"Evaluate the effectiveness of Isometric exercise onpain perception and anxiety among old age people with knee osteoarthritis at selected old age homes of Udaipur, District, Rajasthan."

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Abstract:

Background:Osteoarthritis is one of the major causes of impaired function that reduce quality of life. More than 50% of people over 65 years of age have evidence of osteoarthritis .Although exercise is recommended for anyone, osteoarthritis exercises are intended to maintain and build muscle strength without aggravating the body in those suffering from the disease..Researcher conducted A study to" Evaluate the effectiveness of Isometric exercise on pain perception and anxiety among old age people with knee osteoarthritis at selected old age homes of Udaipur,. District, Rajasthan"

Materials and methods:It included the Quantitative Evaluative research approach, quasi experimental non randomized controlgroup design , variables under study were Isometric exercise as independent variable, pain perception and anxiety among old age people with knee osteoarthritis was dependent variable. Research used modified Roy adaption model by sister callistaroy in 1976. Selected old age homes of Udaipur District as research setting, total 60 samples, and non-probability convenient sampling techniques was used. The nursing intervention Isometric exercise was used for this study and tool used for data collection were socio-demographic data, Numerical pain rating scale and Hamilton anxiety rating scale. The data obtained were analyzed and interpreted in the light of objectives and hypothesis using both descriptive and inferential statistical in terms of frequency, percentage and chi-square.

Results: Result revealed that calculated t value of pain perception (19.22) ,and calculated t value of anxiety (27.22) is found highly significant at the level of P=0.05.it shows there is significant relationship between effect of Isometric exercise and pain perception and anxiety among old age people with knee osteoarthritis patients Hence research hypothesis H_1 is proved and accepted. In experimental group Age in Years ($\chi2=21.024$), educational status ($\chi2 = 19.21$), occupation($\chi2= 20.97$), duration of illness($\chi2 = 20.67$), duration of treatment ($\chi2 = 20.67$), knowledge about osteoarthritis($\chi2=15.14$),knowledge about isometric exercise ($\chi2 = 13.67$) and source of information($\chi2 = 21.64$)were found to be significantly associated with pre-test score at 0.05 level. Hence Research hypothesis H_2 is accepted.

Conclusion:The main focus of the study was to "Evaluate the effectiveness of Isometric exercise on pain perception and anxiety among old age people with knee osteoarthritis at selected old age homes of Udaipur, District, Rajasthan.The mean pre-test score of pain perception among old age people with knee osteoarthritis was 7.5 with S.D 0.76 and the post-test mean score of pain was 3.8 with S.D 0.88. The calculated 't' value for the level of pain is 19.22, which is significantly higher than the table value at 0.05 level. The mean pre-test score of anxiety among old age people with knee osteoarthritis was 33.06 with S.D 1.56 and the post-test mean score of anxiety was 19.30 with S.D 1.12. The calculated 't' value for the level of anxiety is 27.22, which is greater than the table value. The finding shows that isometric exercise is highly effective in reducing the level of pain perception and anxiety among old age people with knee osteoarthritis. Hence, research hypothesis H1 accepted.

Key Words: Evaluate, Effectiveness, Isometric exercise, Pain perception, Anxiety,Knee osteoarthritis.

I. Introduction

Old age consists of ages nearing or surpassing the average life span of human beings, and thus end of the human life cycle.[1]Old age refers to ages nearing or surpassing the life expectancy of human beings, and is thus the end of the human life cycle. old people often have limited regenerative abilities and more susceptible to

disease, syndromes, injuries and sickness than younger adult. The word arthritis means inflammation (swelling) of a joint. Osteoarthritis, also known as "wear and tear" arthritis and is the most common type of arthritis.[2]

Exercise is one of the best method to treat Osteoarthritis. It is quite evident that isometric exercises are beneficial to improve the functional mobility of joints in old age people. When the mobility increases, intensity of joint pain decreases. There are different techniques in carrying out the isometric exercise and some of the technique have already been tried out, in other countries. [3]The isometric exercises does not take much time, requires no special equipments, except a comfortable place to do the exercises. It is a simplest technique, which is considered to be appropriate for the low socio – economic status, and easily applicable for the old age people.[4]

II. Material and Methods

Quantitative Evaluative research approach was used for the presentstudy. This approach would help the researcher to evaluate the effectiveness of Isometric exercise on pain perception and anxiety among old age people with knee osteoarthritis at selected old age homes of Udaipur, District, Rajasthan.

Research design–Quasi experimental non-randomized control group design.

Research Settings: The study was conducted in the Tara sansthan old age homes and Sevadham old age home of,Udaipur Rajasthan.

Study duration: 01/02/2020 -28/02/2020.

Sample Size: 60 old age people with knee osteoarthritis.

Population: The target Accessible population comprised of all old age people with knee osteoarthritis. In this present study the sample consisted of 60 old age people with knee osteoarthritis who are living in old age homes.

Sampling Technique: Non-Probability convenient sampling technique.

Inclusion criteria:
- ☐ Old age people present at the time of data collection.
- ☐ Old age people who are willing to participate in the study.
- ☐ Males and females with knee joint pain above 60 years of age.
- ☐ Medically diagnosed osteoarthritis patients.

Exclusion criteria: -
☐Old age people who are not available during the period of data collection.
- ☐ Bed ridden persons.
- ☐ Old age people who had undergone orthopaedic surgery. (eg: amputation, knee replacement)
- ☐ Old age people with systemic disease.
- ☐ Old age people with fracture of knee(or)ligament tear.
- ☐ Old age people s withunresolved neurological and balance disorder

Procedure Methodology: Researcher obtained informed written consent from the study participants; confidentiality of the study subject was assured. The data collection was done after obtaining a written consent from the participants. During the data collection period, the patients who met the inclusion criteria were selected by using non probability convenient sampling techniques. The pretest was conducted by using the Numerical pain intensity scale and Hamilton anxiety rating scale.From that day onwards, the researcher administered Isometric exercise to each sample for one hour for 14 days. The post test was conducted after completion of Isometric exercise.The collected data were analyzed based on the above-mentioned objective using the descriptive and inferential statistics.

Statistical analysis: The obtained data were analyzed in terms of objectives of the study using descriptive and inferential statistics. The plan for data analysis was as follows Organization of data in master sheet. Obtained data were analyzed in terms of frequencies and percentages. Description Statistics: Description of demographic characteristics. Mean, median, SD and mean percentage is used to describe the pre-test and post-test stress score of the respondent regarding Art therapy. Inferential Statistics: Chi-square is used to find out the association between the pre-test level of stress with selected socio-demographic variables.

III. Results

Section A: Level of pain perception and anxiety among old age people in experimental and control group.

Section B: Effectiveness of nursing intervention on level of pain perception and anxiety among old age people in experimental and control group.

Section A: Level of pain perception and anxiety among old age people in experimental and control group.

Table 1: frequency and percentage distribution of Level of pain in experimental group

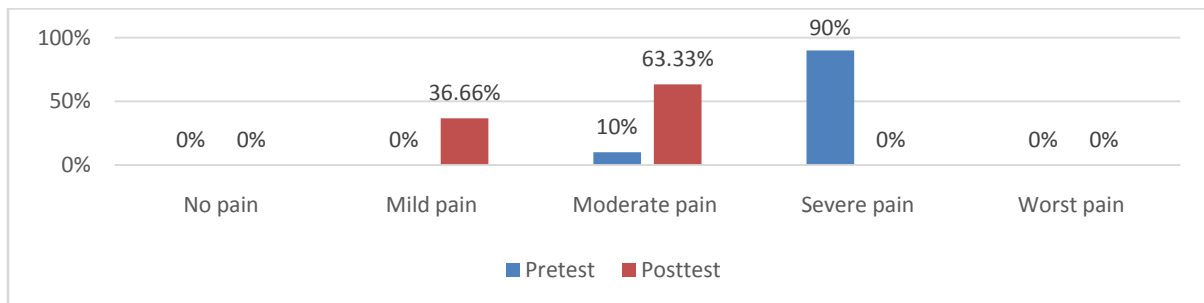| S.No	Degree of Pain	Experimental group n= 30			
		Pre test		Post test	
		F	%	F	%
1.	No pain (score 0)	-	-	-	-
2.	Mild pain (score 1-3)	-	-	11	36.66%
3.	Moderate pain(score 4-6)	3	10%	19	63.33%
4.	Severe pain (score 7-9)	27	90%	-	-
5.	Worst pain (score 10)	-	-	-	-
	Total	30	100%	30	100%

Figure 1; Level of pain perceptionin experimental group

Table 1 and Figure1:projected that in the experimental group, 27 samples (90%) had severe level of pain, and 3 samples (10%) had moderate level of pain in the pre test whereas in the post test after the intervention, 19 sample (63.3.3%) had moderate level of pain,and 11(36,66%) had mild level of pain..Hence,itshows that after the Isometric exercise level of pain among old age people with knee osteoarthritis was reduced.

Table 2. .Frequency& percentage distribution of level of pain in control group

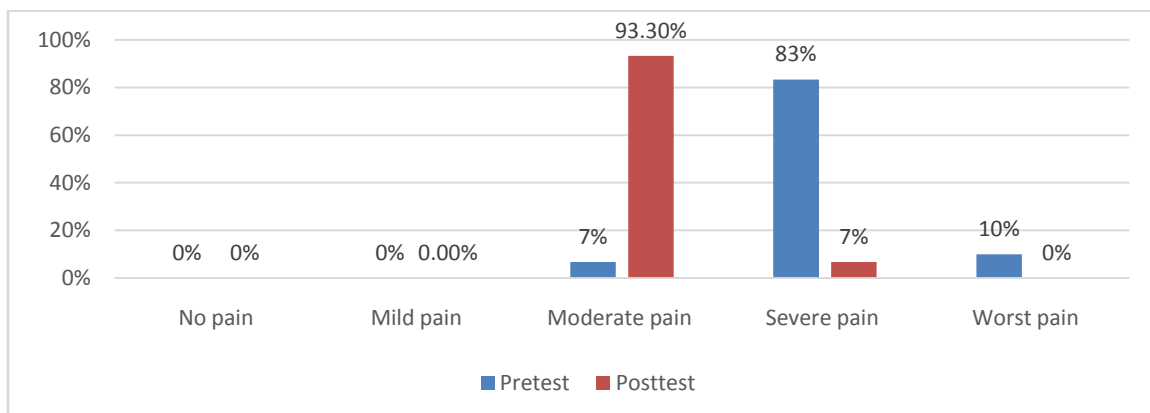| S.No	Degree of Pain	Control group n= 30			
		Pre test		Post test	
		F	%	F	%
1.	No pain (score 0)	-	-	-	-
2.	Mild pain (score 1-3)	-	-	-	-
3.	Moderate pain(score 4-6)	2	6.7%	-	-
4.	Severe pain (score 7-9)	25	83.3%	28	93.3%
5.	Worst pain (score 10)	3	10%	2	6.7%
	Total	30	100%	30	100%

Figure 2; Level of pain perceptionin control group

Table 2 and figure 2 :projected that in the control group,3 samples (10%) had worst level of pain ,25 samples(83.3%) had severe level of pain, and 2 samples (6.7%) had moderate level of pain whereas in the post test, 2samples(6.7%) had worst level pain,and 28 samples (93.3%) had severe level pain.

Table 3. Frequency and percentage distribution of level of anxiety in experimental group

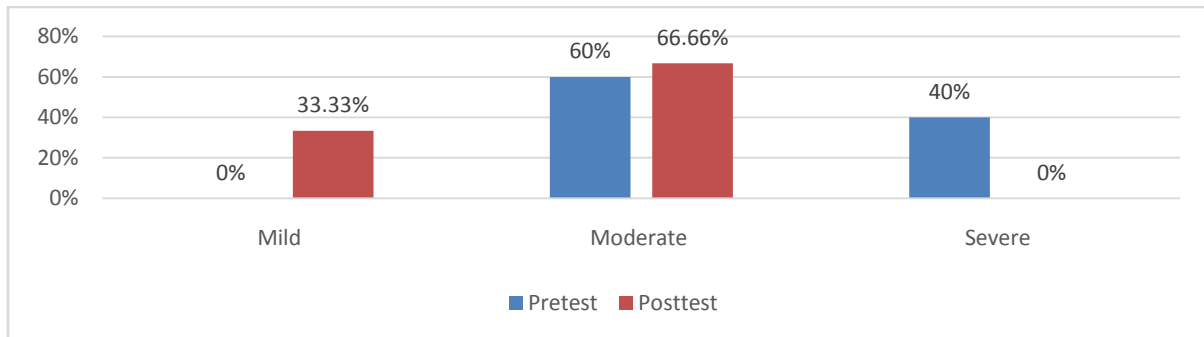| S.No	Degree of Pain	Experimental group n= 30			
		Pre test		Post test	
		F	%	F	%
1.	Mild	-	-	10	33.33%
2.	Moderate	18	60%	20	66.66%
3.	Severe	12	40%	-	-
	Total	30	100%	30	100%

Figure 3; Level of anxiety in experimental group

Table 3 and figure 3:projected that in the experimental group, 12 samples (40%) had severe level of anxiety , and 18 samples (60%) had moderate level of anxiety in the pretest whereas in the post test after the intervention, 20 samples (66.66%) had moderate level of anxiety , 10 samples (33.33%) had mild level of anxiety.

Table 15. Frequency and percentage distribution of level of anxiety in control group

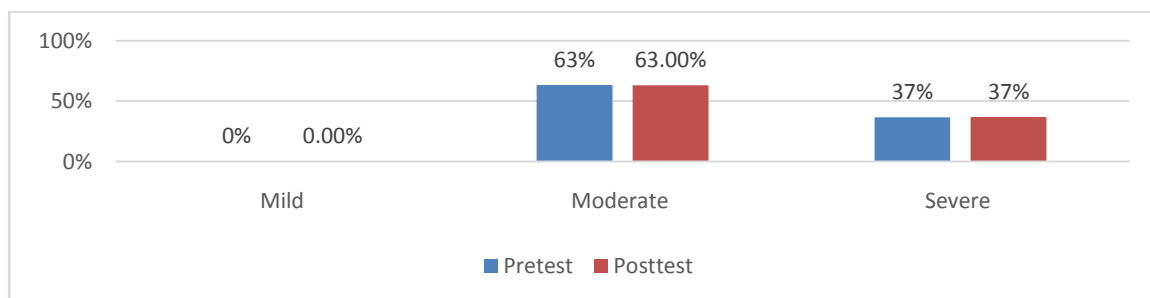| S.No	Degree of Pain	Control group n= 30			
		Pre test		Post test	
		F	%	F	%
1.	Mild	-	-	-	-
2.	Moderate	19	63.33%	19	63.33%
3.	Severe	11	36.66%	11	36.66%
4.	Total	30	100%	30	100%

Figure 2;Level of anxiety in control group

Table 4 and figure 4:projectedthat in the control group,11 samples (36.66%) had severe level of anxiety,19 samples (63.3%) had moderate level of anxiety whereas there is no significant changes occur in the post test.
Section B: Effectiveness of nursing intervention on level of pain perception and anxiety among old age people in experimental and control group

Table-5. Comparision of pain perception score in experimental group

N=30

Test	Mean	SD	Mean%	Mean Difference	T test	DF	P value	Inference
Pre test	7.5	0.76	75%	3.7	19.22	29	0.05	S
Post test	3.8	0.88	38%					

S* = Significant   NS=Non-Significant
Table-5: Projected that In experimental group, pre test v/s post test wise analysis shows that in pre-test the mean obtained by the respondents was 7.5 with mean percentage of 75%, SD of 0.76 & in post test the mean obtained by the respondents was 3.8 with the mean percentage of 38%,SD of 0.88 ,the mean difference is 3.7 ,df 29 ,the

obtained 't' test is 19.22, P value is 0.05 & it is highly significant .Hence research hypothesis H1 is proved & accepted

Table-6 .comparision of pain perception score in control group

N=30

Test	Mean	SD	Mean%	Mean Difference	T test	DF	P value	Inference
Pre test	7.09	0.85	75%	1.09	0.436	29	0.05	NS
Post test	6.9	1.07	38%					

S* = Significant   **NS=Non-Significant**

Table-6 Projected thatin control group, pre-test v/s post-test wise analysis shows that in pre-test the mean obtained by the respondents was 37.09 with mean percentage of 75%,SD of 0.85 & in post-test the mean obtained by the respondents was 6.9 with the mean percentage of 38 %,SD of 1.07 ,the mean difference is 1.09,DF 29 ,the obtained 't' test is 0.436, P value is 0.05 & it is non-significant..Hence research hypothesis H1 is not accepted.

Table-7. Comparision of anxiety score in experimental group

N=30

Test	Mean	SD	Mean%	Mean Difference	T test	DF	P value	Inference
Pre test	33.06	1.56	59.03%	13.76	27.22	29	0.05	S
Post test	19.30	1.12	34.46%					

S* = Significant   **NS=Non-Significant**

Table-7 projected thatin experimental group, pre test v/s post test wise analysis shows that in pre-test the mean obtained by the respondents was 33.06 with mean percentage of 59.03%, SD of 1.56 & in post test the mean obtained by the respondents was 19.30 with the mean percentage of 34.46%,SD of 1.12 ,the mean difference is 13.76 ,df 29 ,the obtained 't' test is 27.22, P value is 0.05 & it is highly significant..Hence research hypothesis H1 is proved & accepted

Table-8. Comparision of anxiety score in control group

N=30

Test	Mean	SD	Mean%	Mean Difference	T test	DF	P value	Inference
Pre test	33.86	1.40	58.67%	0.03	0.876	29	0.05	NS
Post test	32.83	1.65	58.62%					

S* = Significant   **NS=Non-Significant**

Table-8 Projected thatin control group, pre-test v/s post-test wise analysis shows that in pre-test the mean obtained by the respondents was 32.86 with mean percentage of 58.67%,SD of 1.40 & in post-test the mean obtained by the respondents was 32.83 with the mean percentage of 58.62 %,SD of 1.65 ,the mean difference is 0.03 ,DF 29 ,the obtained 't' test is 0.876, P value is 0.05 & it is non-significant.Hence research hypothesis H1 is not accepted.

IV. Discussions

The present study has been undertaken to"A study to evaluate the effectiveness of Isometric exercise on pain perception and anxiety among old age people with knee osteoarthritis at selected old age homes of Udaipur, District, Rajasthan.."

Section I: Assessment of pre-test post-test level of pain perception in experimental and control group of respondents regarding effect of Isometric exercise.

In the experimental group, 27 samples (90%) had severe level of pain, and 3 samples (10%) had moderate level of pain in the pre test whereas in the post test after the intervention, 19 sample (63.3.3%) had moderate level of pain,and 11(36,66%) had mild level of pain whereas in the control group,3 samples (10%) had worst level of pain ,25 samples(83.3%) had severe level of pain, and 2 samples (6.7%) had moderate level of pain whereas in the post test, 2samples(6.7%) had worst level pain,and 28 samples (93.3%) had severe level pain.

Similar study conducted by **Mohadshadab et al., (2014)** to assess the knee osteoarthritis pain at the NIUM hospital Bangalore. The cross sectional study design is Pre-designed and pre tested semi structured schedule was used to estimate the prevalence of osteoarthritis. The result revealed maximum patients were of grade II 207 (40.82%) followed by 130 (25.64%) in grade I, 80 (15.78%) in grade III and 5(0.99%) patients in

grade IV. The risk factors of this disease are advancing age, obesity and low socio economic status.proportion of women with symptomatic disease (11% of all women versus 7% of all men; P = 0.003). In this study we observed that there is relationship between age, sex and BMI with OA. The number of people with OA increased as the age increased.

Section II: Assessment of pre-test post-test level of anxiety in experimental and control group of respondents regarding effect of Isometric exercise

In the experimental group, 12 samples (40%) had severe level of anxiety, and 18 samples (60%) had moderate level of anxiety in the pretest whereas in the post test after the intervention, 20 samples (66.66%) had moderate level of anxiety, 10 samples (33.33%) had mild level of anxiety whereas in the control group11 samples (36.66%) had severe level of anxiety,19 samples (63.3%) had moderate level of anxiety whereas there is no significant changes occur in the post test.

Similar study conducted by **Siddiqui F Tripathi N (2017)** on quality of life among Indian adults suffering from arthritis . The study sample comprised of adults age above 30 years with clinician diagnosed arthritis (n=370).subjects having both depression and anxiety had the poorest quality of life.

Section III: To assess the effectiveness of isometric exercises on level of pain perception and anxiety among old age people with knee osteoarthritis.

In the experimental group, the pre test mean score of pain was $7.5 \pm o.76$ and the post test mean score was 3.8 ± 0.85.. The calculated paired 't' value of t = 19.22 was found to be statistically highly significant at $p<0.05$level at df -29. Whereas in the control group, the pretest mean score was 7.09 ± 0.85 and the post test mean score was 6.9 ± 1.07, The calculated paired 't' value of t = 0.436 was not found to be statistically significant.

In the experimental group, the pre test mean score of anxiety was 33.06 ± 1.56 and the post test mean score was 19.30 ± 1.12.The calculated paired 't' value of t = 27.22 was found to be statistically highly significant at $p<0.05$ level at df-29 whereas in the control group, the pretest mean score was 32.86 ± 1.40 and the post test mean score was 32.83 ± 1.65, The calculated paired 't' value of t = 0.876 was not found to be statistically significant.

The above findings clearly indicates that isometric exercise is highly effective in reducing the level of pain and anxiety among old age people with knee osteoarthritis . hence the hypothesis H1 was proved and accepted.

Similar study conducted by **Abdul Kalam Azad et al.,[2011]** conducted a study on role of muscle strengthening exercise on osteoarthritis of the knee joint was conducted among 106 patients with osteoarthritis knee. They were divided into two groups. Group A were treated with NSAID plus exercise, group B were treated with NSAID only. The study duration was six weeks. The improvement was assessed with WOMAC Scoring System. The group A who received NSAID plus exercise improved more significantly (P=0.001) than those who received NSAID only. The study finding shows that quadriceps muscle strengthening exercise is effective in the patients with osteoarthritis knee.

Section V: Association between pre-test score of respondents regarding effectiveness of Isometric execise with selected socio demographic variables..

There was a significant association between pre test score of respondentsand demographic variables such as a ge in Years ($\chi2$=21.024), educational status ($\chi2$ = 19.21), occupation($\chi2$= 20.97), duration of illness($\chi2$ = 20.67), duration of treatment ($\chi2$ = 20.67), knowledge about osteoarthritis($\chi2$=15.14),knowledge about isometric exercise ($\chi2$ = 13.67) and source of information($\chi2$ = 21.64)were found to be significantly associated with pre-test score at 0.05 level and the rest of the sociodemographic variables such of which gender ($\chi2$=3.48) and dietary habit ($\chi2$=4.81) were not found to be significant associated with pre-test score at 0.05 level .Hence research hypothesis H_2 is proved and accepted.

V. Conclusion

The study was conducted on "Evaluate the effectiveness of Isometric exercise on pain perception and anxiety among the old age people with knee osteoarthritis at selected old age home of Udaipur, District, Rajasthan." In the present study 60 old age people with knee osteoarthritis living in old age homes were selected through non probability convenient sampling technique. Researcher used quasi experimental non randomized control group design research design to assess the level of pain perception and anxiety among old age people with knee osteoarthritis . Data were collected through numerical pain intensity scale and Hamilton anxiety rating scale and data were analyzed through suitable statistical method

References

[1]. Williams S. Linda, Hopper D. Paula. Understanding geretric nursing. 5rd ed. New Delhi: Jaypee brothers' medical publishers (p) Ltd. page no. 146-147.
[2]. Tilter. K. (1997) problem of old age people: Evidence from cross-sectional nationally representative household survey. PMC Journal. 2018;13(2).Available from htttp://www. oldage.com

[3].   C. Gauci, N. Delicata. "The Aging Process Health And Social Care ." Journal of the Malta College of osteoarthritis Practice. vol. 17. 2011. pp. 21–24. Available at: fhttps://nursinganswers.net/essays/the-aging-process-health-andsocial-care-essay.php

[4].   Khan, Muhammad Phychological changes quadriceps exercises by Indian Journal of cancer. 2014. Vol- 47. page no.296-303. Available from: htttps://www.indian journal of physiotherapy.com/article.asp/issn0019-509.   Mayers L. N. Exercises for Osteoarthritis PMC Journal. 2016. Available from; http://www.annals.org / content..

[5].   Alindran M, et al. Exercise perception for knee Osteoarthritis: Results of a National Survey. PMC Journal. 2016.   Available from: https;//www.ncbi.nlm.nih.gov/articles/PMC4480160