effective and safe in reducing the low back pain level among elderly persons.

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