



## Awareness of Physical Therapeutic Procedures for Low Back Pain in Medical Staff Working In a Tertiary Care Hospital

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### Abstract

**Introduction:** Low Back Pain is a common condition which if left untreated can lead to reduction in quality of life and permanent disability. The common physical modalities used in conservative treatment of back pain are heat and cold modalities.

**Review of Literature:** Healthcare professionals are at a higher risk of getting LBP and many of them consult conventional as well as alternative medical therapies to alleviate pain.

**Aims and Objectives:** Hence the aim of the study is to evaluate the awareness of physical therapeutic procedures for low back pain among doctors and nurses of a tertiary care hospital, to identify the physical therapeutic treatment procedure undergone for LBP and to evaluate the satisfaction rate in the physical therapeutic procedures.

**Methodology:** Awareness of physical therapeutic procedures for low back pain was measured using a proforma in the form of a validated questionnaire. The questionnaire was distributed to the doctors and nurses of the hospital and the results obtained will be analysed by scoring the responses.

**Result:** Out of the 387 subjects, there were 133 doctors and 254 nurses. More than 50% of subjects were aware about modalities like Interferential therapy, short wave diathermy, cryotherapy and spinal stabilisation exercises and more than 85 % of the participants have availed any one of these modalities. Cryotherapy was most availed and moist heat was least availed modality. Majority of the participants have got relief from any one of the modality. They are willing to avail again in case of recurrence of pain and also recommend modalities to others. Most of the participants got awareness from colleagues, books and social media. Majority of subjects opted to visit orthopaedic surgeons and family physicians when they had back pain.

**Conclusion:** Although a good number of healthcare staff have availed physical therapy modalities for back pain, many are not properly aware of those modalities which got them relief. A proper training could improve not only in their quality of life but also will ameliorate awareness among resource utilisers.

**Keywords:** NIL

### Introduction

Physical therapeutic procedures are one of the key supporting treatment procedures for all physical ailments including the common back pain.<sup>1</sup> Low back pain is an extremely common problem that most people experience at some point in their life. It is a

major health and socioeconomic problem in modern society.<sup>2</sup>

Low back pain is a leading cause of disability. It can be defined as pain and discomfort, localised below

the costal margin and above the inferior gluteal folds, with or without leg pain. It is one of the most common causes of seeking physician consultations, second cause of furlough because of high direct and indirect expenses it has become a great medical, social and economic burden for an individual, family and society.

It is important to detect low back pain at its onset else it will lead to chronicity and permanent disability. It is quite common among nurses and doctors because of the nature of work and psycho social factors. There are a number of causes for low back pain like fibromyalgia, intervertebral disc prolapse, osteoporosis, trauma, neoplasms. Mechanical Back pain is the commonest cause for low back pain due to poor posture, psycho social reasons, nature of job like lifting heavy weights etc.

Diagnosis and management of low back pain depends on eliciting proper history and physical examination, appropriate blood investigations, X-rays, MRI and surgical and/or conservative treatment. Though mechanical back pain is the commonest, other causes of back pain must be ruled out. Surgical treatment is opted in case of severe radiating pain, severe or progressive sensory or motor deficits, bladder or bowel involvement. Conservative treatment is the standard treatment and it includes analgesics, oral steroids, muscle relaxants, exercises, ergonomics, heat and cold modalities, spinal orthoses, dry needling, trigger point injections, nerve blocks, epidural steroid injection.

Modern medicine offers a wide range of treatment options for low back pain. Heat and cold modalities and spinal stabilization exercises are common prescriptions by modern medical practitioners for conservative management of back pain. Some of the common heat modalities are superficial heat like moist heat, deep heat like UST (Ultrasound therapy) and SWD (Short Wave Diathermy), electrotherapy such as IFT (Interferential therapy) and TENS (Transcutaneous electric nerve stimulation). Heat/cold modalities reduce pain and chronic/acute inflammation and exercises reduce stiffness and strengthens spinal muscles. They have a psychological impact and are cost effective too when compared to an intervention or surgical procedure.

Though the above-mentioned modalities are generally prescribed in mechanical back pain,

osteoarthritis, IVDP and fibromyalgia, they have specific contraindications. In spite of being 'quite safe' these modalities remain underutilized and are being less compliant among patients. Quite often they even resort to alternative medicine. Doctors and nurses are a common victim of low back pain. Rehabilitation of chronic low back pain is important to reduce disability, improve the quality of life, and reduce loss of work hours and absenteeism from work. Identifying chronic back pain and appropriate referral by doctors for physical therapeutic modalities (conservative management) is important before an intervention or a surgical procedure is planned. Therefore knowledge of these modalities among doctors and nurses is of importance. Hence this study is specially designed to understand the awareness of physical therapeutic modalities for low back pain in health care professionals like doctors and nurses working in a tertiary care hospital.

This study would also help to understand the barriers that have blocked the application and usage of the modalities.

Rehabilitation of persons with chronic low back pain is a major challenge for doctors especially when it involves health care professionals.

### Literature Review

There is little information about LBP in general population or in working people in developing and low-income countries. The 1-year incidence of the first episode of low back pain was between 6.3% and 15.4%, while the 1-year incidence of any episode of low back pain was between 1.5% and 36%.<sup>3</sup>

In India the prevalence of LBP was found to be from 6.2% to 92% with an increase in the tendency with age and female preponderance. Low socioeconomic status, poor education, previous LBP history, physical characteristics such as heavy lifting, repetitive work, prolonged posture and unstable posture, psychological factors such as anxiety, depression, job dissatisfaction, lack of job control and stress, working hours and obesity were found associated with LBP. In another study by Bindra et al, a large number of subjects with LBP did not consult any physician and most of them preferred traditional medicine.<sup>4</sup>

According to a study conducted by Karahan et.al, staff who experience low back pain than many other

groups, the incidence varies from country to country. Occupational activities involving bending, twisting, constant lifting, inconsistent posture, and stress are considered to be the cause of most back injuries.<sup>5</sup>

A study by Harrison *et. al* states that non-physician providers (NPPs) usually are the ones who are in the front in referring people for physical therapy services (PT).<sup>6</sup>

In the study by Emmanuel *et. al*, 53.4% of nurses had LBP and 17.1% of them were at high risk. There was a significant correlation ( $p < 0.001$ ) between LBP and age, BMI, lifestyle and workplace. Periodic evaluation of nurses with low back pain and referring nurses with high risk for immediate medical attention can prevent complications related to back pain and improve the functional efficiency of nurses. strength and proper fitness equipment can help prevent low back pain among nurses.<sup>7</sup>

A study by Karahan A *et. al*. revealed that most cases of back pain began after respondents began working in a hospital.<sup>5</sup>

Physicians continue to have difficulty managing this condition despite an increased awareness of its magnitude. If healthcare professionals were well informed about how preventive rehabilitation could help the treatment of patients and prevent the development of complications, hospital stays could be decreased to a larger extent. Perceptions of physicians about physical rehabilitation also affect the treatment received by the patient.<sup>8</sup>

Changes in workplace design, mechanical redesign, awareness of proper posture, and adoption of good work habits all play important roles in reducing musculoskeletal disorders among healthcare workers. Prompt occupational medicine and rehabilitation services were also provided to complement the work disability prevention process.<sup>9</sup>

A high prevalence of back pain was found in intensive care unit nurses. Adequate nurse staffing, reducing the frequency of night shifts and assessment of risk factors in specific intensive care unit facilities are suggested to decrease back pain prevalence.<sup>10</sup>

Studies have shown that nurses are the mainstay of medical care. There was universal agreement on the importance of 'Nurses', 'multidisciplinary team', 'relaxation', and 'psychological assessment' for

chronic pain management'. The high acceptance patterns seen in this study could be taken as support that nurses are noticeably aware of this need to approach pain management in an open and flexible manner.<sup>11</sup>

Although back pain is considered one of the most common reasons why patients seek alternative medical therapies, little is known on the extent patients are actually using them for back pain. The frequent use of other modes of therapies for LBP demonstrates that complementary and alternative medicine is popular in patients and physicians alike.

Recognized interactions with treatment at a rehabilitation center or in consultation with a specialist rather reflect the professional preferences of physicians rather than a clear medical indication.<sup>12</sup>

The therapeutic management of chronic low back pain seems to have low consistency. Clinical guidelines are needed to improve the management of chronic low back pain in primary care.<sup>13</sup>

Therapies with good evidence of moderate efficacy for chronic or subacute low back pain are cognitive-behavioral therapy, exercise, spinal manipulation, and interdisciplinary rehabilitation. For acute low back pain, the only therapy with good evidence of efficacy is superficial heat.<sup>14</sup>

Many nonpharmacologic therapies are available for treatment of low back pain. In one study of primary care clinicians, 65% reported recommending massage therapy; 55% recommended therapeutic ultrasonography; and 22% recommended, prescribed, or performed spinal manipulation.<sup>15</sup>

In another study, 38% of patients with spine disorders were referred to a physical therapist for exercise therapy, physical therapies, or other interventions.<sup>16</sup>

Clinicians managing low back pain vary substantially in the noninvasive therapies they recommend.<sup>17</sup>

The results of a study showed that although physiotherapy and rehabilitation services were available, knowledge of the function and scope of physiotherapy among those surveyed was poor.<sup>18</sup>

## Aim

The aim of the study is to evaluate the awareness of Physical Therapeutic Procedures for low back pain in

the medical staff ( Doctors and Nurses) in a tertiary care hospital.

### Objectives

1. To measure the awareness of physical therapeutic procedures for low back pain in doctors and nurses working in tertiary care hospital using validated questionnaire..
2. To identify the physical therapeutic treatment procedure done for low back pain.
3. To evaluate the satisfaction rate in the physical therapeutic procedures for low back pain.

### Materials and Methods

The study was an observational study conducted from January 2018 to March 2018. The study was conducted after the approval of the ethics committee using proforma in the form of questionnaire that had open and closed questions. A questionnaire was provided to all doctors and nurses at Believers Church Medical College Hospital, Thiruvalla. Proforma was validated by distributing to 10 Doctors and 10 Nurses including specialists.

The verified questionnaire was compiled to gather all the information including history of back pain and its traceability, to ask the respondent for information on available treatments for low back pain, If physical therapy was obtained, details of treatment received and the outcome of treatment received. when needed.

There were open ended and close ended questions that had a yes/no response pattern with details where required. The results obtained will be analysed by

scoring the responses. Based on the outcome of the scoring an awareness flyer will be given to the respondents.

### Inclusion Criteria

All doctors and nurses working in a tertiary care medical college hospital were included in the study.

### Exclusion Criteria

Other professionals working in the medical college hospitals were excluded as they were doing different type of work compared to doctors and nurses.

### Results

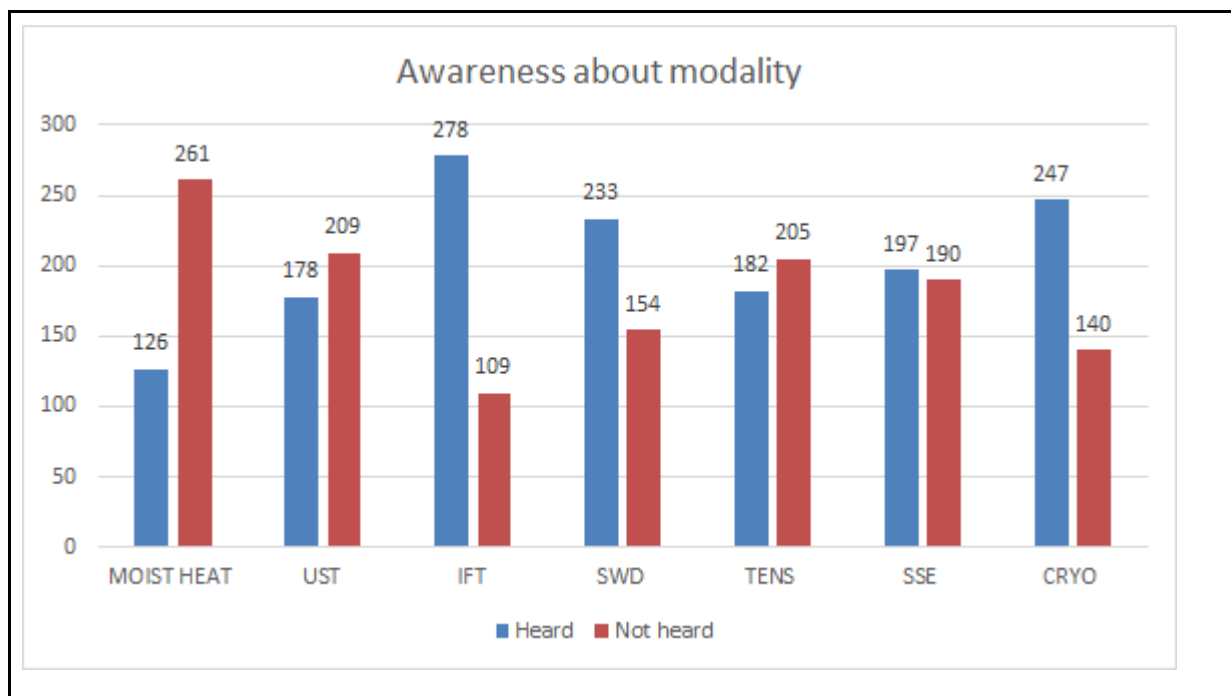
The study was conducted in 387 subjects. There were a total of 292 female subjects and 95 Male subjects in the study. There were 133 Doctors (34.4%) with age  $42.12 \pm 12.57$  and 254 nurses (65.6%) with age  $31.78 \pm 6.16$ . Among participant doctors there were 74 (19.9%) male and 59 (15.2%) female and among nurses there were 21 (5.4%) male and 233 (60.2%) female subjects.

The various treatment modalities that were used included moist heat, Ultrasound therapy, Interferential therapy, Shock wave diathermy, Transcutaneous electrical nerve stimulation, Spinal stabilisation exercises and Cryotherapy.

More than half of the subjects were aware about modalities like Interferential therapy, short wave diathermy, cryotherapy and spinal stabilisation exercises. More than 85 % of the participants have availed any one of the modalities at some point of time (Table 01, Figure:01).

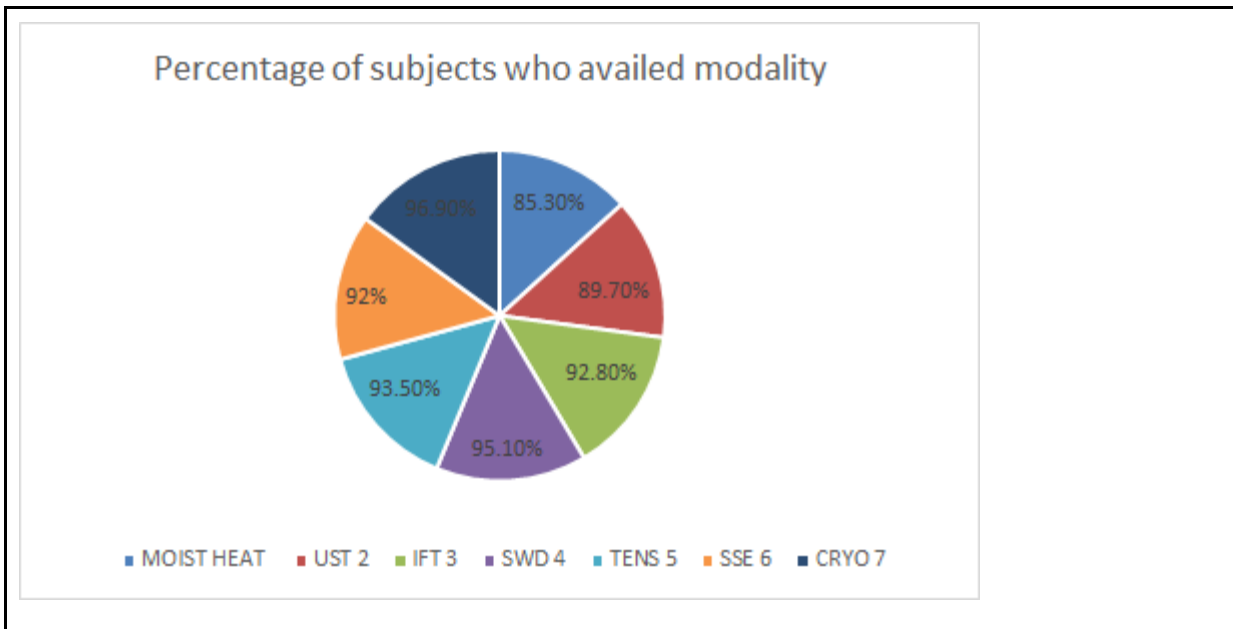
PARAMETER	HEARD (n, %)			AVAILED (n, %)		
	Yes	No	Not applicable	Yes	No	Not applicable
Moist heat	126 (32.6)	261 (67.4)	0	330 (85.3)	54 (14.0)	3 (0.8)
Ultrasound Therapy	178 (46.0)	209 (54.0)	0	347 (89.7)	37 (9.6)	3 (0.8)

Interferential therapy	278 (71.8)	109 (28.2)	0	359 (92.8)	25 (6.5)	3 (0.8)
Short wave diathermy	233 (60.2)	154 (39.8)	0	368 (95.1)	16 (4.1)	3 (0.8)
TENS	182 (47.0)	205 (53.0)	0	362 (93.5)	22 (5.7)	3 (0.8)
Spinal stabilisation exercises	197 (50.9)	190 (49.1)	0	356 (92.0.0)	28 (7.2)	3 (0.8)
Cryotherapy	247 (63.8)	140 (36.2)	0	375 (96.9)	9 (2.3)	3 (0.8)



**Figure 01: UST: Ultrasound Therapy, IFT: Interferential Therapy, SWD: Short Wave Diathermy, TENS: Transcutaneous Electric Nerve Stimulation, SSE: Spinal Stabilization exercises, Cryo: Cryotherapy**

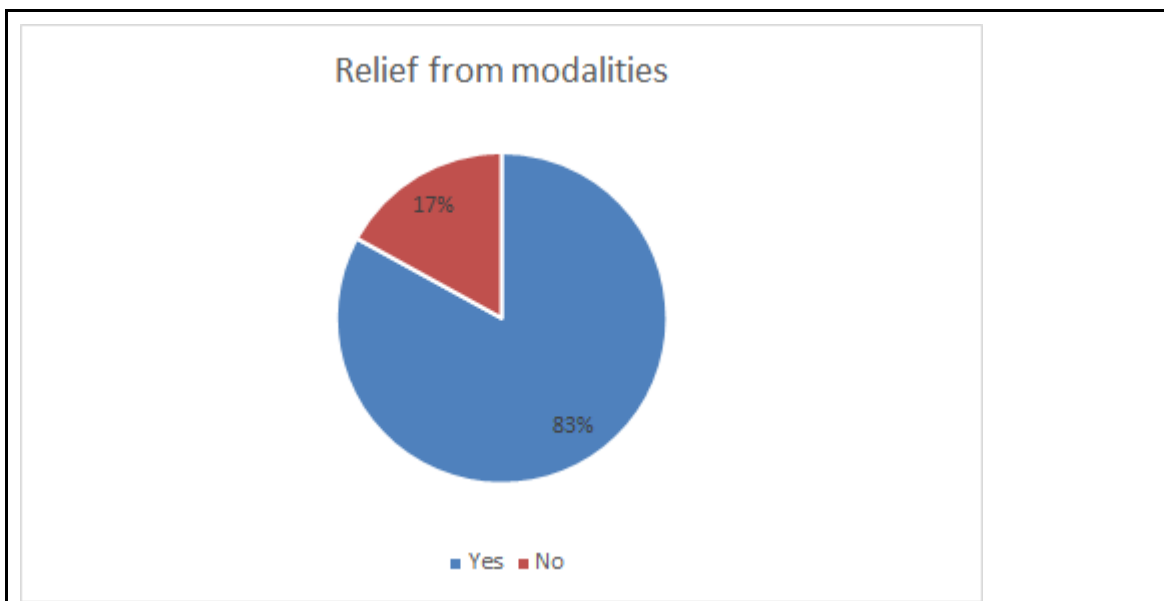
Cryotherapy was the most availed modality in the study (96.9%). Among the modalities, moist heat (85.3%) was availed the least (Table 01, Figure: 02)



**Figure 02: Distribution of subjects who have availed different modalities.**

UST: Ultrasound Therapy, IFT: Interferential Therapy, SWD: Short Wave Diathermy, TENS: Transcutaneous Electric Nerve Stimulation, SSE: Spinal Stabilization exercises, Cryo: Cryotherapy

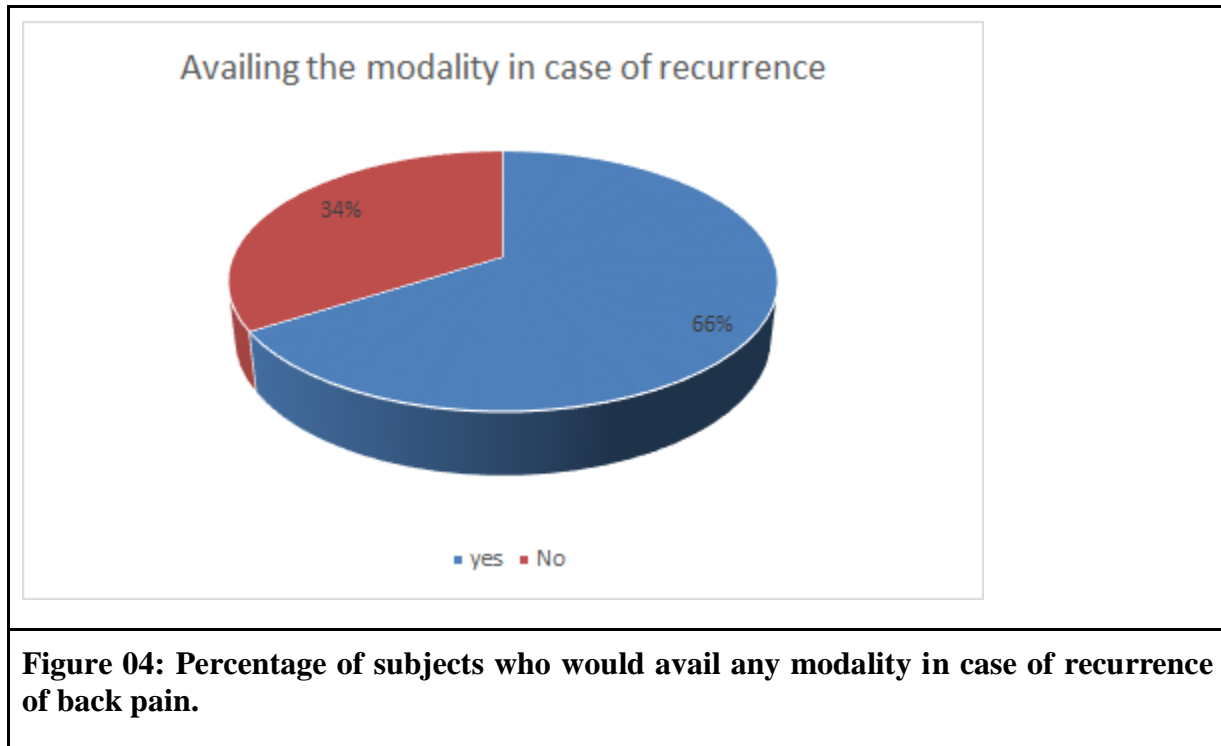
83% of people who had back pain (57/69) have got relief from one of the treatment modalities used. (Figure 03).



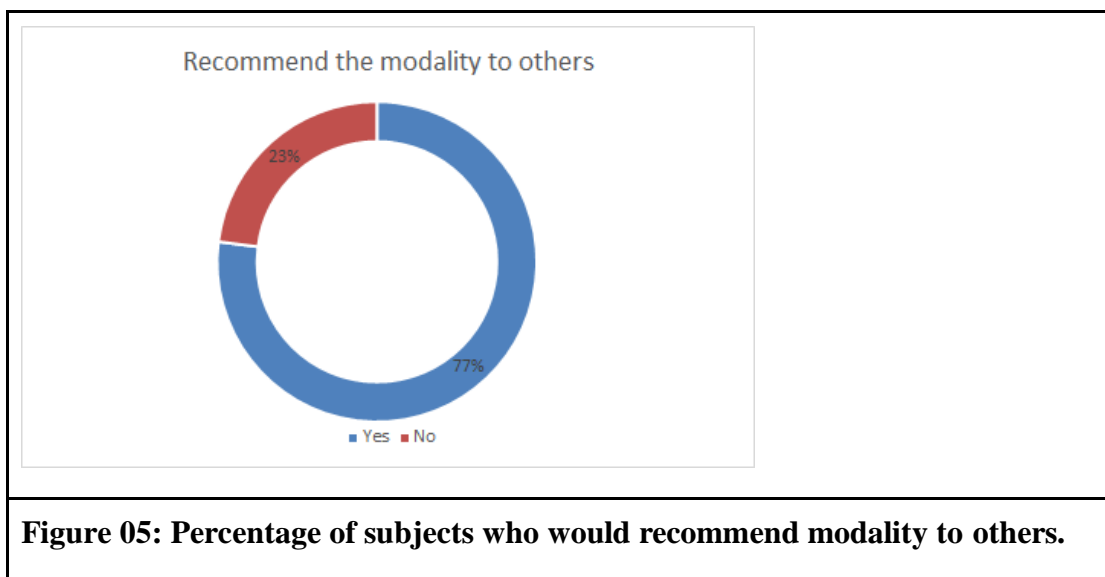
**Figure 03: Percentage of subjects who got relief from any of the modalities.**



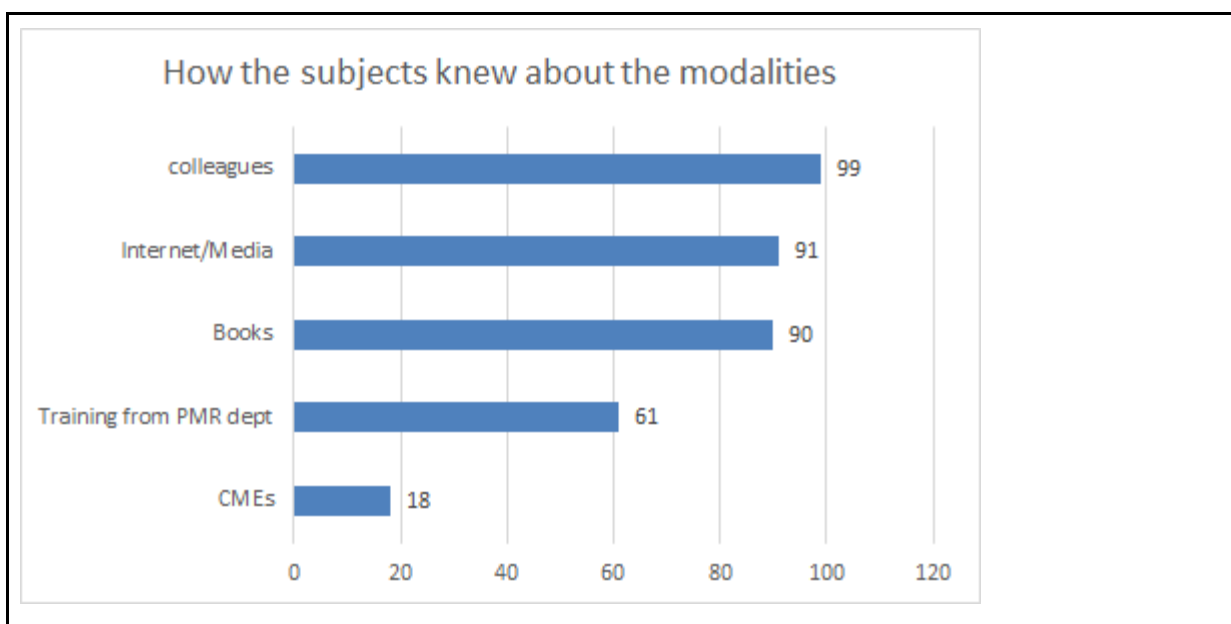
Among 145 participants, 95 respondents (66%) have commented that they would avail the services again and 50 respondents (34%) were hesitant in availing the services again in case of recurrence of back pain symptoms (Figure:04)



Among 149 participants, 115 respondents (77%) would recommend the modality to others while 34 respondents (23%) would not recommend (Figure:05).



Majority of the subjects got awareness about the modalities from their colleagues (99, 27.57%) followed by internet, social media and books. CMEs and training from the department have not been that effective in communicating awareness among the healthcare staff. (Table:02, Figure:06,07)



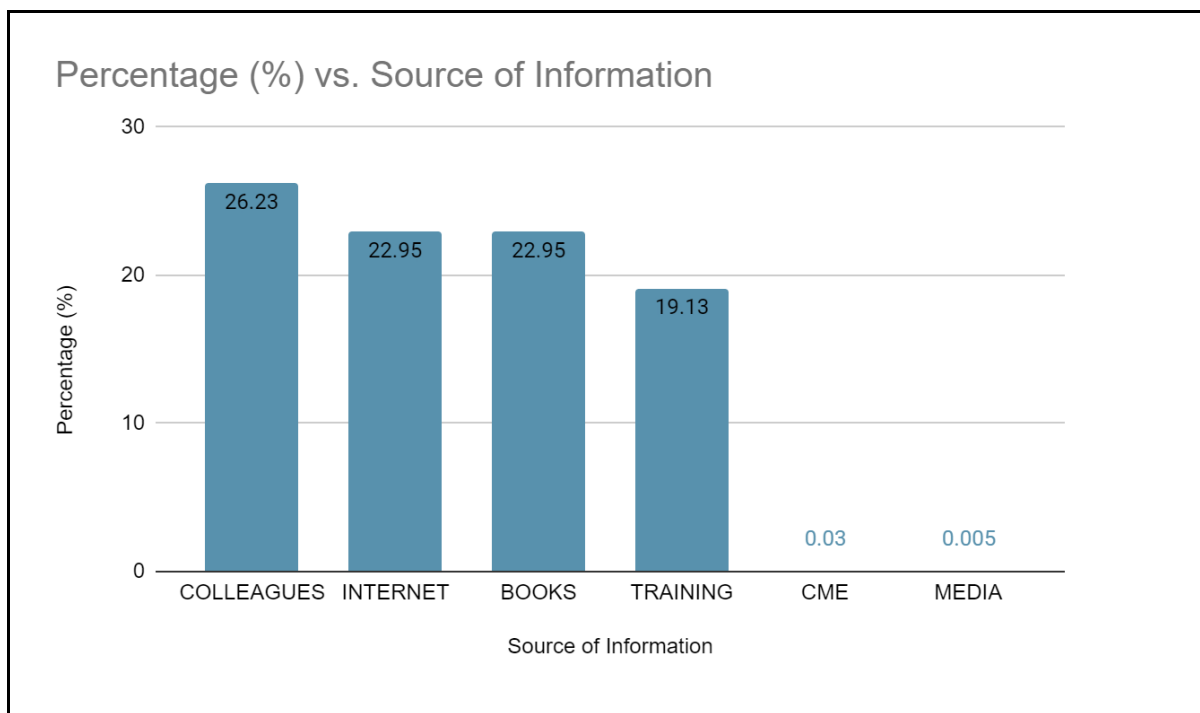
**Figure 06: How the subjects knew about the modalities**

**TABLE 02: Source of information about modalities received by subjects with back pain**

INFORMATION SOURCE		No	YES	Chi Square p Value
1	INTERNET	141	42	<0.01
2	BOOKS	141	42	
3	TRAINING	148	35	
4	COLLEAGUES	135	48	
5	CME	177	6	
6	MEDIA	182	1	

Key: CME- Continuing Medical Education

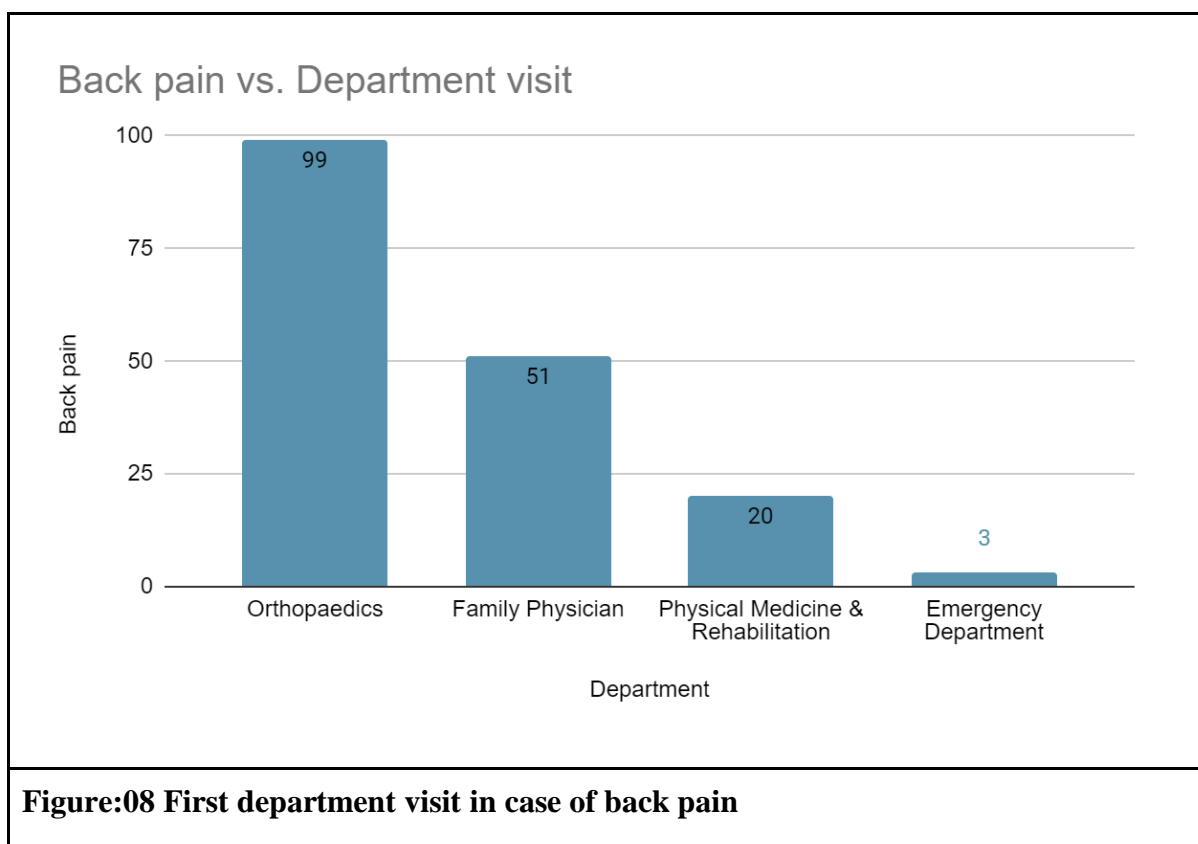




**Figure:07 Percentage distribution of source of Information.**

The study had given a significant finding ( $P < 0.01$ ) regarding the source of information got by the staff with back pain. The main sources of the modalities were Colleagues ( $n=48, 26.23\%$ ), internet ( $n=42, 22.95\%$ ) and books ( $n=42, 22.95\%$ ) followed by training from the department ( $n=35, 19.13\%$ ). The contribution of continuing medical education ( $n=6, 0.03\%$ ) and media ( $n=1, 0.005\%$ ) was quite limited.

Department	Back pain	Chi Square (p Value)
Emergency Department	3	15.005 (0.002)
Family Physician	51	
Orthopaedics	99	
Physical Medicine & Rehabilitation	20	



Most of the subjects who had back pain had first consulted an orthopedic surgeon (99,57.22 %), followed by a Family Physician (51,29.48%). There were only a few subjects visiting Physical medicine (20,11.56%) as well as emergency departments (3,0.02%) among the study population (Table:03, Figure:08).

### Discussion

A Validated questionnaire was given to all the nurses and doctors in a tertiary care hospital. Among them 387 people responded, which included 133 doctors and 254 nurses. Questions were asked regarding awareness and use of physical modalities in case of back pain. They were also surveyed regarding sources of awareness, satisfaction and whether they would refer any particular modality to others.

The percentage of participants who have heard about moist heat was the least (32.6, n=126). The word 'Moist Heat' may not be very popular among healthcare workers. The commonly used references for moist heat are hot pack, hot fomentation or even superficial heat. IFT is one of the most referred and prescribed modality in this hospital because of its easy application and patient compliance. This could

be the reason for it being the most aware modality (71.8%) in the study (Figure: 01). Therapeutically IFT gives better results than moist heat with short duration as the penetration of heat of both these modalities is significantly different. Unlike the current study, the awareness about spinal stabilisation exercises and moist heat was quite high in a study conducted by Senarath et al.<sup>19</sup>

Cryotherapy is commonly prescribed for myofascial spasm, acute or chronic injuries, after joint infiltrations and after therapies like myofascial release. In Lumbar facet manipulations, application of cryotherapy has significantly shown improvement than moist heat and is tolerated well. This could be the reason that it was availed the most in the study (Table: 01). Li et al have differentiated back pain into acute and subacute and have found out that cryotherapy has been one of the most effective (81.9%) and prescribed modality.<sup>20</sup> More information is required as to which modality can be best used in different types of back pain based on duration as in another study by Chou et al, superficial heat has good evidence of efficacy in alleviating back pain.<sup>15</sup> Lack of awareness could be the reason why

moist heat was the least availed modality. But even then 85.3% still seem to be a good number.

Incidentally, the number of subjects who availed the modalities were more than that of the people who were aware about them. This clearly explains the lack of awareness among the staff about a modality even if they have availed it at some point of time. Also the participants would have availed these modalities for reasons other than back pain.

Majority of subjects who availed the modality have got relief of pain. Though the satisfaction rate is high, the question remains whether the participants are adequately aware of these modalities or not. A detailed open ended cross sectional study could be a possibility to identify the physical barriers to the awareness of any modality.

Only 66% of the people have mentioned that they would avail any modality again in case of recurrence of back pain. Apart from proper awareness, other reasons may include unaffordable cost, accessibility, lack of time and also departmental implementation policies. The reason would also be resorting to other methods of pain relief like alternative medicine.

Despite a good number of subjects who got relief from any one of the modality, around 77% of them mentioned that they would recommend this to others.

The awareness could still be improved by proper and safe implementation practices, interdepartmental collaborations, educational handouts, seminars and webinars. Patient centric approach and better explanation and treatment effectiveness of the modality to the client could significantly improve clients attitude and reference of other clients towards the treatment.

Majority of the subjects came to know about the modalities through the internet, media, colleagues or books unlike the study conducted by Senarath *et. al*, where the internet (3.6%) and media (9.5%) have contributed least to the knowledge.<sup>19</sup> Training programs have offered less awareness to the staff regarding the modalities. Moreover, a majority of staff preferred to consult initially an Orthopaedic surgeon or a Family physician in case of back pain. Very limited people had met Physiatrist or Emergency Physician for a first consultation if they had a back pain. The awareness can improve effectively by regularly conducting training sessions

for health care staff and periodically conducting scientific programmes by the department of Physical Medicine and Rehabilitation.

## Conclusion

The study has shown that even though more people have availed a particular modality, less subjects are aware of them. This is purely a lack of training about the modalities among healthcare professionals. Only if they have learned about a particular modality, can they understand the expectations and also refer to others. Choosing which modality to use may also depend on the particular situation, the patient's goals and needs. Optimal referrals for pain management, choice and effective utilisation of treatment modalities for pain rehabilitation are also important to improve one's quality of life which in turn will ameliorate awareness among resource utilisers.

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