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A Brief Review of Physiotherapy Practice towards Low Back Pain

Yamini Sharma*

Assistant Professor, Department of Physiotherapy, Galgotias University, Greater Noida, Uttar Pradesh, India

Abstract – Physiotherapy is commonly used to treat low back pain and it seems eclectic from previous studies rather than always based on evidence. Most previous studies were carried out in western countries, and in India, no previous studies have attempted to explore low back pain physiotherapy. This study was intended to explore the self-reported physiotherapist management strategies in India, as it is not known if these are consistent with the current guidelines. This initial mapping of Indian low back pain physiotherapy indicated a number of 'good practices' areas in line with current guidelines. It also pointed out potential areas of concern with evidence-based practices, namely the very common use and potential for excessive treatment of passive electrotherapy methods. This report has consequences for Indian physiotherapy and education.

Key Words – India; Physiotherapy Management; Low Back Pain

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INTRODUCTION

Low back pain (LBP), with a 1-year rate of prevalence of between 50% and 76%, is extremely common for the general population in the West. The financial impact of back pain is significant in Western countries given the high rate and the effect on sick leave and healthcare costs. For many years, physiotherapy has been used in the treatment of back patients. This typically includes a variety of procedures, but usually consists of exercise, advice, mobilization of Maitland, the McKenzie procedure, abdominal exercises, pulsed shortwave diathermy, interferential therapy, ultrasound and many other least common interventions. These surveys show that interventions in physiotherapy are variable, eclectic and fail to fully comply with current international guidelines. The prevalence, cost consequences and management strategies for back pain in developed West countries are mostly the focus of recent epidemiological evidence. Recent evidence in developing countries, however, has begun to point to a significant health problem. Initial review showed lower rates of prevalence among low-income countries, in particular among rural populations, compared to western countries. Volinn (1997) also emphasized that less than 15 percent of the world population comprises the 22 high income countries, which focus on research. More recently, Tibetan reports indicate that prevalence rates in adults between 36 and 64 percent are not so different from western countries with a prevalence of 1 year. This suggests that back pain is probably an increasing health problem, and one which physiotherapists are likely to experience in non-Western countries. There are limited data from India, but there are some suggestions that there are similar problems in India as in other countries. A survey of 11,000 adults working in the workplace showed 23% back pain. Disability associated with back pain and depression was associated with anxiety. And although the first choice is conservative management, more expensive surgeries and studies are under consideration. In Western countries like the United States, the United Kingdom and Ireland, Canada, Dane mark and the Netherlands, most of the studies in physiotherapy practice were carried out. No studies in developing countries were known to the authors except one that had been conducted in Thailand on the management of back pain physiotherapy.

In India, which is the second most populous country in the world with at least 1,4 billion people, there is limited information on physiotherapy praxis (World Bank, 1993). There are no surprise differences between western and developing countries in the number of physical therapists, with an estimated median of 1124 per million population in Europe and 16 per million population in Asia. In India there are 15 000 treatment workers in a population of 1.4 billion, making up less than one therapist per million populations, according to a survey of Sancheti Institute, India (2003). India is relatively brief in physiotherapy history, with only ten colleges offering training in 1984. By 2009 this had reached 230 colleges recognized by the Indian Physiotherapists' Association, but there were more institutions offering courses of training. The Indian Physiotherapists Association recognizes 39 colleges and two of them

offer postgraduate courses in Maharashtra, where this survey has been conducted.

Therapeutic training is not standardized in the 27 States of India and can take between three and four and a half years. To address musculoskeletal issues strengthening, stretching and propriokeeping neuromuscular facilitation are also the main focus of electrical therapy modalities, such as hot and colder, ultrasound, interference diathermy, and transcutaneous electrical nervous stimulation (TENS). In general, the introduction to manual therapy in most courses is limited, but many therapists who are interested in taking short postgraduate manual therapy courses. These are run by Indian therapists who have worked in Australia or the United Kingdom or, more recently, various manual therapy organization has been increasing in officially organized courses. This study aimed to examine physiotherapists who treat back pain in India for their specific characteristics, the type of patient seen and the range of procedures reported.

METHOD

Design

The present study was a self-report questionnaire survey of all physiotherapists practicing in the state of Maharashtra in India and registered with the Indian Association of Physiotherapist (IAP). The study was approved by the Health and Wellbeing Ethics Committee of Sheffield Hallam University and by the IAP.

Subjects

The IAP is the governing body of physiotherapists in India. The administrative council of the IAP provided a list of contact details for physiotherapists and a letter authorizing registered members to participate in the study. Three hundred and fifty IAP members practicing in one state in India, the state of Maharashtra was the sample frame. Therapists registered with IAP but either practicing out of India or not involved in LBP management were excluded.

MATERIALS

In previous studies of back pain management physiotherapy a questionnaire format has been successful and for this study a similar structure was used. A convenience sample of 12 Indian physiotherapists was piloted before distribution. These physiotherapists had to comment on the format, the content, the wording, the guidance and the ease of completion of the questionnaire. In response to the feedback received, the questionnaire has been revised, and questions about the length of the session, advice given, home exercises and a complete recovery in order to reflect local concerns should be included. The survey was divided in three parts. The first section contained demographic and physiotherapy clinical details. The second section asked the physiotherapists who responded to them to provide information about the most common back patients. The third section requested the reactionary physiotherapists to provide details of the current methods of treatment for back patient management. The participants were also required, with one indicating frequent use and three indicating unusual use, to report the frequency of treatment methods on the Likert scale of 1 to 3.

Procedure

The present study was undertaken from the UK from May 2008 to August 2008 using electronic means of communication. A participant information sheet was e-mailed to all the participants to obtain their consent to participate in the survey. The self-administered questionnaire was e-mailed only after obtaining consent by e-mail from the participants. A reminder e-mail was sent twice and telephone calls were made after three weeks to all non-responders to maximize the response rate.

Data analysis

Descriptive statistics were used for demographic variables. Percentages, frequencies and means were calculated to summarize the responses. Frequencies are represented by valid percentages with missing values not included. The nature of some of the questions was such that responses were not exclusive, and therefore not all frequency data necessarily makes 100% (i.e. >100%). Data analysis was done using Microsoft Excel 2003. We have presented the data as percentage of respondents (n) or (%, n = X); and the only statistical test used was $\chi 2$ analysis for correlation with p-value set at 0.05.

RESULTS

Response rate

The participant information sheet was e-mailed to 350 members of the IAP in the state of Maharashtra. Thirty-eight therapists responded that they were not involved in the management of patients with back pain, and 45 therapists responded that they practiced physiotherapy out of India; thus 267 therapists met the inclusion criteria. Eighty-nine therapists (33%) consented to participate on the first mailing, an additional 58 consented on the second and third mailings, raising the response rate to 55%; and an additional 39 consented after telephone reminders. The final response rate was 186 therapists, which was 70% of those meeting the inclusion criteria.

Physiotherapist information

Out of 186 respondents, 41% (n = 76) were either private practitioners working in their own clinics or visiting patients in their own homes, and 37% (n = 69) worked in private hospitals or someone else's private clinic. The majority of therapists (44%, n = 82) had clinical experience between 5 and 10 years, and 35%

(n = 66) had completed a postgraduate degree, in the following specialisms: 56% (37) musculoskeletal, 35% (23) neurological, 9% (6) cardio-respiratory. In addition, 23% (43) had participated in manual therapy workshops. Further details regarding the therapists are provided in Table 1.

Table 1. Reported professional profiles of the respondents

	Count	Percentage
Postgraduate degree/training		
Musculoskeletal	37	20
Neurological	23	12
Cardio-respiratory	6	3
Manual therapy courses	42	23
Current low back pain caseload		
0–5 patients per day	147	79
5–10 patients per day	31	17
>10 patients per day	8	4
Years of practice		
0–5 years	70	38
5–10 years	81	43
More than 10 years	35	19
Clinical settings		
Private hospital or clinic	68	37
Government hospitals	41	22
Own private clinic	77	41

Patient information

Fifty-five per cent (n = 102) of therapists reported the most common age group of patients with back pain as 20–40 years, and 45% (n = 85) as 40 years and above. Patients were mostly referred, from either orthopedics (33%, n = 61) or from GPs (8%, n = 15), or were self-referred (34%, n = 63). Therapists were asked to report the perceived cause of back pain in their patients; more than one cause could be given. Muscle strain and posture were the most common stated cause (70%, n = 130), followed by disc degeneration and nerve entrapment (51%, n = 95) and trauma (27%, n = 50). Therapists were asked to report the stage at which patients with back pain most commonly visited for treatment. Duration of back pain of less than 12 weeks was considered acute and of three months or more as chronic. It was reported that patients more commonly came for treatment in the chronic (58%, n = 108) rather than the acute or sub-acute stage (42%, n = 78).

Treatment details

Advice on prevention of further episodes of back pain was given by 99% (n = 184) of therapists. Providing pain relief (90%, n = 167) and improvement in function and mobility (90%, n = 167) were also very important stated treatment goals. Development of strength and endurance, regaining full range of motion or resuming normal work and sports activities were reported to be additional important treatment goals by 37% (n = 69) of therapists. The majority of therapists (73%, n = 136) reported that on average, patients received between 8 and 12 physiotherapy treatment sessions, 10% (n = 19) between four and eight sessions, 7% (n = 13) less than four sessions and 2% (n = 4) more than 12 sessions. The majority of therapists (69%, n = 128) reported that the average duration of a treatment session was less than an hour, and 31% (n = 58) reported it to be more an hour. Forty-four per cent (n = 85) of therapists reported that each session comprised electrotherapy, exercise therapy and manual therapy while 53% (n = 98) of therapists reported that each treatment session included only exercise therapy and electrotherapy. Therapists fi rst treatment preferences were exercise therapy (62%, n = 115), electrotherapy (33%, n = 61) and manual therapy (5%, n = 9). However, all therapists reported that they gave some kind of ergonomic or postural advice. Modification of workstation posture and regular performance of home exercises (59%, n = 110) were the most common advice given. A list of reported ergonomic advice is given in Table 2.

The most preferred electrotherapeutic modalities were short wave diathermy (73%, n = 136) and interferential therapy (48%, n = 89). Detailed information on the most common, occasional and rarely used electrotherapeutic modalities are in Figure 1. Lumbar stabilization exercises were found to be the most commonly used exercise therapy (31%, n = 58) followed by static and dynamic exercises for the back (27%, n = 50) and McKenzie exercises (27%, n = 50). Details of all the exercises are given in Figure 2. Most exercises related to strengthening abdominal and/or lumbar extensor muscles. Manual therapy was reported to be used by 57% (n = 106) of therapists. Of these 67% (n = 71) used Maitland mobilization and 33% (n = 35) used massage, Mulligan or Cyriax techniques. Therapists who had a postgraduate qualification were significantly more likely to use manual therapy routinely compared with other therapists (64% vs. 16%; $\chi 2$; $p < 0.001$).

Table 2. Reported advice given by respondents

Advice	Count	Percentage
Avoid lifting heavy weights	79	42.5
Work station modifications	109	59
Lifestyle improvement	65	35
Avoid long standing	46	25
Proper bending	46	25
Footwear corrections	45	24
Rest	86	46
Counseling	29	16
Sitting habits	43	23
Regular exercise	109	59
Postural correction	89	48

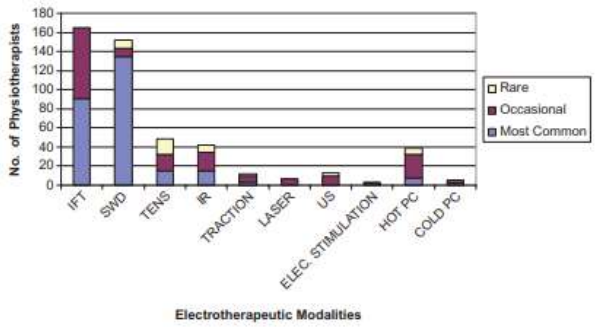

Figure 1 Reported use of electrotherapeutic modalities by number of respondents and frequency of use (N = 186)

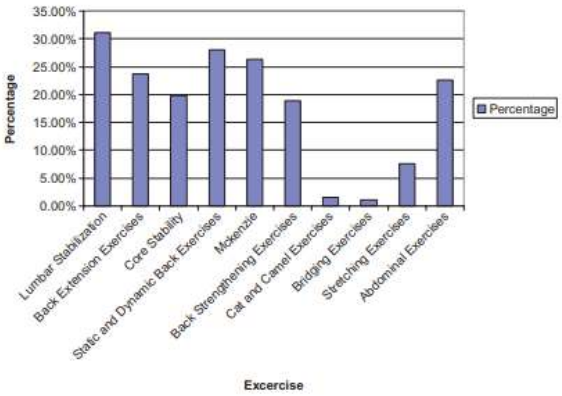

Figure 2 Types of exercises reportedly prescribed by % of respondents. Percentages do not add up to 100 as therapists could give more than one type of exercise

DISCUSSION

No descriptive physiotherapy management survey has been conducted in India until now. The main purpose of this study has been to study physiotherapist profiles and explore the most frequently used therapeutic methods for patients with LBP. This study was based entirely on the perceptions and opinions of therapists. The primary reason for conducting the survey was the lack of published LBP management information in developing countries, and particularly India. Management strategies were found to be very different, but the majority of therapists regarded advice on background care, exercise and electrotherapy and interferential therapy as the key ingredients in management of LBP and in many cases manual therapy, short-wave diathermy (SWD). Patients who were mainly diagnosed with chronic LBP received treatment in eight to 12 sessions from most therapists. Advice was mainly concerned with ergonomic questions instead of keeping usual business and working, which is the focus of the recent EU guidelines. The high number of LBP patients in the case of Indian therapists in Thailand and Bangkok were similar to previous studies. The results also correspond to studies carried out in developed countries such as the United Kingdom and Ireland and the USA. These findings suggest that LBP is a common problem treated in both developed and developing countries by physiotherapists. This need should obviously be reflected in the education of physiotherapists. The majority (20–40 years) of patients who were seeking LBP treatment were relatively young, most with chronic complaints. Acute to chronic LBP management strategies did not seem to differ, but our questionnaire didn't directly address this issue. Managing acute and chronic back pain should be different in accordance with the European Guidelines. The recommendations for acute back pain include information provision and reassurance of active maintenance, the use of simple medication for pain, manipulation of spinal cord for people who do not return to normal activities and long-term multidisciplinary treatment for sick people. Some operations, namely bed rest, special exercise, back school, traction, massages or TENS, have been specifically not suggested. The following are recommended for chronic LBP conservative treatments: cognitive behavioral therapy, exercises, cross-cutting, back schools and manipulation. Again, some interventions, including TENS and a number of hot/cool, tracting and interferential, are specifically not recommended.

Although the use of exercise was frequent in our survey and some manual treatment was used, the use of thermoelectric methods commonly used by the majority of therapeutics in most treatment sessions and one third perceived as the primary procedure clearly do not follow these guidelines. These guidelines were not used. With respect to treatment preferences, Indian therapists reported using counseling, electrotherapy and LBP management exercises mainly. Recent studies in developing countries have shown that LBP management approaches are the most common with regard to McKenzie, Maitland mobility and therapeutic exercises, in particular stabilisation exercises, with advice, though some use of electrotherapeutic modes is reported. For example, mobilizations, home exercise programs and advice were the most common use in the recent survey in the Republic of Ireland of public and private health sector movements. Hot and interferential in acute LBP were not often used (60 percent in private sector, but about 20 percent in public sector). Most of the interventions used were mobilization, exercise, or advice-based, in repeated audits in physiotherapeuty in the UK, whereas passive treatments, like traction, ultrasound or hot package featured in fewer than 10% of the notes. In Western countries there seem to be major differences in mobilization and increased use of Indian thermoelectric modalities. The biggest difference in this regard is that, despite the limited evidence, electrotherapy is much more commonly used in India. As Foster etal. (1999) have indicated, in the absence of compelling evidence of benefit the rationale behind such obvious extensive use of electrotherapeutic methods is uncertain. There may be relatively simple and easy to apply these passive modalities, the influence of therapist clinical

experience, emphasis on modalities of undergraduate education in India and the perceived benefits of the use by both the patient and the therapist of modern machines. There was an important relationship between postgraduate therapists and manual therapy use in this study. In Canada, the use of interventions with strong or moderate evidence has been found to be high (68%), but the majority of therapists have also used interventions that have little or no evidence. Users of interventions with high evidence of efficacy had recently graduated or taken more postgraduate classes.

CONCLUSION

In conclusion, the current survey has provided an overview of physical therapy management of LBP in India. The patients were mostly young with chronic LBP, and treated over 8–12 sessions. They were almost comprehensively given advice, exercises and electrotherapy modalities, and in addition about half were given manual therapy. Exercise description varied considerably, but most exercises were about strengthening trunk muscles. Short wave diathermy and interferential therapy were the most commonly used passive modalities. This survey has highlighted similarities in practice in developing countries and some differences in practice compared to developed countries.

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Corresponding Author

Yamini Sharma*

Assistant Professor, Department of Physiotherapy, Galgotias University, Greater Noida, Uttar Pradesh, India