

## A Study to Assess the Effectiveness of local Application of Fenugreek Seeds Paste on Knee Joint Pain among older People living in Selected Villages of Tapi, Gujarat

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### Abstract

**Background:** Ageing is a lifetime process that comprises physical, psychological, social, and spiritual changes that occurs from the time of birth until the moment of death. Knee pain is a major musculoskeletal condition among the elderly, and its incidence rises with age.

**Objectives:** The study's objectives were to identify the level of knee joint pain, to assess the effectiveness of local application of fenugreek seeds paste on knee joint pain, to compare the effectiveness of local application of fenugreek seeds paste on knee joint pain among older people between experimental and control group and to find the association of knee joint pain with selected demographic variables.

**Method:** Using quasi experimental research design and purposive sampling technique 66 older people for experimental and control group were recruited in the selected villages of Tapi District. After obtaining consent from older people numerical pain scale was used to determine the level of knee joint pain in experimental before and after intervention. In the control group, the same tool was used without intervention. A fenugreek seed paste was applied on and around knee for 15 days in experimental group.

**Results:** In the experimental group, 48% of the samples had moderate pain, while in the control group, 72% of the samples had moderate pain. The mean pre-test pain score in the experimental group was 6.27, while the mean post-test pain score was 3.21. The mean pre-test pain score in the control group was 5.57, while the mean post-test pain score was 5.78. Age and occupation of older people had an influence on knee joint pain.

**Conclusion:** Fenugreek seeds paste is an effective home remedy for knee joint pain relief.

**Keywords:** Knee joint pain; older people; fenugreek seeds paste.

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## Introduction

Aging is a lifelong process that involves physical, psychological, social and a spiritual change that occurs from birth to death.<sup>1</sup> Common problems in older age include cataracts and refractive errors, hearing loss, osteoarthritis, back and neck pain, diabetes, chronic obstructive pulmonary disease, dementia and depression,<sup>2</sup> People who are older are more likely to suffer from multiple problems at the same time.<sup>3</sup> Knee pain is a major musculoskeletal condition among the elderly, and its incidence rises with age. Knee pain reduces physical activity and impairs one's quality of life.<sup>4</sup>

According to the World Health Organization (WHO), symptomatic osteoarthritis affects 9.6% of men and 18% of women over the age of 60. 80% of persons with osteoarthritis have movement impairment, and 25% of people are unable to perform their daily activities.<sup>5</sup>

According to study conducted in united state about 18% of men 60 years and older complained knee pain and the prevalence rises steadily with age. Incidence of knee pain was highest, at about 24% in elderly above 85 to 90 years. 23% of women 60 years and above reported knee pain.<sup>6</sup>

By Age, India (2017-18) self reported prevalence of joint or bone diseases among old age people was found to be 76.3%.<sup>7</sup>

Among elderly age 60 and above, the prevalence of any bone/joint disease is higher among women (22%) than men (16%) and higher in the person who lives in urban areas (22%) than in rural areas (17%) among those residing in urban areas (22%) than in rural areas (17%). India reported 11% arthritis in the elderly 60 years and above.<sup>8</sup>

According to the findings of a study on knee pain and osteoarthritis in older adults: Review on community load and primary care services current uses in the UK, 25% of men over the age of 55 experience a continuous episode of knee pain over the period of a year, with almost one in six in the UK.<sup>9</sup>

Though there is more research done on older people with knee joint pain and activities of daily living with various interventions in India. There has

been no research done on older people with local application of fenugreek seeds paste. As fenugreek seeds have anti inflammatory, anti arthritis and antioxidant, properties<sup>10</sup>, this study aims to evaluate how efficient fenugreek seeds paste is in reducing knee joint pain.

## Material and Methods

The present research was carried by using a quantitative approach. A quasi experimental research design was used to assess the effectiveness of local application of fenugreek seeds paste on knee joint pain in older people. The research was carried out in selected villages of Tapi District. The participants in the study were older people who suffered from knee joint pain. The sample was chosen from the target population based on sample selection criteria using a non-probability purposive sampling technique.

**Inclusion Criteria** were: older people who are willing to participate in the study, and older people who can read and understand English and Gujarati language.

**Exclusion Criteria:** Severe co-morbid conditions with older people were excluded from the study. The current study's tool was divided into two part.

**Part-A** tool consists of socio-demographic data of older people such as, Age, sex, education, employment, income of the family, dietary pattern, types of family, co-morbid conditions, history of habits and exercise, pain medication, anthropometric parameters, history of hospitalization.

**Part-B** included standardized numerical pain scale. Pain score ordering with 0-10. 0 point means no pain, 1-3 means mild pain, 4-6 means moderate pain, 7-9 means extreme pain and 10 points means most severe pain. Five experts evaluated the socio-demographic tool's content validity. The internal Reliability coefficient is 0.90. The plan for data analysis were included Frequency and percentage distribution of socio-demographic data of the older people, Mean, standard deviation and T-test to assess the effectiveness of local application of fenugreek seeds paste on knee joint pain among older people and Chi-square for the association of knee joint pain with the selected demographic variables.

### Results

**Demographic details of the samples:** In the experimental group, 50% of the samples were 60-65 years old, while in the control group, 55% of the samples were 60-65 years old. In the experimental group, 55% of the samples were female, while in the control group, only 48% of the samples were female. The experimental group had 52 percent of the sample with primary education, while the control group had 36 percent. In the experimental group, 50% of the sample was performing housework, while in the control group, 60% of the sample was doing it. 60% of the sample in both the experimental and control groups income between 5000 and 10,000 rupees per month. The experimental and control groups both had 100% of the sample with a mixed dietary pattern. In the experimental group, 64% of the sample lived in a joint family, while 50% of the sample in the control group lived in a nuclear family. The experimental

group had 85 percent of the sample without a history of bad habits, while the control group had 76 percent. The experimental group had 73 percent of the sample while the control group had 82 percent of the sample not performing exercises. 15% of them had co-morbid condition in the experimental group and 21% of them had co-morbid condition in the control group and they were receiving medical treatment. Both in the experimental and control groups, 100% of the participants were not taking any pain medication. 12% of the experimental group and six percent of the control group were admitted to the hospital. In the experimental group, 84 percent of the sample had a BMI of 18.5 to 24.5, while in the control group, 73 percent of the sample had a BMI of 18.5 to 24.5. In both legs, 82 percent of the experimental group and 76 percent of the control group had knee joint pain. 100% of the samples in both the experimental and the control groups were not having swelling on knee.

**Table 1: Level of knee joint pain.**

	Experimental Group		Control Group	
	Pre test	Post test	Pre test	Post test
No pain	0%	0%	0%	0%
Mild	9.0%	75.7%	12.12%	9.09%
Moderate	48.4%	21.2%	72.7%	66.6%
Severe	36.3%	3.03%	15.15%	24.2%
Extreme	6.06%	0%	0%	0%

In the experimental group, Nine % had mild, 48.4% had moderate, 36.3% had severe and 6.06% had an extreme level of knee joint pain whereas in post-test 75.7% had mild, 21.2% had moderate, 3.03 % had a severe level of knee joint pain. While in the control

group, 12.12% had mild, 72.7% had moderate, 15.15% severe level of knee joint pain whereas in post-test 9.09% had mild, 66.6% had moderate, and 24.2% had a severe level of knee joint pain.

**Table 2: Effect of local application of fenugreek seeds paste on knee joint pain among older people.**

N<sub>1</sub>=33, N<sub>2</sub>=33

	Pre-test				Post-test			
	Range	Mean	SD	Median	Range	Mean	SD	Median
Experimental group	8	6.27	1.97	6	7	3.21	1.21	3
Control group	6	5.57	1.43	6	6	5.78	1.34	6

df=64,P=0.05

The data shown in the table presented that in the experimental group pre-test range was 8, mean was 6.27, SD was 1.97 and median was 6 whereas in

post-test range was 7, mean was 3.21, SD was 1.21 and the median was 3. However in the control group pretest range was 6, mean was 5.57, SD was 1.43 and median was 6 whereas in post-test range was 6, mean was 5.78, SD was 1.34 and median was 6.

According to the data in the table, the experimental group's pre-test range was 8, with a mean of 6.27, SD of 1.97, and a median of 6, whereas the post-test range was 7, with a mean of 3.21, SD of 1.21, and a median

of 3. However, in the control group, the pretest range was 6, with a mean of 5.57, SD of 1.43, and a median of 6, whereas the post-test range was 6, with a mean of 5.78, SD of 1.34, and a median of 6.

**Table 3: Effect of local application of fenugreek seeds paste on knee joint pain among older people in experimental group.**

N=33

	Mean	Standard deviation	Mean difference	Value calculated	Table value	Inference
Pre-test	6.27	1.97	3.06	9.6048	2.02	Significant
Post-test	3.21	1.43				

df = 32, P = 0.05

the local application of fenugreek seeds paste was shown to be statistically significant at (p=0.05 \*).

In the pre-test and post-test, the effectiveness of

**Table 4: Comparison of the effectiveness of local application of fenugreek seeds paste on knee joint pain among older people between experimental and control group**

N<sub>1</sub> = 33, N<sub>2</sub> = 33

	Mean	Standard deviation	Mean difference	t value	P value	Inference
Experimental group	3.21	1.21	2.57	8.5828	<0.05	Significant
Control group	5.78	1.34				

t(64) = 1.98

mild level of knee joint pain.

In both the experimental and control groups, the effectiveness of the local application of fenugreek seeds paste was found to be statistically significant at (p=0.05 \*).

The prevalence of knee discomfort among independent community-dwelling elderly individuals in Japan was investigated by a survey method. Knee discomfort was observed to affect 33.4 percent of the elderly in the study. Knee pain was found to be more common in elderly women than men and it worsened with age.<sup>11</sup>

**Association of knee joint pain with selected demographic variables.**

The paired t test was done to compare the pre-test and post-test pain mean score. The mean pre -test score was 6.27, while post test mean score was 3.21. Mean difference was shown to be 3.06. It was found statistically significant.

Association of knee joint pain with selected demographic variables showed that age (X<sup>2</sup>=6 at p < 0.05) and occupation (X<sup>2</sup>=8 at p < 0.05) of older people was positively associated with knee joint pain.

**Discussion**

The mean post-test knee joint pain score was compared between the experimental and control groups using the paired t-test, and the experimental group's mean score was 3.21, while the control group's mean score was 5.78, with a mean difference of 2.57.

According to the findings of this study, the majority (48.4%) of older people in the experimental experienced moderate level of knee joint pain, 36.3 percent experienced severe level of knee joint pain, 9% experienced mild level of pain, and 6% experienced extreme level of pain. Whereas in control group, a majority of an older people (72.7%) experienced moderate level of knee joint pain, 15.15% experienced severe level of knee joint pain, and 12% experienced

The chi-square test revealed that there was a significant relationship between knee joint pain with age and occupation in the present study. This means

that education and occupation can have an impact on knee joint pain.

The above finding is supported by diabetes and knee pain severity and distribution in persons with knee osteoarthritis a cross-sectional study. The study result showed that there were a significant associations found between diabetes mellitus with increased knee pain with severity over 7 days and over 30 days.<sup>12</sup>

### Conclusion

According to the findings, the majority of older people are in a lot of pain. Knee joint pain is extremely frequent as people become older. It required medical attention. Otherwise it leads to impaired quality of life and interfere with daily lifestyle. Fenugreek seeds paste is the effective home remedy to reduce knee joint pain and improve the quality of life among older people. It is simple to use and easily available.

### Ethical Consideration:

This study got permission from the chief district health officer, health, and family welfare department, Tapi, Gujarat and also got approval from an ethical committee of the college. The older people who met the inclusion criteria gave their consent to the study.

### Recommendations:

1. The investigation can be carried out with a large sample size.
2. A variety of research designs can be used to carry out the study.
3. Knee joint discomfort and everyday activities can be studied.
4. Factors associated with knee joint pain can be studied.

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This is a completely self-funded project.

### Conflicts of Interest:

There was no conflict of interest reported.

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