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Research Article

Effectiveness of Structured Teaching Program on Knowledge and Practice Regarding Prevention and Management of Osteoarthritis among Adults

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Abstract

Introduction: Osteoarthritis (OA) is a major source of pain, disability, and socioeconomic cost worldwide. In India, 80% of population suffers with OA who complains of knee pain. Annually, 10 million cases of OA are found. More than half of the people with OA are under 65 years of age. The best way of prevention and management of OA is regular exercise and maintenance of diet. Ignorance of the people, regarding preventive strategy, makes them more vulnerable to OA.

Materials and Methods: A quantitative one-group pretest-posttest design was applied to assess knowledge and practice on prevention and management of OA among rural adults. Systematic random sampling was used to select 60 samples. Structured knowledge interview and practice rating scale were used to collect the data.

Results: The study found significantly improvement in post-test knowledge ($P \leq 0.01$) and practice score ($P \leq 0.01$) of the adults regarding prevention and management of OA. The study reported significant correlation ($P < 0.01$) between post-test knowledge and practice score. The educational status ($P \leq 0.01$), occupation ($P = 0.0039$), and monthly family income ($P = 0.030$) of the adults showed significantly association with post-test knowledge and practice.

Conclusion: Structured teaching program has a major impact in improving knowledge and practice of adults regarding prevention and management of OA. Well-planned and demonstrated, nurse-led educational module will enhance the knowledge and improve the practice of the adult population.

Keywords: Knowledge, management, osteoarthritis, practice, prevention, structured teaching program

Introduction

Osteoarthritis (OA) is one of the leading causes of pain and disability worldwide, especially in the older adults.[1] About 10–15% of all adults aged over 60 years have some degree of OA and the prevalence is higher among women. In the European countries, the prevalence of OA varies from 2.8% in Romania to 18.3% in Hungary. By 2050, people aged over 60 will account for more than 20% of the world's population.

The countries in Asia are aging rapidly. The percentage of people aged 65 years and above will be more than double in the next two decades from 6.8% in 2008 to 16.2% in 2040.[2,3] The prevalence of OA in India is very high. Nearly 80% of population shows OA among the patient who complained of knee pain. Out of which approximately 20% reported incapability in daily activities due to joint pain and need unusual care.[4]

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Arthritis of the knee and hip can compromise activities such as walking, climbing stairs, and self-care. OA, especially of the hip and knee, not only affects the quality of life of the individual physically but also emotionally and socially. OA is related to aging and also associated with a variety of both modifiable and non-modifiable risk factors such as obesity, lack of exercise, genetic predisposition, bone density, abnormal hip shape, occupational injury, trauma, and gender.[5] Joint replacement is an effective treatment for symptomatic end-stage disease, although functional outcomes may be poor and the lifespan of prostheses is restricted. Consequently, the focus should be shifted to disease prevention and the treatment of early OA.[6,7] Primary or secondary prevention strategies need more attention. The best way of management of OA is regular exercise and maintenance of diet. For young adults with OA, education and self-management strategies, particularly as part of a coordinated care strategy, will serve the purpose.[8]

The problem of OA is increasing rapidly as the people are not aware about prevention and management of the disease. Motivation, counseling, and strengthening exercises will be a good preventive strategy to reduce the impact of the disease. Physical fitness and weight reduction will help keeping the disease away.[9] The researcher felt the need of imparting knowledge to the adults regarding prevention of OA and self-care activities to prevent the complication and manage the OA by diet, exercises, and lifestyle changes. These would help to improve the knowledge and practice. The researcher planned the present study to evaluate the effectiveness of structured teaching program (STP) on of knowledge and practice regarding prevention and management of OA among the adults.

Research hypothesis

The knowledge and practice of adults will be significantly improved after STP regarding prevention and management of OA at 0.05 level of significance.

Materials and Methods

A quantitative, one-group pre-test, post-test (pre-experimental) study was conducted to evaluate the effectiveness of STP on knowledge and practice regarding prevention and management of OA among the adult at village Kashi Ka Bas, district Sikar of Rajasthan, India.

Voter list of 1200 adult population was obtained from Sarpanch of the village

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Target population of 600 adults of age group 40–60 years was chosen who were not suffering from any serious illness such as cancer, cardiac problem, stoke, and able to see and listen properly

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Every 10th adult was selected applying systematic random sampling method

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The 60 samples were chosen for the study.

Variables

Independent variable was STP whereas dependent variables were knowledge and practice.

The tool consisted of three sections: Section-I: It included sociodemographic data such as age, gender, educational status, occupation, and family income. Section-II: Structured knowledge interview consisted of 30 items from the areas of anatomy and physiology of joint, prevalence of OA, signs and symptoms, risk factors, diagnosis and investigation, complication, prevention, and management of OA. Scoring: One score was given to each correct answer. The possible range of knowledge score was 0–30. Section III: Practice rating scale consisted of 20 items with a maximum score of 40 and minimum 0. For each statement, there were three responses "always," "sometimes," and "never."

The score for each positive statement was: Always – 2, sometimes – 1, and never – 0 whereas reverse scoring was done for negative statement.

The tool for the study was prepared by extensive reviewing the literature. For validity, the tool was submitted to experts from the field of orthopedics, rheumatology, and nursing. Suggestions of the experts were incorporated in the final tool. The reliability of the tool was established by administering the tools to 10 adults of selected rural area. KR-20 formula was used to compute the reliability of structured knowledge interview schedule and it was found to be 0.81. Cronbach's alpha was computed for practice rating scale and it was found to be 0.76.

The study was conducted from January 4, 2021, to January 23, 2021, post ethical approval from institute and permission from the gram panchayat Kashi Ka Bas village.

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The gram panchayat was divided into six main areas, namely, Chhoti Pura, Kashi Ka Bas, Neem Nadya and Talai, Rawala, and Bas.

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Participants were approached and information sheet was provided. The informed consent was obtained. They were ensured of anonymity and confidentiality of the data throughout the study.

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On days 1, 2, and 3 (January 4–6, 2021), the researcher did home visit to 10 sample participants every day, respectively, and collected the data through structured knowledge interview. It took 40–50 min.

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On day 4 (January 7, 2021), the STP was conducted using PPT and demonstration of exercises to 30 pre-tested participants, in a community hall. Leaflets were distributed thereafter. It took 45–60 min for STP and 40 min for demonstration of exercises on prevention and management of OA.

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On days 5, 6, and 7 (January 8–10, 2021), the researcher did home visit to 10 sample participants every day, respectively, and collected the data through structured knowledge interview. It took 40–50 min.

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On day 8 (January 11, 2021), the STP was conducted using PPT and demonstration of exercises to all 30 pre-tested participants. Leaflets were distributed. It took 45–60 min for STP and 40 min for demonstration of exercises on prevention and management of OA.

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Post-test was done after 1 week of STP administration during January 15–23, 2021.

Statistical analysis

The collected data were analyzed using IBM SPSS version 24. The data were presented in the tables and figures using frequency, percentage, mean, median, standard deviation of pre-test and post-test knowledge, and practice scores. To compare the means, *t*-test was used. Karl Pearson coefficient of correlation was used to find out relationship between post-test knowledge and practice scores. Chi-square (χ^2) was used to find out association.

Results

Table 1 shows that majority (36.66%) of the adults were between the age group of 46 and 50 years. More than half (58.33%) of the adults were male. Majority (40%) of adults were educated up to primary level. Maximum adults (40%) had private job whereas only 11.66% had govt. job. Monthly income of 38.33% of adults was less than 5000 rupee whereas only 3.33% reported monthly income of rupee 20,001–25,000. More than two-third (80%) of the adults had no exposure to knowledge on OA.

Table 2 shows statistically significant ($P < 0.01$) increase in mean knowledge score with pre-test knowledge score 11.15 ± 3.70 whereas post-test knowledge score 16.73 ± 3.44. Similarly, a statistically significant ($P < 0.01$) improvement in practice score was found with pre-test practice scores of 15.41 ± 6.72 and post-test practice score 20.46 ± 6.64. It infers that STP was effective in equal and homogenous enhancement of knowledge and practice of adults regarding prevention and management of OA.

Table 3 shows statistically significant positive correlation ($r = 0.775$, $P < 0.01$) between post-test knowledge and practice score.

Discussion

In India, a large percentage of population is as borderline OA and doubtful as far as OA diagnosis is concern. The prevalence and burden of knee OA in India is 28.7%.[10] Factors such as female gender (prevalence of 31.6%) ($P = 0.007$), obesity ($P = 0.04$), age ($P = 0.01$), and sedentary work ($P = 0.001$) are closely associated with the occurrence of the disease.[11]

Table 1: Frequency distribution of demographic variables (*n*=60)

Variables	(Frequency and percentage distribution)
Age (in years)	
40–45 years	(14, 23.33%)
46–50 years	(22, 36.66%)
51–55 years	(13, 21.66%)
56–60 years	(11, 18.33%)
Gender	
Male	(58, 33.35%)
Female	(25, 41.66%)
Educational status	
Illiterate	(10, 16.66%)
Primary	(24, 40%)
High school	(8, 13.33%)
Senior secondary	(6, 10%)
Graduation or above	(12, 20%)
Occupation	
Homemaker	(17, 28.33%)
Agriculture	(12, 20%)
Govt. servant	(7, 11.66%)
Private job	(24, 40%)
Monthly family income (Rs.)	
<5000	(23, 38.33%)
5001–10,000	(14, 23.33%)
10,001–15,000	(5, 8.33%)
15,001–20,000	(6, 10%)
20,001–25,000	(2, 3.33%)
>25,000	(10, 16.66%)
Previous exposure to knowledge on osteoarthritis	
Yes	(12, 20%)
No	(48, 80%)

Low level of knowledge regarding OA is known to invite more misconceptions regarding OA as the people are not exposed to the kind of educational program.[12] These findings are similar to the present study that more than two-third (80%) of the adults had no exposure to knowledge on OA. To break the vicious path of false belief and misconception regarding occurrence of OA, properly planned systematic education program is needed badly to provide clear and crisp knowledge.

The regulated health information through widely available medium like internet and smartphones can play a major role to tweak the false beliefs in the community and help develop healthy behavior.[13] The strategies to create awareness among the rural elderly the knowledge and practice of non-pharmacological remedies such as yoga and low-load exercise are helpful to minimize the burden of OA. It will significantly decrease knee pain, enhance joint function, and increase thigh muscle strength. This will keep an adult active and prevent or minimize the symptoms of OA.[14,15] Education and self-management exercise, weight loss, and changes in the behavior are very important to prevent overuse and to use the joints in the most adequate way.[16-18]

The present study found significant improvement in post-test knowledge ($P \leq 0.01$) and practice ($P \leq 0.01$) score of the adults regarding prevention and management of OA after the administration of STP. It infers that STP was effective in equal

Table 2: Pre-test and post-test knowledge and practice scores (*n*=60)

	Pre-test	Post-test	Mean difference	"t" value	df	*P* value
	Mean, SD	Mean, SD				
Knowledge scores (maximum score=30)	11.15±3.70	16.73±3.44	5.58	26.74	59	<0.01*
Practice scores (maximum score=40)	15.41±6.72	20.46±6.64	5.05	20.49	59	<0.01*

*Statistically significant at 0.05 level of significance

Table 3: Correlation between post-test knowledge and practice scores (*n*=60)

Variables	Mean, SD	Pearson's "r"	df	*P* value
Knowledge scores	16.46±3.44			
Practice scores	20.46±6.64	r=*0.775	58	<0.01*

*Statistically significant at 0.05 level of significance

and homogenous enhancement of knowledge and practice of adults regarding prevention and management of OA. These findings are consistent with the study that STP was effective in improving the knowledge regarding arthritis.[19,20] A similar study reported that the post-test mean knowledge score of geriatrics of experimental group was significantly higher than that of control group at $P < 0.01$ level, which indicates that STP was effective.[21] Similarly, the STP was effective in enhancing the knowledge of the patients regarding OA.[22] Similar findings reported that self-management program enhances arthritis-related self-efficacy and pain beliefs.[19]

Knowledge gain regarding the disease would improve the practice of the adults. The present study found statistically significant positive correlation ($r = 0.775$, $P \leq 0.01$) between post-test knowledge and practice score which indicates that practice became more positive with enhancement in the knowledge of adults regarding prevention and management of OA. These findings are supported by the study that higher knowledge level and positive attitude will result in good practice.[20]

Certain factors influence knowledge and practice of the people. The present study reported significant association of post-test knowledge and practice with educational status ($P \leq 0.01$), occupation ($P = 0.0039$), and monthly family income ($P = 0.030$). The study found a significant positive correlation ($r = 0.775$, $P \leq 0.01$) between post-test knowledge and practice score. These findings are not in-line with a study which reported no significant association of post-test scores of the sample with their demographic variables.[22]

Conclusion

It is evident from the present study that systematically planned STP on prevention and management of OA was effective in equal and homogenous improvement of knowledge and practice of adults regarding prevention and management of OA. Incidents of many diseases are preventable. Well-designed instructional module would be effective measures to curb down faulty practices through awareness. Health education programs are the cheapest and safest preventive tools to identify the learning needs of the adults to develop healthy habits for health promotion and enjoy pain-free journey of life.

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Conflicts of Interest

The authors declare no conflicts of interest.

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