



The Impact of Physical Activity in Reduction of Pain and Improving Activities of Daily Living among 50-70 Years Residing at Manamadruai, Tamilnadu.

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ABSTRACT

The aging of the population is a world-wide phenomenon, occurring more rapidly in developing countries. India is in the process of formulating policies to provide better health care for elders. 20% excess mortality occurs in older persons in the year following hip fracture. A study conducted in Tamilnadu, reveals those 2 in 10 women and 1 in 20 men experiencing osteoarthritis. An estimated national direct expenditure (hospitals and nursing homes) for osteoporosis and related fractures is \$14 billion each year. According to centre for disability and prevention statistics one out of every two women and one in eight men over 50 will have an osteoporosis-related fracture in their lifetime. The investigator during her community postings saw that most of the aged peoples are not getting proper health care. Most of them complaining about their pain on the knee and difficulty in doing daily activities. In order to prevent the systemic diseases and to promote the health of the aged people the investigator had taken this study to protect them and to prevent the emerging of the disease. The aim of the present study is to assess the effectiveness of physical activity in reduction of pain and improving activities of daily living among 50-70 years residing at Manamadruai, Tamilnadu. The conceptual framework of the study was based on the general system model given by Von Ludwig Bertalanffy [1968]. Research approach used was quantitative and the research design was Pre experimental one group pre-test and post-test design. Dependent variables were activities of daily living and assessment of level of pain the independent variables were teaching of physical activity. The study was conducted at Manamadruai in Sivagangai district. Manamadruai is a panchayat town and have a population of 46,284. samples in the age group of 50 to 70 years who were residing at Manamadruai and having knee pain. Data was collected from the samples selected that satisfy inclusion criteria. The level of pain of the samples was measured by visual analogue scale. The level of activities of daily living assessed by J.Hill's modified arthritis measurement scale. Rating scale was used to assess the physical activity. During the first week assessed the level of pain and activities of daily living and taught weight bearing exercises such as walking, hiking, stair climbing, stretching and module was given. During the second to fifth week observed the performance of exercises using rating scale. During the sixth week evaluate the effectiveness of physical activity in reducing the level of pain and improving activities of daily living. Analysis of the data showed that after the intervention the mean Score on level of pain was decreased from 3.56 to 1.36 and mean score on activities of daily living was increased from 1.50 to 3.51. There is a negative correlation between level of pain and activities of daily living were -0.56. The demographic variables such as age, religion, educational status, occupation, monthly income, type of family, dietary pattern having significant association at 0.05 level and the demographic variable sex was not having association with level of activities of daily living. Research hypothesis was accepted and statistically proved.

Keywords: Activities of daily living, physical activity, pain

Statement of the problem

A Study to evaluate the effectiveness of physical activity in reduction of pain and improving activities of daily living among 50-70 years residing at Manamadruai, Tamilnadu.

Objectives of the study

1. To assess the level of pain before and after doing intervention.
2. To assess the level of activities of daily living before and after doing intervention.
3. To find out the effectiveness of physical activity in reduction of pain.
4. To find out the effectiveness of physical activity in improving activities of daily living.
5. To find out the relationship between level of pain and activities of daily living.

6. To associate the level of pain and demographic variables such as age, sex, education, occupation, type of family, income, dietary pattern.
7. To associate the level of activities of daily living and demographic variables such as age, sex, education, occupation, type of family, income, dietary pattern.

Hypotheses

1. Mean post test level of pain is significantly lower than mean pre test level of pain.
2. Mean post test level of activities of daily living is significantly higher than mean pretest level of activities of daily living.
3. There is a significant relationship between pain level and activities of daily living.
4. There is a significant association between level of pain and the demographic variables such as age, sex, education, occupation, type of family, income, dietary pattern.
5. There is a significant association between levels of activities of daily living and the demographic variables such as age, sex, education, occupation, type of family, income, and dietary pattern.

Materials and Methods

Research approach: Quantitative research approach. **Research design:** Pre experimental one group pretest and posttest design. **Dependent variables:** activities of daily living and assessment of level of pain. **Independent variables:** physical activity. It includes Teaching of weight bearing exercises such as walking, hiking, stair climbing, stretching. **Settings of the study:** The study was conducted at Manamadruai in Sivagangai district. Manamadruai is a panchayat town and have a population of 46,284.. **Subjects:** age group of 50 to 70 years who were residing at Manamadruai and having knee pain. **Sample size:** 60.

Conceptual framework

Researcher adopted the general system model given by Von Ludwig Bertalanffy [1968]. According to this theory, a system is a set of components or units interacting with each other within a boundary that filters the type and range of exchange with the environment. The present study aims at developing and evaluating the effectiveness of physical activity on reduction of pain and improving activities of daily living for aged clients.

Tools and techniques of data collection

Data was collected from the samples selected who satisfy inclusion criteria. The purpose of the study was explained to each subject and consent was obtained. Then the nature of the study was explained and assurance was given regarding confidentiality of the tool. The level of pain of the samples was measured by visual analogue scale. The level of activities of daily living assessed by J.Hill's modified arthritis measurement scale. Rating scale was used to assess the physical activity.

The period of the data collection is 6 weeks

1st week : Assessed the level of pain and activities of daily Living and taught weight bearing exercises such as walking, hiking, stair climbing, stretching and module was given.

2nd- 5th week: Observed the performance of exercises using rating scale.

6th week: Evaluating the effectiveness of physical activity in reducing the level of pain and improving activities of daily living.

10 samples were selected per day who met inclusion criteria.30 minutes was spent for each sample to supervise them for performance of their exercises.

RESULTS

Section A: Demographic variables

In the age group of the subjects 7 [11.6%] were between 50-55 years, 24[40.2%] were between 56-60 years, 16[26.6%] were between 61-65 years, 13[21.6%] were between 66 and above.Regarding sex of the groups 37[61.6%] were males, 23[38.4%] were females.With regard to religion 37[61.6%] were Hindu, 16[26.8%] were Christian, 7[11.6%] were Muslim. Regarding educational status of the subjects 20 [33.3%] have primary education, 22[36.6%] have higher secondary education, and 18[30.1%] have diploma/degree.In respect of occupation of the subjects 13[21.6%] were unemployed, 13[21.6%] were government employee, 24[40.2%] were private employee, 10 [16.6%] were self employee. With regard to monthly income of the family 22[36.6%] were getting Rs/- 2001-5000, 23[38.3%] Rs/- 5001-10000, and 15[25.1%] Rs/-10001 and above. Regarding type of family 8[13.3%] were nuclear family, 44[73.4%] were joint family, 8[13.3%] was separated family. In relation to dietary pattern 37[61.6%] were vegetarian and 23[38.4%] were non-vegetarian.

Section B: the level of pain before and after doing intervention.

The level of pain of the samples was measured by visual analogue scale. The investigator found out of 60 subjects in pre test, 5[8.3%] were having mild pain, 17[28.3%] were having moderate pain and 38[63.4%] had severe pain. In post test 40 [66.7%] were having no pain, 18[30%] were having mild pain and 2[3.3%] had moderate pain.

Section C: assess the level of activities of daily living before and after doing intervention.

The level of activities of daily living assessed by J.Hill's modified arthritis measurement scale. In pretest out of 60 subjects, 2[3.3%] were not dependent, 3[5%] were mild dependent, 24[40%] were moderate dependent and 31[51.7%] had severe dependent. In post test among the subjects, 31[51.7%] were not dependent, 28[46.7%] were mild dependent and 1[1.6%] had moderate dependent.

Section D: to find out the effectiveness of physical activity in reduction of pain

Mean score on level of pain was 3.56 in pretest, 1.36 in post test and computed value of 't' is 20.52 is more than the table value [2.002] at df [58] which is statistically significant at 0.05 level. This data shows that physical activity teaching was effective in reduction of level of pain.

Section E: to find out the effectiveness of physical activity in improving activities of daily living.

Mean post test level of activities of daily living is 1.50 which is significantly lower than mean pretest 3.51 levels of activities of daily living. The computed value of "t" is 21.21 is more than the table value [2.002] at df [58] which is statistically significant at 0.05 level. This shows that physical activity is effective in improving daily activities.

Section F: to find out the relationship between level of pain and activities of daily living.

There is a negative correlation between level of pain and activities of daily living is -0.56. So if level of pain decreases level of activities of daily living increases.

Section G: to associate the level of pain and demographic variables

The hypothesis states that there is a significant association between level of pain and demographic variables. The same result was statistically proved. The table depicts that the demographic variables such as age, sex, educational status, occupation, monthly income, type of family, dietary pattern having significant association at 0.05 level and the demographic variable religion are not having association with level of pain.

Percentage distribution of samples according to level of pain before and after intervention. (n=60)

Si.no	Level of pain	Pre test		Post test	
		f	%	f	%
1.	No pain	0	-	40	66.7
2.	Mild pain	5	8.3	18	30
3.	Moderate pain	17	28.3	2	3.3
4.	Severe pain	38	63.4	0	-

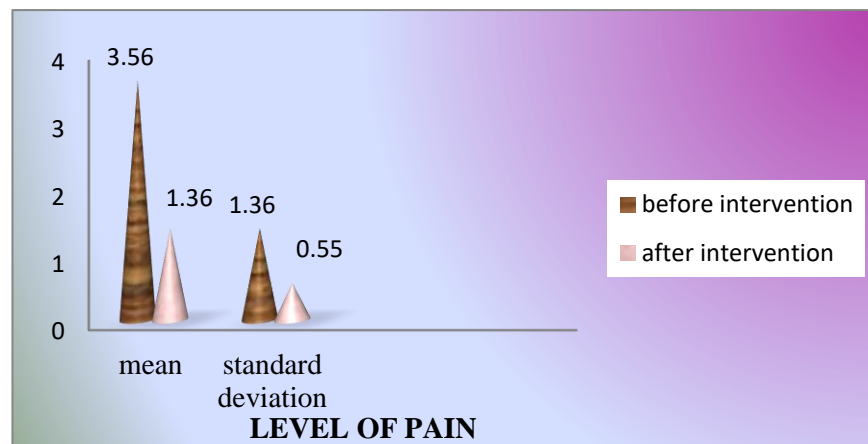
percentage distribution of samples according to level of activities of daily living before and after intervention. (n=60)

Si.no	Level of activities of daily living	Pre test		Post test	
		f	%	f	%
1.	Not dependent	2	3.3	31	51.7
2.	Mild dependent	3	5	28	46.7
3.	Moderate dependent	24	40	1	1.6
4.	Severe dependent	31	51.7	-	-

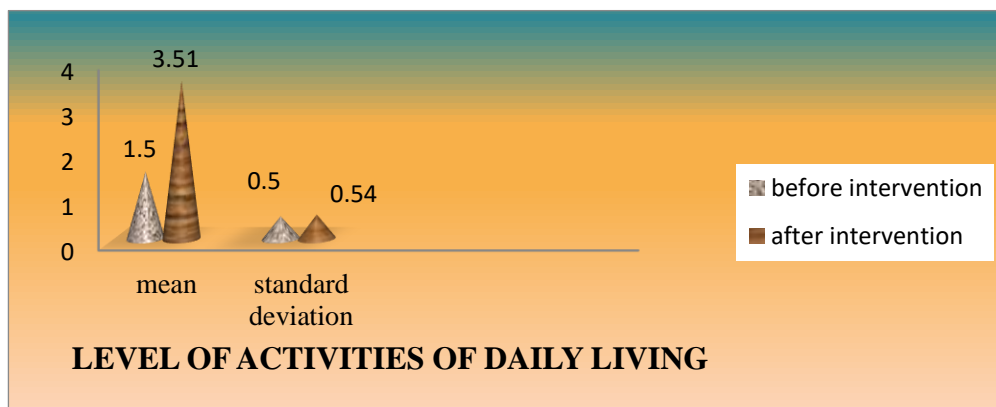
percentage distributions of samples according to performance of physical activity (n=60)

Si.no	Level of performance	f	Percentage (%)
1.	Good practice	32	53.33
2.	Moderate practice	23	38.33
3.	Poor practice	5	8.34

distributions of samples according to mean and standard deviation of pre and post test level of pain.



Distributions of samples according to mean and standard deviation of pre and post test level of activities of daily living.



DISCUSSION

The investigator found out of 60 subjects in pre test, 5[8.3%] were having mild pain, 17[28.3%] were having moderate pain and 38[63.4%] had severe pain. In post test 40 [66.7%] were having no pain, 18[30%] were having mild pain and 2[3.3%] had moderate pain. **Mohan et al.,[2008]** reported the same conclusion of the prevalence of knee pain in persons aged 50 years or more is about 41% among women and 18% among men. In pretest out of 60 subjects, 2[3.3%] were not dependent, 3[5%] were mild dependent, 24[40%] were moderate dependent and 31[51.7%] had severe dependent. In post test among the subjects, 31[51.7%] were not dependent, 28[46.7%] were mild dependent and 1[1.6%] had moderate dependent. **Bell m et al.,[2009]** conducted the study to assess the physical function among 50-65 years. 1 in 3 women experienced severe physical dysfunction. 1 in 5 men experienced severe physical dysfunction. Mean score on level of pain was 3.56 in pretest, 1.36 in post test and computed value of 't' is 20.52 is more than the table value [2.002] at df [58] which is statistically significant at 0.05 level. This data shows that physical activity teaching was effective in reduction of level of pain. The same result was found in **Hinman R S et al.,[2007]** to evaluate the effects of physical activity on reduction of pain. 71 volunteers were participated in the study. The participants randomly received exercise therapy on 6 weeks. Outcomes included that pain reduction. The result shows that totals of 72% of participants reported improvements in pain. 84% participants continued exercise independently. Mean post test level of activities of daily living is 1.50 which is significantly lower than mean pretest 3.51 levels of activities of daily living. The computed value of "t" is 21.21 is more than the table value [2.002] at df [58] which is statistically significant at 0.05 level. This shows that physical activity is effective in improving daily activities. The same result was found that **Bartels E M et al.,[2007]** done the effectiveness of exercise interventions in the treatment of improvement of daily activities among aged clients. Quasi randomized clinical trials were used as research design. The analysis was done by standardized mean difference. 800 participants were included. There was a small to moderate effect on daily function [SMD 0.26, 95% confidence interval 0.11 to 0.42] and large effect on pain [SMD 0.86, 95% confidence interval 0.25 to 1.47; 22% the exercise relative percent improvement]. They concluded that the exercises were improving long term effects.

CONCLUSION

The following conclusions are made based on the above finding that Most of the subjects were in moderate level of pain, mild dependent. The intervention is effective, simple, non-pharmacological measures to use for aged and adult clients. The study encouraged all the groups to reduction of fracture. This is cost free and easy to learn. It can be integrated into clinical practice and health education in order to enhance the life span of aged clients.

NURSING IMPLICATIONS

Present study findings help the student nurses to gain the knowledge about the benefits of physical activity. Student nurses are encouraged to prepare the IEC materials regarding the physical activity. Nurse administrator can plan and organize the in- service education Programme for community health personnel to renew their knowledge. The study paves the way to identify the newer method of impacting health information that will be empirically tested.

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