



Research Article

Efficacy of Cabbage Leaf Wraps (CLW) Application on Joint Pain Reduction among Elderly

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A B S T R A C T

Introduction: Cabbage is known to have many healing properties as one food item that may relieve joint pain naturally.

Objectives: The aim of the study was to assess the effectiveness of the application of Cabbage Leaf Wraps (CLW) on joint pain reduction among elderly.

Methods: A Quantitative approach with quasi-experimental pre-test post-test control group design was selected for the study. A total of 60 elderly with joint pain residing in Lumdiengsoh Community, Shillong were selected by purposive sampling technique. The pre-test level of joint pain was assessed using Numerical Pain Rating Scale for both the groups. Cabbage leaf wraps (CLW) application was provided in the experimental group 2 hours, once a day for 3 weeks and Control group were kept on their usual routine care. A post-test was conducted for both groups using the same tool 3 weeks after pre-test. Data was analysed by descriptive and inferential statistics.

Results: The findings revealed that the application of cabbage leaf wraps in experimental group was more effective in joint pain reduction among elderly as compared to the routine care in the control group. In the experimental group the calculated paired 't' value (28.61) was greater than the table value at $df (29) = 2.05$, therefore the mean difference was statistically significant ($p < 0.0001$). Thus, the cabbage leaf wraps application was effective in reducing the level of joint pain among elderly people. There was no association between the demographic variables with post-test level of joint pain in both experimental and control group.

Conclusion: The results of this study inferred that cabbage leaf wraps application is very effective in reducing the level of joint pain among the elderly.

Keywords: Cabbage Leaf Wraps, Effectiveness, Elderly, Joint Pain, Reduction

Introduction

Ageing is defined as the process of becoming older which

is genetically determined and modulated by various environmental factors.¹ Many elderly people tend to dismiss joint pain and body aches as part of ageing and would rather

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self-medicate or quietly endure the pain.² Joint pain is a very common discomfort that arises at any joints of the body such as elbow, hips, shoulders and knees and they occur mostly in elderly. It is rarely an emergency and can be successfully managed at home.

Cabbage leaf wraps application is one of the most common remedy for relieving joint pain. It is not just a vegetable for cooking but it has other health beneficial properties. It is rich in nutrients, vitamins, and minerals, including dietary fibre, vitamin C, K, folate, manganese, iodine, potassium, beta-carotene, and calcium. It has powerful antioxidant, anti-cancer, and anti-inflammatory properties.³

Prabhakaran conducted a pre-experimental design study with one group pre and post-test study to assess the effectiveness of cabbage application for reduction of joint pain among elderly people in Attayampatti village, Salem, for a period of 3 weeks. The data were collected from 50 elderly people with joint pain. It was found that the overall pre-test mean score was 3.58 ± 0.70 and the overall post-test mean score was 0.18 ± 0.38 which is 4% with an overall difference of 68% revealing mild pain. Highly significant difference was found between pre and post test scores ($p < 0.001$). It was concluded that there was reduction in joint pain among elderly due to the application of cabbage leaves. Hence the study interpreted that the investigator needs to conduct a study in large group to reduce joint pain among elderly people.⁴

A study was conducted by Lauche R et.al which aimed to test the effects of Cabbage Leaf Wraps (CLW) for the treatment of symptomatic Osteoarthritis (OA). A sample of 81 patients in the department of Medicine in Essen, Germany with OA of the knee at stages II to III (Kellgren Lawrence) were randomly assigned to 4 weeks of treatment with CLWs (daily for at least 2h), Topical Pain Gel (TPG) (10mg diclofenac/g, at least once daily), or Usual Care (UC). Various tests were used such as Visual Analogue Scale (VAS), Western Ontario and McMaster Universities Arthritis Index (WOMAC), Short Form 36 Health Survey Questionnaire SF-36, 30-second Chair Stand Test, and Pressure Pain Sensitivity. Results revealed that patients in the CLW group reported significantly less pain compared with those in the UC group with a significant group difference (difference -12.1; 95% CI, $p = 0.033$) but not when compared with the TPG group (difference -8.6; 95% CI, $p = 0.190$). Therefore, it was concluded that CLWs were more effective for knee OA than UC.⁵

Statement of the Problem: A Quasi-experimental study to assess the effectiveness of Cabbage Leaf Wraps (CLW) application on joint pain reduction among elderly in a selected community in Shillong, Meghalaya.

Objectives of the Study

- To assess the pre-test level of Joint pain in Experimental and Control group among elderly before the application

of Cabbage Leaf Wraps.

- To assess the post-test level of Joint pain in Experimental and Control group among elderly people after the application of Cabbage Leaf Wraps.
- To assess and compare the effectiveness of Cabbage Leaf Wraps in Experimental versus Control Group, to determine the association between the post-test level pain score of Experimental and Control Group with their selected demographic variables (age, gender, marital status, educational qualification and occupation)

Materials and Methods

A quasi-experimental pre-test-post-test control group design was used for the study. The setting for the study was Lumdiengsoh Community in Shillong, Meghalaya. The population were the elderly between the age group 60-85 years. Sample comprised of elderly between 60-85 years having joint pain and sample size comprised of 60 elderly.

After obtaining ethical permission from Institutional Ethics Committee of Jamia Hamdard, New Delhi, a formal permission was obtained from the Headman of Lumdiengsoh Community to conduct the final study. A written informed consent was taken from each study subject. They were assured of anonymity and confidentiality of the information provided during the research study. A screening sheet was provided to the elderly and based on the inclusion criteria, 60 elderly between 60-85 years suffering from osteoarthritis or gout and having joint pains on the knees or ankles were selected as sample by using purposive sampling technique. The selected 60 elderly were assigned into 2 groups that was experimental ($n_1 = 30$) and control group ($n_2 = 30$) and tools were provided to each group, which consisted of the following parts:

- It consisted of a semi-structured interview schedule to gather the demographic profile.
- It consisted of a Numerical Pain Rating Scale (NPRS) to assess the level of joint pain before and after the application of cabbage leaf wraps once a day continuously for 3 weeks.

Data Collection Procedure

- Demographic profile of the elderly was recorded in demographic data sheet.
- In the experimental group:
 - The client was placed in a comfortable position.
 - The procedure was explained to the client
 - The pre-test level of joint pain was assessed by using NPRS and noted down in the recording sheet.
 - Hands were washed and fresh organic cabbage leaves were separated and washed thoroughly with plain water.
 - A rolling pin was applied to gently bruise the veins of the leaves.

- a. The four layers of room temperature cabbage leaves was wrapped on the joint pain area and further wrapped with gauze bandage so as to secure them for 2 hours.
 - b. After 2 hours of application, the applied cabbage leaves were removed and area was cleaned with a towel. This procedure was done 2 hours once a day continuously for 3 weeks.
 - c. The post-test level of joint pain was assessed after 3 weeks of application, by using NPRS.
3. In the control group:
 - a. The pre-test level of joint pain was assessed by using NPRS and noted down in the recording sheet
 - b. The client was provided with the routine care.
 - c. The post-test level of joint pain was assessed in control group 3 weeks after the pre-test level assessment by using NPRS.

Descriptive and inferential statistics were used for data analysis.

Result

Description of Sample Characteristics

Table 1. Frequency and percentage distribution of elderly in the experimental and control group by their demographic variables and chi-square test to compare the groups for homogeneity

Variable	Experimental group (n1=30)		Control group (n2=30)		Test applied	p-value
	Frequency	%	Frequency	%		
Age						
60-65	11	36.6	10	33.3	Chi-square with Yates correction	0.957 NS
66-70	12	40	15	50		
71-75	5	16.67	4	13.33		
76-80	1	3.33	1	3.33		
81-85	1	3.33	0	0		
Gender						
Male	13	43.3	10	33.33	Chi-square with Yates correction	0.595 NS
Female	17	56.6	20	66.67		
Marital status						
Married	14	46.6	11	36.67	Chi-square with Yates correction	0.939 NS
Unmarried	1	3.33	1	3.33		
Divorced	1	3.33	0	0		
Widowed/widower	14	46.6	17	56.66		
Separated	0	0	1	3.33		
Educational qualification						
No formal education	3	10	4	13.33	Chi-square with Yates correction	0.924 NS
Primary education	14	46.6	10	33.33		
Middle education	9	30	10	33.33		
High school education	4	13.33	6	20		
Occupation						
Construction worker	5	16.67	1	3.33	Chi-square with Yates correction	0.714 NS
Farm worker	10	33.33	9	30		
Heavy lifting at work	3	10	6	20		
Kneeling working position	10	33.33	13	43.33		
Others	2	6.66	1	3.33		

NS- Non-significant; p >0.05 level of significance.

Data in Table 1, revealed that experimental and control groups were homogenous and comparable as revealed by their respective p values which were more than 0.05 level of significance.

Findings Related to Significant Difference between Mean Pre-test Level of Joint Pain among Elderly between Experimental and Control Groups

Data presented in Table 2, reveals that the mean pre-test score in experimental group (7.60) was found to be less than that of control group (7.70). Since the calculated t value (0.525) was less than table t value at df (58) i.e. 2.00; therefore, experimental and control group are comparable in terms of pre-test level of joint pain as it is not significant at 0.05 level.

Findings Related to Significant Difference between Mean Post-test Level of Joint Pain among Elderly between Experimental and Control Groups

Data presented in Table 3, reveals the calculated t value (5.547) was greater than t_{58} (2.00), therefore, the obtained mean difference was highly statistically significant at 0.05 and 0.001 level. Hence, the application of cabbage leaf wraps in experimental group was more effective in joint pain reduction among elderly as compared to the routine care in the control group.

Findings related to Significant Difference in Mean Pre-test and Post-test Level of Joint Pain before and after the Application of Cabbage Leaf Wraps in the Experimental Group.

Data presented in Table 4, reveals that calculated t value (28.614) was greater than t_{29} (2.05). Therefore, the obtained mean difference was statistically highly significant at 0.05 level and 0.0001 level. Hence, the application of cabbage leaf wraps (CLW) was effective in reducing joint pain among the elderly.

Findings Related to Significant Association between Post-test Level of Joint Pain in Experimental and Control Group with the Selected Demographic Variables

The result inferred that there was no association between age, gender, marital status, education qualification and occupation with post-test level of joint pain in experimental group as well as in control group since their obtained p value was greater than 0.05 level of significance respectively.

Discussion

The present study aimed to assess the effectiveness of cabbage leaf wraps (CLW) application on joint pain reduction among elderly in a selected community in Shillong, Meghalaya.

Table 2. Comparison of pre-test mean, Standard Deviation (SD), mean difference and t-value of level of joint pain among elderly between experimental and control groups

(n1+n2 = 60)

Group		Mean	SD	Mean difference	't' value
Experimental (n1)	Pre-test	7.60	0.814	±0.10	0.525
Control (n2)	Pre-test	7.70	0.651		

t-value at df (58)=2.00. Not significant at 0.05 level.

Table 3. Comparison of post-test mean, Standard Deviation (SD), mean difference and t-value of level of joint pain among elderly between experimental and control groups

(n1+n2 = 60)

Group		Mean	SD	Mean difference	't' value
Experimental (n1)	Post-test	2.17	1.09	±1.53	5.547*
Control (n2)	Post-test	3.70	1.06		

t (58) = 2.00, p<0.05, *Highly significant < 0.001 level.

Table 4. Comparison of pre-test and post-test mean, standard deviation (SD), mean difference and t-value of level of joint pain among elderly in experimental group

(n1=30)

Experimental group		Mean	SD	Mean difference	't' value
	Pre-test	7.60	0.81	5.43	28.614*
	Post-test	2.17	1.09		

t-value at df (29) = 2.05, *Highly significant < 0.0001 level.

The present study revealed that the application of cabbage leaf wraps was very effective in the joint pain reduction among elderly with the mean pre-test score (7.60) and the mean post-test score (2.17) and a mean difference of ± 5.43 in the experimental group. The findings of this study were in conformity to another study conducted by Prabhakaran A⁴ to assess the effectiveness of cabbage application for reduction of joint pain among elderly people. The result showed that the pre-test mean score was 3.58 which was 72% and the overall post-test mean score was 0.18 which is 4% with an overall mean difference of 68%. It was concluded that there was a highly significant difference between pre and post test scores regarding cabbage leaves application for reduction of joint pain among elderly people ($p < 0.001$). Further, the present study was also supported by the findings of Carson J⁶ which revealed that cabbage leaves were very effective in reducing joint pain.

Conclusion

The elderly people are among those most affected by joint pain and are often helpless to improve their own situation. The findings from the present study concluded that the application of cabbage leaf wraps (CLW) was highly effective in joint pain reduction among the elderly and therefore the interventions should be taught or promoted as measure of pain relief in elderly.

Conflict of Interest: None

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