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## Assessment of the effectiveness of video assisted teaching (VAT) Programme on knowledge regarding joint pain & its prevention among B.Sc. Nursing students of Shimla nursing college, Annandale, Shimla, H.P: An interventional study

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### Abstract

**Background:** Joint pain is the sensation of discomfort or soreness in joints of the body. Joints are the spaces or areas where two or more bones meet, such as the hip, knee, shoulder, elbow and ankle. The joints allow our bones to move. They are made up of cartilage, ligaments, tendons, bursas (fluid-filled sacs that help cushion the joint), and the synovial membrane (lining of the joint capsule that secretes synovial fluid to lubricate the joint).

**Aim:** The main aim of this study was to improve the knowledge of nursing students regarding joint pain & its prevention.

**Methodology:** A quantitative approach with Pre-experimental, one group pre-test post-test design was used.

**Sample and sampling technique:** This study included 80 students of Shimla Nursing College and technique was simple convenient sampling technique.

**Setting:** The research setting was Shimla Nursing College, Annandale, Shimla, H.P.

**Tools and methodology:** The Socio Demographic Performa and Structured Knowledge Questionnaire were used to collect the data. After assessing the preexisting level of knowledge of the sample, (VAT) programme on joint pain & its prevention was administered to the B.Sc. Nursing students. At the end post test was conducted.

**Results:** The results indicated that mean post- test knowledge scores was (18.96) higher than their mean pre-test score (14.19). The obtained mean difference was (4.770) between pre-test and post test knowledge score of students and was found to be statistically significant as evident from the 't' value (18.35) \*Sig at 0.05 level. The results of the post test depicted that only 1 student (1.3%) had below average knowledge, 25 students (31.3%) had average knowledge & 54 students (67.5%) had good knowledge. It was concluded that Video Assisted Teaching programme was effective in improving the level of knowledge among students of Shimla Nursing College, regarding joint pain and its prevention.

**Keywords:** Video-assisted teaching (VAT) programme, joint pain, knowledge

### 1. Introduction

Health is the state of being hale, sound or whole in body, mind or soul, especially the state of being free from physical disease or pain. Health is a dynamic condition resulting from a body's constant adjustment, adaptation in response to stresses and changes in the environment for maintaining an inner equilibrium called homeostasis. A comprehensive understanding of human health includes the greatest possible harmony of all of man's forces and energies, the greatest possible spiritualization of man's bodily aspect and the finest embodiment of the spiritual needs<sup>[1]</sup>.

Joint pain can be associated with more than 50 kinds of arthritis - but it also can be caused by conditions that are not arthritis at all. Treatment for joint pain differs widely, depending on the cause. The right diagnosis and early treatment can arrest joint damage and return previous level of activity. The wrong treatment or avoiding treatment may mean joint deterioration, poor function and compromised mobility<sup>[2]</sup>.

The prevalence of joint pain is 7.08% in New Delhi, 7.2% in Himachal Pradesh and 9.53% in Shimla. The prevalence of joint pain is lowest in the age group of 18-30 years and gradually increases with advanced age groups from 40 years and above. According to joint pain score, 47.56% have moderate arthritis score in Delhi, 53.75% in Himachal Pradesh and 44.68% in Shimla have mild joint pain score. On the contrary 9.31% of the patients in Delhi, 8.31% in Himachal Pradesh and 4.32% in Shimla reported that absence from work due to joint pain. At least some functional limitation has been observed in 84.10% of patients in Delhi, 86.20% in Himachal Pradesh and 66.44% in Shimla<sup>[3]</sup>.

Several types of joint pain are synovial membranes which is the principle site of inflammation in persons with rheumatoid arthritis and much other inflammatory arthritis, enthesitis which is the transitional zone where collagenous structures such as tendons and ligaments are interwoven into bone, crystal deposition in particular structure which may lead to symptomatic joint disease. The responsible crystals include monosodium urate, calcium pyrophosphate dehydrate, basic calcium phosphate and calcium oxalate, infectious arthritis in which the synovial may become the seat of acute or chronic infections related to bacterial, fungal or viral organisms. These infections almost always arises from blood borne organisms and may be part of a systematic infection<sup>[4]</sup>.

The causes of joint pain in old age people diet deficiency Overuse of physical activity, sprains and strains. Other causes Bursitis, or inflammation of the Cushing pads around joints, lupus, gout, Certain infectious diseases, such as mumps, influenza, and hepatitis, chondromalacia of the patella, or a breakdown of the cartilage in the kneecap An injury tendinitis, or inflammation of tendon<sup>[5]</sup>.

Joint pain symptoms can develop gradually or suddenly. The most common symptoms of joint pain involve pain and stiffness, mostly in the morning, are typical signs, along with swelling of the joints. Other symptoms are decrease in range of motion of the joints and redness of the skin around the joint. Sign and Symptoms associated with joint pain can include joint pain, redness, swelling, tenderness, warmth limping, locking of the joint, loss of range of motion of the joint, stiffness weakness and muscle cramps<sup>[6]</sup>.

Diagnostic tests used to diagnose patient condition with joint pain include history collection and physical examination etc. Other includes; X RAY- Cartilage doesn't show on x-ray images, but cartilage loss is revealed by a narrowing of the space between the bones in the joint. An x-ray can also show bone spurs around the joint, magnetic imaging resonance-An MRI is used radio waves and a strong magnetic field to produce detailed images of bone and soft tissues, including cartilage<sup>[7]</sup>.

Computed tomography (CT scan), which may be performed with or the use of oral or intravenous contrast agents, shows a more detailed cross image of the body. It is also used to identify the location and extent of fractures in area that are different to evaluate (e.g. -acetabulum) and not visible on x-ray. Laboratory test includes analyzing blood and joint fluid can help confirm the diagnosis, although there is blood test for osteoarthritis, certain tests can help rule out other causes of joint pain, such as rheumatoid arthritis, joint fluid analysis doctor might use a needle to draw fluid from an affected joint. The fluid is then tested for inflammation and to determine whether pain is caused by gout or an infection rather than osteoarthritis<sup>[8]</sup>.

Arthrography is used to identify the cause of any unexplained joint pain and progression of joint disease. A radiopaque contrast agent or air is injected into the joint cavity to visualize the joint structure such as the ligaments, cartilage done, and joint capsules. The joint is put through its range of motion to distribute the contrast agent while a series of x-rays are obtained<sup>[9]</sup>.

Some preventive measures for joint pain are drinking milk, calcium is very important for bone which is found in milk, cheese, yogurt and leafy greens-to prevent joint pain. Get some sun bath, vitamin D enhances calcium absorption<sup>[10]</sup>. Monitoring and maintaining normal weight is important for reduction in joint pain, in fact, research has proven that a 10-15 pound weight loss in obese young people can translate to a much lower risk of joint pain later in life. Building muscle strength in legs and abdomen goes a long way in protecting knees and back<sup>[11]</sup>.

Do low-impact exercises if high-impact sports hurt joints, and person will get a wide variety of responses. One should follow exercise routine for example: alternate high-impact sports like tennis with low- or no-impact activities like swimming or yoga. Avoid injuries start any new exercise routine slowly. Stay hydrated; when a person is dehydrated, joints are more susceptible to injury and less cushy<sup>[12]</sup>.

Management of the joint pain can be done by; Medical management & therapies. These medications may treat or reduce joint pain: Pain relievers including: Non steroidal anti-inflammatory drugs (NSAIDS), such as ibuprofen (Motrin), naproxen (Naprosyn), and celecoxib (Celebrex), Acetaminophen, such as Tylenol, Corticosteroids, which reduce swelling and inflammation, Certain anticonvulsants and antidepressants that may block pain signals, Antibiotics, which treat joint infections<sup>[13]</sup>.

Therapies include self-care that may help to manage joint pain. It requires a person to work with a licensed or certified specialist. Talking with health care team before trying these therapies is essential. Physical therapy can help restore function in a joint, as well as teach how to relieve pain using simple exercises or assistive devices. Some studies show that acupuncture can help relieve joint pain related to aromatase inhibitor therapy. Research shows that stretching and gentle exercise may reduce joint pain.

During the clinical practice in field of nursing, it has been found that many clients attending orthopedic OPD and inpatient clients had severe joint pain arthritis and limitation in mobility. It fluctuates in frequency over time and answer is strongly linked to psychological factors as well as is related to "disability". Geriatric nursing is a specialty of nursing pertaining to older people. Geriatric nurses work in collaboration with older adults, their families, and communities to support healthy ageing, maximum functioning and quality of life. They are also involved in care of older people at hospital setting moreover nurses are also accountable to take care of people at nursing homes, old age homes. The role of nurse as a complete care provider is increasing day by day, hence researcher felt the need of upgrading the knowledge of nursing students, that may prove out to be fruitful in future while providing care to older people at their home or hospital setting.

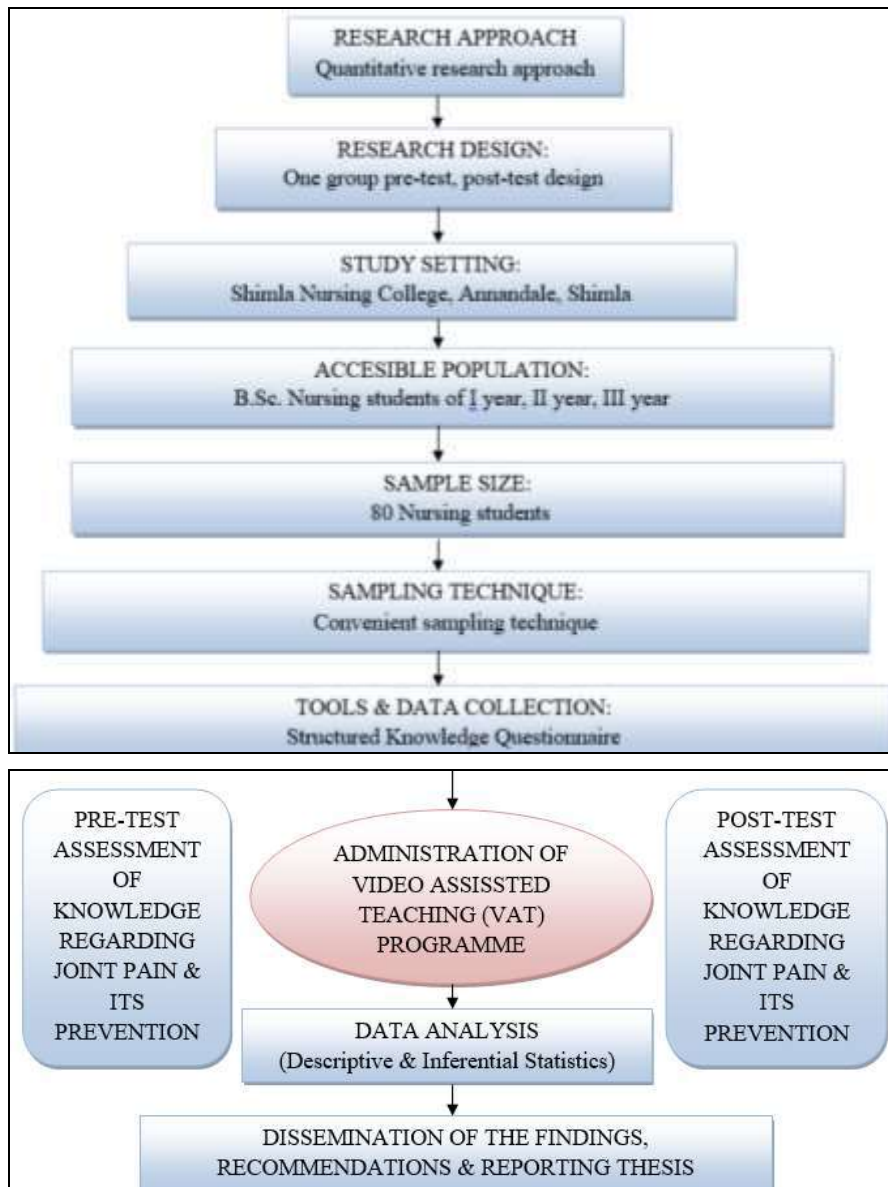
## 2. Methods & materials

**2.1 Research design:** Quantitative approach was selected under the Pre-experimental, one group pre-test post-test design.

**2.2 Setting:** The study was conducted at Shimla Nursing College, Annandale, Shimla, H.P.

**2.3 Population:** B.Sc. Nursing students of Shimla Nursing College.

**2.4 Sample and sampling technique:** In the present study 80 nursing students of Shimla Nursing College were selected by convenient sampling technique.



**Fig 1:** Schematic representation of the study

**2.5 Data collection tools and techniques:** Based on the objectives and conceptual framework of the study, the tool developed was divided into the following sections:

- Socio Demographic variables
- Structured Knowledge Questionnaire

It was self-structured knowledge questionnaire that contained 25 questions and was validated by experts from

field of nursing. Experts were requested to judge the items for their clarity, relevance, meaningfulness of content.

**2.6 Ethical consideration:** Ethical permission was obtained before conducting the study. Research participants were enrolled in the study after online informed consent and they were assured about the confidentiality of their responses.

**3. Result**

**Table 1:** Frequency & percentage distribution of students based on Socio-demographic variables N=80

S. N.	Socio-demographic	Variables	Frequency	Percentage
1	Age in years	17-19 Years	27	33.8%
		20-22 Years	51	63.8%
		23-25 Years	2	2.5%
2	Qualification	I Year	39	48.8%

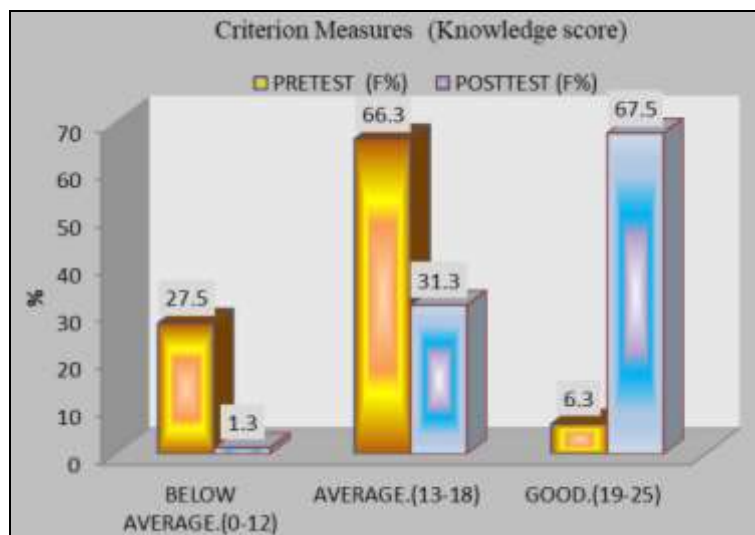
		II Year	17	21.3%
		III Year	24	30.0%
3	Area of residence	Urban	41	51.3%
		Rural	31	38.3%
		Semi Urban	8	10.0%
4	Religion	Hindu	75	93.8%
		Muslim	4	5.0%
		Christian	0	0.0%
		Any other	1	1.3%
5	Any family history of joint pain	Yes	26	32.5%
		No	54	67.5%
6	Source of knowledge	Mass media	20	25.0%
		Family & friends	15	18.8%
		Health professionals	25	31.3%
		Others	20	25.0%

Table 1 shows the frequency and percentage distribution of socio demographic variables with respect to age, qualification, area of residence, religion, any family history of joint pain, source of knowledge.

**Table 2:** Percentage wise distribution of comparison of pre-test and post-test level of knowledge regarding joint pain & its prevention among students N=80

Knowledge score	Pre-test	Post-test
Below average (0-12)	27.5%	1.3%
Average (13-18)	66.3%	31.3%
Good (19-25)	6.3%	67.5%

Table 2 depicts that, in pre-test 22 students (27.5%) had below average knowledge, 53 students (66.3%) had average knowledge & 5 students (6.3%) had good knowledge. In post-test only 1 student (1.3%) had below average knowledge, 25 students (31.3%) had average knowledge & 54 students (67.5%) had good knowledge regarding prevention of joint pain.

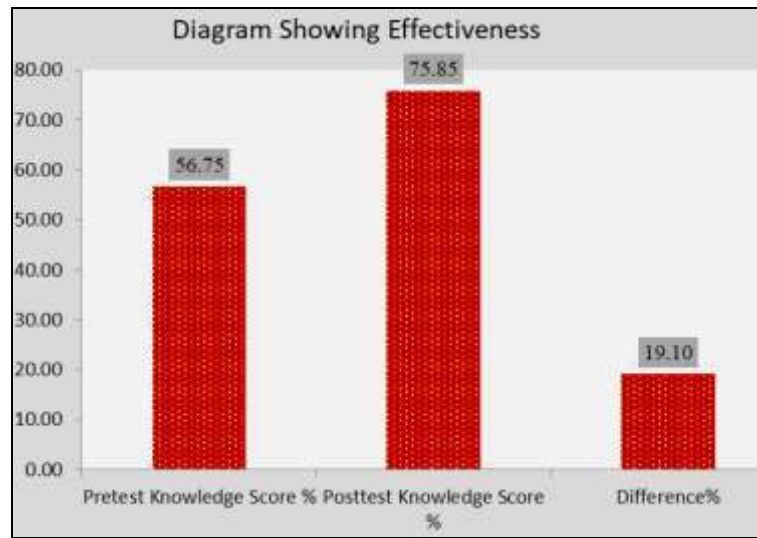


**Fig 2:** Shows that, in pre-test 22 students (27.5%) had below average knowledge, 53 students (66.3%) had average knowledge & 5 students (6.3%) had good knowledge. In post-test only 1 student (1.3%) had below average knowledge, 25 students (31.3%) had average knowledge & 54 students (67.5%) had good knowledge regarding prevention of joint pain.

**Table 3:** Score gain (Effectiveness of video assisted teaching programme) in knowledge score. N=80

Diagram showing effectiveness of score gain by VAT programme						
Mean%	Pre-test knowledge	Post-test knowledge	Difference	Pre-test knowledge score%	Post-test knowledge score%	Difference%
Average	14.19	18.96	4.78	56.75	75.85	19.10

The data represented in table shows pre-test and post-test knowledge score obtained by students. The mean post test score 18.96 (75.44%) is higher than mean pre-test knowledge score 14.19 (56.75%) with the mean difference 4.78 (19.10%). The score revealed the effectiveness of VAT programme.



**Fig 3:** Depicts that pre-test and post-test knowledge score obtained by students. The mean post test score 18.96 (75.44%) is higher than mean pre-test knowledge score 14.19 (56.75%) with the mean difference 4.78 (19.10%). The score revealed the effectiveness of VAT programme

**Table 4:** Comparison of pre-test and post test score to test hypothesis N=80

Variables	Mean	S.D.	Mean%	Range	Mean difference	Paired “t” test	p value	Table value at 0.05
Pre-test knowledge	14.96	2.775	56.80	9-20	4.770	18.35*Sig	<0.001	1.99
Post-test knowledge	18.96	2.389	75.90	11-23				

The data presented in the table 4 depicts “t” value of experimental group in terms of knowledge before & after Video Assisted Teaching (VAT) Programme. The independent “t” test was applied to test hypothesis and computed “t” value was (18.35). It was found to be statistically significant at 0.05 level of significance which shows that there was significant difference between the pre-test knowledge and post-test knowledge.

**4. Discussion**

This study concentrates on the results obtained by statistical analysis. Many researchers have been conducted in the national and international level to improve the knowledge regarding joint pain. The discussion has been presented in the context of the findings revealed by the other researchers. The present study shows that the 54 (67.5%) had good knowledge, 25 (31.3%) had average knowledge while 1 (1.3%) had poor knowledge after administration of Video Assisted Teaching (VAT) Programme which is consistent with the findings of the study conducted by Vib Y. B. which shows that 78% of pain & 72% of fatigue was reduced in the people after administering Self-Management Programme among patients with chronic inflammatory arthritis<sup>[14]</sup>.

**5. Conclusion**

The study assessed the level of knowledge among nursing students regarding joint pain and its prevention. The students had inadequate knowledge regarding joint pain prior to administration of Video Assisted Teaching Programme. After administration the (VAT) Programme, there was a significant improvement of knowledge among students regarding prevention of joint pain. The study concluded that (VAT) Programme was effective in improving the knowledge of students.

**6. Limitations**

- This study was limited for only students of Bachelors of

Science (B.Sc.) from Shimla Nursing College Annandale, Shimla, H.P.

- The age group for the study was limited from 17-25 years of age group.

**7. Recommendations**

Following research studies can be conducted in future on prevention of joint pain.

- A descriptive survey to find out the prevalence rate of joint pain among older people.
- An exploratory study to assess the risk factors and prevention of joint pain among older people at old age home.
- A quasi experimental study to access the effectiveness of Video Assisted Teaching programme on exercises regarding prevention of joint pain among old age people in old age home at Basantpur Shimla, Himachal Pradesh.

**8. Acknowledgment**

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