

Effectiveness of Education on Activity and Leisure Management on Pain and Functional Ability among Adults with Knee Osteoarthritis (KOA)

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Abstract

A quasi experimental one group pre-test and post-test research was conducted to assess the effectiveness of education on activity and leisure time management on pain and functional ability among adults with knee osteoarthritis at Sri Venkateshwara medical college hospital and research centre. 30 males and females were selected with stratified random technique based on sampling criteria. Pain and functional ability were measured with Visual Analogue Scale (VAS) and Modified WOMAC scale respectively. Subjects were educated regarding activity and leisure management for 1 week and observed for 4 weeks. At the end of fourth week Pain and functional ability were measured. Pre-test and post test pain score were analyzed using t test with mean and standard deviation of 4 ± 1.13 . t score of 19.883 signifies that education was effective at $P < 0.001$ in reduction of pain. Functional ability mean score was 12.53 ± 6.458 with t value of 10.63 which is highly significant at $P < 0.001$ at the fourth week. Pain score association with demographic and clinical variables using Chi-square test were not significant at $P < 0.05$ level. Hence, educational intervention was needed to enhance adherence with clinical management and promotion of flexion of knee among adults with Knee Osteoarthritis.

Keywords: Pain; Functional Ability; Knee Osteoarthritis.

Introduction

"Use it or lose it"

Osteoarthritis (OA) of the knee is a progressive, degenerative joint disease, more prevalent among individuals over the age of 65 years. Research suggests that knee pain and loss of physical functions have negative effect on disease progression and their overall health, work productivity and quality of life. People with OA are not remaining physically active. Physical activity must be encouraged to manage osteoarthritis. Walking as a physical activity improves physical function and reduces the symptoms of arthritis among knee OA

individuals. Hence, there is a need for knowledge promotion to influence individuals for effective self management interventions like walking, regular exercise, alternative therapies.

Brosseau L, Wells GA et al., (2012) conducted a single-blind, randomized control trial among three groups. Interventions were Walking and Behavioural intervention (WB) which included the supervised community-based aerobic walking program combined with a behavioural intervention and an educational pamphlet on the benefits of walking; Walking intervention (W) wherein participants only received the supervised community-based aerobic walking program intervention and the educational pamphlet; Self-directed control (C) wherein participants only received the educational pamphlet. Data were analysed with ANOVA for differences in quality of life, adherence, confidence, and clinical outcomes among the study groups at each 3 month assessment during the 12-month intervention period

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and 6-month follow-up period. They concluded that the knowledge uptake and improvements in quality of life and other clinical outcomes were equivalent in three groups. Education on walking program is effective for OA [1].

White DK, Keysor JJ et al., (2012) conducted a cross-sectional analysis of the Multicenter Osteoarthritis Study with 1,018 participants (mean age \pm 63.1, SD \pm 7.8 years, 60% women) who had radiographic knee OA on "When it hurts, a positive attitude may help: association of positive affect with daily walking in knee osteoarthritis. They compared number of steps walked per day among subjects with high and low positive affect. Results proved that subjects with high positive affect walked more, supporting high positive affect is an important psychological component to promote physical activity among Knee OA clients. Thus the investigator felt that educational intervention could be implemented to help patients to establish appropriate and realistic activity and leisure time management [5].

Objectives of the study

- To assess the level of pain among adults with knee osteoarthritis,
- To identify the functional ability among adults with knee osteoarthritis,
- To evaluate the effectiveness of education on Activity and leisure management on pain and functional ability among adults with knee osteoarthritis,
- To associate level of pain and functional ability with selected demographic and clinical variables among adults with knee osteoarthritis.

Methodology

Research Approach

Quantitative research approach was used for this study.

Research design

A Quasi experimental one group pre-test and post test design was used.

Research setting

Orthopaedic wards at Sri Venkateshwara Medical College Hospital and Research Centre (SVMCH&RC)

Sampling and sample size

30 samples were selected with stratified random technique.

Sample of the study

Both male and female aged 55-65 years diagnosed with Knee OA.

Tool description

Section A: it consist of demographic variables like age, sex, education, occupation, socio- economic status, area of residence, family history of osteoarthritis.

Section B: it consist of clinical variables such as BMI, type of osteoarthritis, knee affected, swelling, pain, stiffness, deformity, history of knee injury, history of menopause.

Section C: it consists of visual analogue scale for the measurement of pain with score range from 0-10. 0 denotes no pain; 1-3 denotes mild pain; 4-7 for moderate pain and 8-10 for severe pain.

Section D: it consists of modified WOMAC scale for the measurement of functional ability. Functional disability measured from 10 responses. For each response 0-5 score has been given. The higher score denotes higher disability.

Results

Section I: Distribution of Demographic Variables

Regarding Demographic variables majority of subjects 22(73.3%) were belongs to the age group of 55-60years, 10% were between the age of 61-65years, 16.7% were above the age of 65years. 18(60%) were females and 12 were males. The maximum of them were illiterate (77%), 23% had primary education. It was found that 16(53.3%) had the occupation involving the knee strain and 14(46.7%) working without knee strain. Majority of the clients 24(80%) were belongs to lower socioeconomic status, 6(20%) belongs to middle socioeconomic status. 92% residing at rural and only 8% at urban region. 12 (40%) had family history of osteoarthritis, and 18(60%) had no history of osteoarthritis in their family.

Section II: Distribution of Clinical Variables

With regard to BMI 67% were obese, 16.7% were overweight, 10% have normal weight, 3.33% were

underweight . 90% had both knee involvement, 7% had right knee osteoarthritis, 3% had left knee osteoarthritis. In regard to pain, 100% experienced mild to severe pain, 90% of them had Swelling and Stiffness over the affected joint. Only 3% were developed knee joint deformities. 10% had the history of knee injury few years back. 18 female subjects attained menopause 3-10 years before this year.

Section III: pre-test and post test pain level as measured by visual analogue scale (VAS)

Section IV: pre-test and post test functional ability score by modified WOMAC scale.

Discussion

Fig. 1: Pretest and Post test level of Pain

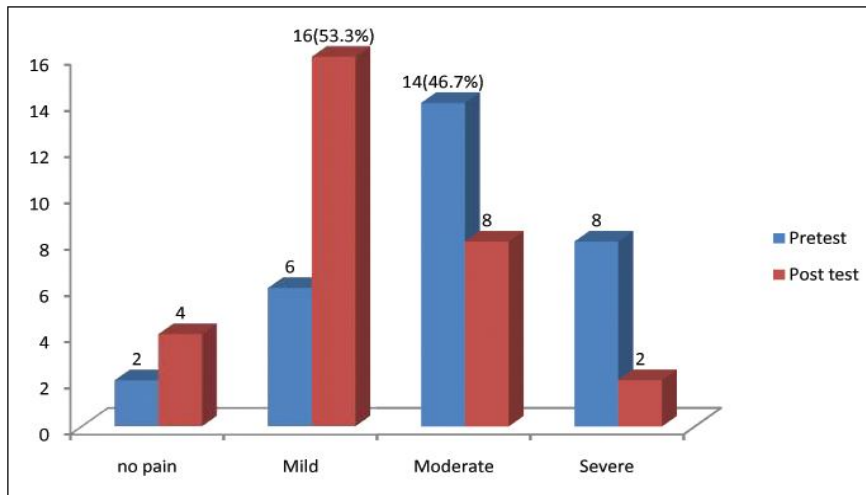


Fig. 2: Pretest –Post test Mean Womac Score

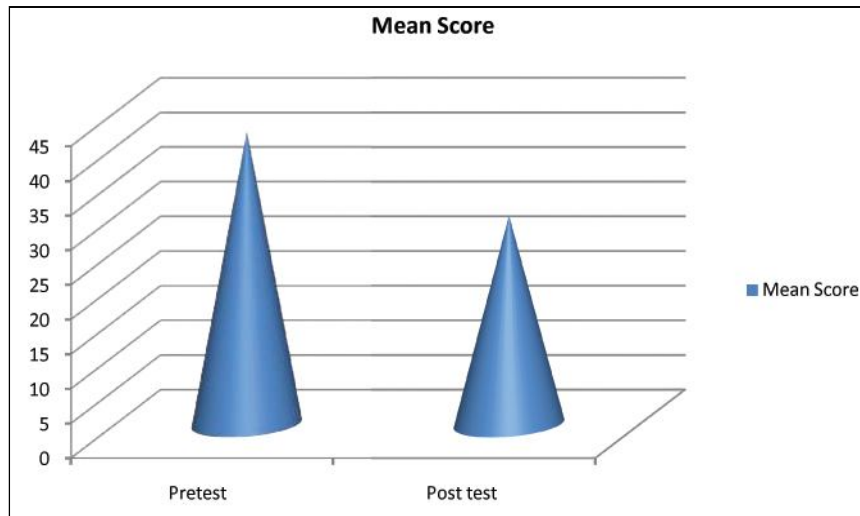


Table 1: Mean, standard deviation of post test pain score

Pain Level	Mean	Standard Deviation	t-test
Post test pain level	4.0	1.13	19.3884

Significant at P<0.001

Table 2: Mean, standard deviation of post test Modified WOMAC score

Modified WOMAC score	Mean	Standard Deviation	t-test
Post test	12.53	6.458	10.63
Significant at P<0.001			

Table 3: Association between post test levels of pain with selected demographic and clinical

S.No	Demographic /clinical Variables	No	%	No Pain	Mild Pain	Moderate Pain	Severe Pain	Chi-square	significance
1	Age								
	55-60 years	22	73.3	3	12	6	1	3.659	NS
	61-65years	03	10.0	1	1	1	-		
	Above 65 years	05	16.7	-	3	1	1		
2.	Sex								
	Female	18	60	2	8	6	2	2.917	NS
	Male	12	40	2	8	2	-		
3.	Education								
	Illiterate	23	77	4	12	5	2	2.748	NS
	Primary	07	23	-	4	3	-		
	Graduate	-	-	-	-	-	-		
4.	Occupation								
	With knee strain	16	53.3	2	8	5	1	0.368	NS
	Without knee strain	14	46.7	2	8	3	1		
5.	BMI								
	Underweight(<18)	1	3.33	-	1	-	-	8.25	Significant at P<0.05
	Normal (18-24.9)	3	10	1	2	-	-		
	Over weight(25-29.9)	5	16.7	-	1	3	1		
	Obese (>30)	20	67	3	12	5	1		
6.	History of knee injury								
	Yes	3	10	-	2	-	1	4.691	Significant at P<0.10
	No	27	90	2	16	8	1		

The results supports that education on activity and leisure time management for few weeks period might improve the symptoms of osteoarthritis of knee which is consistent with the case study conducted by Wainright (2015) regarding CHAIN (Cycling with Hip Pain) to aid self management through advice, education and exercise for 6 weeks .significant improvement were observed in HOOS (Hip disability and Osteoarthritis Outcome Score), hip flexion and pain score [4]. This finding also supports the finding of Wu. SF (2011) research study stating self management programmes might reduce pain and disability days [6].

Limitations

- This study was limited to clients with mild and moderate osteoarthritis of the knee
- Limited to the clients who were willing to participate
- Limited to orthopaedic wards at SVMCH&RC

Implications

The findings of the study have the following implications in the various areas of nursing service, nursing education, nursing administration and nursing research.

Implication for nursing service

- The nurse should incorporate education regarding the activity and leisure management as routine part of care.
- The nurses should teach the benefits of education regarding the activity and leisure management in reducing the level of pain among KOA patients in hospitals.
- Nursing staff can take specialized training in self management technique for betterment of nursing care.

Implications for nursing education

- The nurse educator should involve the concept of self management programme to improve functional efficacy in KOA care plan.

- Nursing curriculum needs to be updated to identify the aspects of nursing care that are lacking to provide supportive education to maximize the functional ability of KOA adults.

Implications for Nursing Administration

- Nurse administrator should arrange for training about supportive education to all the health care team members involved in osteoarthritis care
- Administrator should initiate the staffs to arrange mass health education programme for community with high prevalence of KOA on a periodic basis.
- Policies for the care of osteoarthritis clients can be developed based on the study findings.

Implications Nursing Research

- More researches can be done to establish effectiveness of supportive education for symptom management of knee osteoarthritis
- Nurse researcher can conduct study to verify the scientific rationale behind the effect of Mass education program.
- Disseminate the findings through conferences, seminar, and publications in professional, national and international journals.
- The generalization of study result can be made by further replication of the study.

Recommendations

- A similar study can be conducted with large group.
- A similar study can be conducted in various settings.
- A comparative study can be done to determine the effectiveness of individual education versus mass education on exercise and activity management.
- A experimental study can be conducted to determine the effectiveness of thermal therapy with education on activity and leisure management.

Conclusion

Knee osteoarthritis is a most devastating disease, which makes the person non-productive and

dependant for all their activities of daily living. This immobility worsens their joint s causing deformity. It needs multidisciplinary approach. Educating the clients regarding permissible level of activity, therapies, correct use of assistive devices might enhance their symptom reduction thereby reducing hospitalization. Hence nurses play a major role in mass education and incorporate this as a routine activity.

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