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To determine importance of the self report of pain with disability questionnaire and clinical findings in evaluation of patients with low back pain

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Abstract
Background and objectives: Low back pain has been a major public health burden for many years, generating substantial work disability and healthcare costs. A widely accepted definition of low back pain is pain, stiffness or muscle tension in the lower back, below the costal margin and above the inferior gluteal folds with or without leg pain. Clinical symptomatology of these patients varies widely with imaging findings.
Materials and Methods: Study Design-Observational study.
The study was conducted in Orthopaedic department of P.B.M. Hospital attached to S.P. Medical College, Bikaner. In our study we included 25 consecutive patients with duration of low back pain for 1 month who were not responding to conservative OPD treatment, and also had no reason to suspect any underlying organic disease. Each patient was analyzed on the basis of history, disability questionnaire and physical examination.
Exclusion criteria
1. Any organic musculoskeletal disorder
2. Any neurological disorder
3. Any manifest spinal deformity
Inclusion Criteria: All adult patients of either sex with non specific low back pain of one month duration.
Results: In this study, 60% of patients belong to 3rd and 4th decade. Majority of patients were house wives (36%) followed by labourers (28%). Average disability score was- 511/25 =20.44 and average% disability score was =52.68%. In our study 44% patients had moderate to severe disability, while only 4% patients had extreme degree of disability. 24% of patients had lumbar scoliosis, in which majority had concavity towards right side. 56% patients had reduced lumbar lordosis. Majority of patients 72% showed mild to moderate grade of tenderness. Majority of patients 56% had moderate restriction of flexion. 44% patients had moderate to severe degree of restriction of extension. 52% patients had mild degree of restriction restrictions of bending ROM. 24% of patients showed significantly positive SLR test. Only 8% of patients had positive Lasegue's test.
Conclusion: Patients problems and complaints asked in a regular history taking tend to be more descriptive than to the point. Instead the questionnaires are more specific and time saving. A back pain questionnaire should be designed and framed according to the life style of the patient. Clinical examination is then an important tool for assessment of patients especially to support and exclude destructive and compressive lesions and also neurological diseases. Patients having significant symptoms and definite findings but normal looking X rays, need further imaging studies in the form of MRI and CT scan.

Keywords: Determine importance, self report, evaluation, back pain

Introduction
Low back pain has been a major public health burden for many years, generating substantial work disability and healthcare costs. A widely accepted definition of low back pain is pain, stiffness or muscle tension in the lower back, below the costal margin and above the inferior gluteal folds with or without leg pain. [Koes *et al*. 2006] [1]. that can originate from many spinal structures including ligaments, facet joints, the vertebral periosteum, the paravertebral musculature and facia, blood vessels, the annulus fibrosus and spinal nerve root.

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The pain can be severe enough to cause debilitation. The incidence of LBP is such that over 80% of people will have complain of LBP over a life time [2, 3, 4]. Non-specific LBP is the most common cause of LBP and is generally due to a sprain or strain in the muscle of the back and soft tissues.

The investigative management for LBP range from radiography, C T, MRI, myelography, radionuclide imaging. Other more invasive methods include epidural venography, vertebroplasty, discography, laser disk decompression, percutaneous nerve root blocking and percutaneous injection of the facet joint are used in some centers and are usually performed by radiologists [3]. Plain radiographs of the lumbar spine are routinely ordered in patients with acute mechanical and neurogenic pain of the lower back. The diagnosis and treatment of LBP are complicated by the difficulty in precisely identifying the cause and by the non-specificity of the pain in many cases [5]. Leading to a wide variation in patient care, a fact that suggests there is professional uncertainty about the optimal approach [6].

Modern neuroimaging techniques such as CT and MRI have improved the diagnosis and detection of the cause of LBP. These are expensive imaging modalities that are not usually available in several communities. As such physician tend to use radiography at least in the initial assessment of LBP. It is therefore crucial to evaluate patients with LBP and assess for possible relationship between the findings and patients' characteristics.

Aim and Objectives
1. To evaluate the utility of a questionnaire in assessment of low back pain and disability.
2. To correlate the disability score and clinical features in patients with low back pain.

Material and Methods
Study Design-Observational study
The study was conducted in Orthopaedic department of P.B.M. Hospital attached to S.P. Medical College, Bikaner. In our study we included 25 consecutive patients with duration of low back pain for 1 month who were not responding to conservative OPD treatment, and also had no reason to suspect any underlying organic disease. Each patient was analyzed on the basis of history and physical examination and a base line X-ray was taken.

Exclusion criteria
1. Any organic musculoskeletal disorder
2. Any neurological disorder
3. Any manifest spinal deformity

Inclusion Criteria
All adult patients of either sex with non specific low back pain of one month duration.
Non specific would be labelled on excluding organic disease.

A. Low Back Pain and Disability Questionnaire
Many questionnaires are available *viz* Roland Morris Disability Questionnaire [7], Oswestry Low Back Pain Disability Questionnaire [8], Mc Gill Pain Questionnaire [9], Acute Low Back Pain Screening Questionnaire By Linton And Hallden [10] for evaluation of severity of low back pain and associated disability. Questions chiefly relate to patients symptoms and various daily activities. Pain is the chief symptom assessed, and activities of daily living emphasized [11, 12]. Among available all these questionnaires the Oswestry

low back pain and disability questionnaire is used commonly. In the Indian scenario, where most of the people have different physical activities and job categories, the above questionnaires are not completely suitable to assess the level of pain and disability. Based upon various factors, a questionnaire was drafted to include patient's symptoms and activities. Grading was done from 0 to 4, with 0 meaning no problem and 4 meaning extreme disability.

12 questions were framed, having a possible maximum score of 38. Current international questionnaires are meant to be read and self answered by patients. But in our situation, most people were illiterate, so the questions were read out to the patients in their language and answers marked on the sheet by the investigators.

The low back pain disability questionnaire was framed in the following pattern-

When does pain start
1. During running/ brisk walking
2. During normal walking
3. During standing / sitting
4. During lying down

How long have you been experiencing pain
1. O-1 week
2. 1-2 weeks
3. 3-4 weeks
4. 4-5 weeks

Lifting
1. I can lift any weight without extra pain
2. I can lift moderate weight but heavy weight lifting gives me extra pain
3. Pain prevents me lifting weight but I can manage light to medium weight if they are conveniently positioned
4. I cannot lift or carry anything

Walking
1. I can walk unlimited distance
2. I can walk limited outdoor but unlimited indoor
3. I can walk limited indoor
4. I am not able to walk at all

Sitting
1. I can sit with or without support as long as I like
2. I can sit without support but pain prevents me sitting as long as I like
3. I cannot sit without support but I can sit for limited duration
4. I cannot sit at all even with support

Standing
1. I can stand as long as I want without extra pain
2. I can stand but longer duration gives me some discomfort /pain
3. I can stand but I need rest intermittently
4. Pain prevents me standing at al

Sleeping
1. My sleep is never disturbed by pain
2. My sleep is occasionally disturbed by pain [once a month]
3. My sleep regularly disturbed by pain [once a week]
4. Pain prevents me from sleeping daily

Squatting
1. I can squat for unlimited time
2. Pain prevents me to squat but still I can squat
3. Need to relax intermittently due to pain
4. I am not able to squat at all

Bending
1. I can bend normally
2. I can bend and touch both the knee and the floor with some discomfort
3. I can bend and touch the knee but pain restricts me to touch the floor
4. I cannot bend at al

Getting out of a bed or chair
1. I can get out of bed/chair without any pain or help
2. I can get out of bed with some pain but without any help
3. I need some help/support to get out of bed/ chair
4. Pain is so severe that I am not able to get out of bed/ chair

Climbing
1. I can climb stairs without any pain /support
2. I can climb stairs with some pain but without any support
3. I need some help / support to climb the stairs
4. Pain is so severe that I cannot climb the stairs

Overall level of activity
1. I can carry out my daily activities without any pain or support
2. I can carry out my daily activities with some pain but does not need any support
3. I need some help/ support to carry out my daily activities.

4. Pain is so severe that I cannot carry out my daily activities.

Scores from questionnaire were grouped into 4.
Patients were graded as follows –
- 0- 9 None or Mild
- 1O-19 Moderate
- 2O-29 Severe
- 30-38 Extreme

The final score of the patient has been designated as 'Q' Score.

Clinical Examination
Clinical examination was conducted in the following pattern-

Inspection
Standing
1. Posture: Normal
               List
               Stoop
               Pelvic tilt

2. Range of motion: To measure the range of motion of the lumbar spine, we observed the distance travelled by tips of finger over the lower limb. Trunk movement is a compound movement, involving intersegmental motion and hip motion; measurement were taken by stabilizing the pelvis during movement. The participant were required to stand erect with their knees extended and their feet 15 cm apart. Four movements were performed –flexion, extension and side bending. As clinical grading of ROM was not found in available literature, the following grading system was developed for measurement:

Table 1: Show the movement of flexion extension and right and Left side bending ROM

Score	Movement			
	Flexion ROM	Extension ROM	Right side bending ROM	Left side bending ROM
0	Finger tip up to knee	0-10 degree	Mid thigh	Mid thigh
1	Finger tip up to leg	10-20 degree	Knee	Knee
2	Finger tip up to floor	20-30 degree	Below knee	Below knee

3. Any abnormal curvature
- Kyphosis
- Scoliosis -   Normal
                      Concavity toward right side
                      Concavity toward left side
- Lumbar lordosis -   Normal
                      Reduced
                      Exaggerated
                      Reversed

Supine
1. Straight leg raise ROM: The straight leg raise test is used to evaluate for lumbar nerve root impingement or irritation. This is a passive test in which each leg is examined individually. With the patient in the supine position, the knee is extended and the hip is flexed until a complaint of pain or tightness is reached. The leg is then carefully returned to the table and the contralateral leg is tested in a similar fashion. Grading of the test was done in the following manner –
   Grade III- angle <30 degree, grade II- angle 30-60 degree, grade I-angle >60 degree, Zero (Negative)

2. Beside the passive SLR test, other tests like bilateral SLR and Lasegue's test were also conducted in a standard manner and results were interpreted as positive and negative.

Palpation
Palpation for midline spinal tenderness and paraspinal tenderness was done according to a standard method and grading was done in the following manner-

Spinal tenderness: Tenderness was classified into four grades according to the reaction (facial and verbal) of the patient during examination.

Grade I: Mild - The patient says that the part is painful on pressure
Grade II: Moderate -The patient winces.
Grade III: Severe -The patient winces and withdraws the affected part.
Grade IV: Extreme - The patient will not allow the part to be touched.

Observations

Table 2: Showing incidence of age

Age group	No. of patients	%
11-20	1	4
21-30	4	16
31-40	8	32
41-50	7	28
51-60	4	16
61-70	1	4
Total	25	

60% of patients belong to 3rd and 4th decade.
Average age -39.8 year
Minimum age 18 yr
Maximum age -65 year

Table 3: Showing incidence of sex distribution

Sex	No. of patients	%
Male	12	48
Female	13	52

Male and female were almost equals
Male: Female = 1:1.08

Table 4: Showing distribution of various occupation

Occupation	No. of patients	%
Labourer	7	28
Housewife	9	36
Nonworking	2	8
Sedentary worker	3	12
Farmer	4	16
Total	25	

Majority of patients were house wives (36%) followed by labourers (28%).

Table 5: Showing distribution of Q score in study group

Grade	Score Range	No. of patients	%
None-Mild	0-9	0	0
Moderate	10-19	13	52
Severe	20-29	11	44
Extreme	>30	1	4

44% patients had moderate to severe disability, while only 4% patients had extreme degree of disability

Table 6: Showing incidence of lumbar curvature – scoliosis

Scoliosis	No. of patients	%
Absent	19	76
Present	6	24
	25	

24% of patients had lumbar scoliosis, in which majority (5) had concavity towards right side

Table 7: Showing incidence of lumbar curvature –lordosis

Lordosis	No. of patients	%
Normal	11	44
Reduced	14	56
Exaggerated	0	0

Majority of patients 56% had reduced lumbar lordosis.

Table 8: Table showing incidence of Spinal Tenderness

Grade of tenderness	No. of patients	%
0	7	28
1	11	44
2	7	28
3	0	0

Majority of patients 72% showed mild to moderate grade of tenderness

Table 9: Showing incidence of Flexion ROM

Grade of Flexion ROM	No. of Patients	%
0	5	20
1	6	24
2	14	56

Majority of patients 56% had moderate restriction of flexion

Table 10: Showing incidence of Extension ROM

Grade of Extension ROM	No of Patients	%
0	5	20
1	9	36
2	11	44

44% patients had moderate to severe degree of restriction of extension

Table 11: Showing incidence of side Bending ROM

Grade of Bending ROM	No. of patients	%
0	7	28
1	13	52
2	5	20

Majority of patients (52%) had mild degree of restriction restrictions of bending ROM

Table 12: Showing incidence of passive SLR Test

Grade of SLR test	No. of patients	%
0	8	32
1	2	8
2	4	16
3	11	44

24% of patients showed significantly positive SLR test

Table 13: Showing incidence of Lasegue's test

Lasegue's test	No. of patients	%
Positive	2	8%
Negative	23	92%

Only 8% of patients had positive Lasegue's test

Discussion

Low back pain is one of the leading causes of health problems. It is pain in the lower back area related to the lumbar spine, the discs between the vertebrae, the ligaments around the spine and discs, the spinal cord and nerves and muscles of the lower back. There are 2 common groups of low back pain – specific back pain and non specific or mechanical low back pain [13-17].

Non specific or mechanical low back pain is pain originating from the spinal joints, vertebrae, soft tissues surrounding the spinal column and usually no pathology can be identified, and there is no structural abnormality of the back [17]. This is the most common cause of low back pain. Non specific back pain is the most common complaint, and it is the leading cause to visit the doctor in India. The onset of non specific back pain is often sudden. Most people experience pain primarily in the lower back (lumbo sacral region) [13].

Many people also experience 'spasm'. Spasm of the paraspinal muscles occurs with restriction of spinal movements. The symptoms are ususlly more noticeable on activity eg. When bending or lifting heavy weight. Such back pain impairs the back and spine and restricts activity along with fatigue and para spinal muscle spasm, causing severe pain[18]. Low back pain is a complex symptom with many diverse causes for its presentation; there is no other part in the body that contains so many potentially pain causing structures in such a small area. This makes forming a precise diagnosis as to the issue causing the low back pain very challenging.

The formation of a medical diagnosis is imperative to enable the clinician to arrive at a suitable treatment for the pain [19]. The more important issue in the diagnosis of low back pain is differentiating the benign mechanical causes of low back pain from the serious and pathological cause [20, 21].

Most people will experience back pain at some point in their lifetime. 85-90% of all episodes of back pain are non specific or mechanical in nature. The yearly prevalence of low back pain varies; the life time prevalence can range up to 84% and the monthly prevalence has been placed between 35% and 37% [22]. Low back pain has a high disability associated with it, which has led to an escalation in the medical based costs [13, 14, 15, 22]. It becomes imperative that correct diagnosis of low back pain be made as early as possible, with the treatment applied, to prevent initial acute episodes from becoming a chronic condition. The differences in reported low back pain prevalence and associated factors are probably related to the design of the questionnaire. Self reporting techniques are considered to be important in the investigation of low back pain and well known methods are self assessment questionnaires and interviews by mail, telephone or face to face [23].

In India, the occurrence of low back pain is also alarming; nearly 60% of the people in India have significant low back pain at some time or other in their lives (Suryapani, 1996) [24]. The problem of low back pain not only has a greater incidence but also the handicap in daily living is more pronounced because of life style requirements. In the Indian household women have significant floor working for which they have to squat and sit cross legged. The male population is mostly doing manual work and their jobs also require a lot of squatting and heavy weight lifting. The higher incidence of low back pain in the urban population is because of overall poor physical activity with excessive episodic strains. Approximately 85-90% of low back pain are non pathological in nature [25]. It is also called mechanical low back pain and causes significant level of work absentism. This needs to be analysed properly so that man hour losses are minimized and frequency of sick leave reduced [26].

There are so many studies done till date on back pain where the patient is evaluated by clinical examination and with a back pain questionnaire whereby the disability status is assessed [27]. In our day to day OPD also the patients who complain of low back pain are assessed with a brief relevant history and a clinical examination. Then X rays of the lumbo sacral spine is done to assess the radiological picture.

In every examination procedure, the history is a significant part of the evaluation but in a busy OPD, since we cannot take a detailed history, so a questionnaire becomes an important tool to cut short the non relevant history and also try not to miss the important features. In a questionnaire, there is a specific set of questions on the basis of which the patients level of pain and disability is assessed. In the Indian scenario, the education profile of patients is different from developed countries and the majorities are uneducated, the input being from rural and semi urban areas, so questionnaires designed to be read by patients do not work. Also squatting and bending activities are an integral part of daily working and lifestyle (toilet habits). So the available questionnaires are not completely suitable to evaluate back pain and related disability in our patients. Based upon these various factors, a questionnaire was drafted to include patient's symptoms and activities as per Indian lifestyle/work needs. International questionnaire are meant to be read and self answered by the patients but in our situation, since most people were illiterate,

so the questions although drafted in English, were read out to the patients in their language and answers marked on the sheet by the investigators.

In our day to day observation in treating low back pain we found that patients with higher grades of symptoms may have ubiquitous findings, and X ray changes may not appear correlating, so the concept for this study was undertaken. The results of which are now being discussed.

In our study, the majority of patients were in the to 3rd and 4th decade i.e. 32% in the 3rd and 28% in the 4th decade. The average age was 39.8 years, minimum age was 18 years and maximum age was 65 years. Similar findings were seen in the study done by Jurie et al. [28] (39.2 yr), Walden et al. [29] (36.5 yr). Toshihiko Tagawachi [30] et al. conducted a similar study and found that a high incidence of low back pain in young and middle age people lies in the fact that these people must maintain a high degree of activity of daily life at the time when the aging related change in the lumbar spine and tissue surrounding the lumbar spine start to occur, this creates a gap between social needs and a physical capabilities. Also people in this age group are highly active in daily life and are exposed to various stress.

Regarding sex distribution we found that there were equal numbers of male and female patients affected with back pain and the ratio of male and female patients was 1:1.08. Similar finding were seen in study done by Walden et al. [29], M. Abdus Shakoor [31] (1:1.43) except Altinel L et al. [32] who found the affected female patients population almost double than male. In our scenario female patients are involved in more bending and squatting household activities and male patients are involved in manual labour and have similar frequency of back pain.

Regarding distribution of occupation, we found that the majority of patients were house wives (36%) followed by labourers (28%) in our study. Similar findings were seen in the study conducted by Abdul Shakoor et al. [31] (2007), Abdul Bari et al. [33], Altinel L. et al. [32] (2008), Sadigia [34] (2008) and V. Bihari et al. [35] (2011). Cotton et al. [36] and Kar et al[37] also reported that low back pain problems were more common in subjects who performed heavy physical work and, particularly, in those jobs that involve kneeling and squatting.

Regarding pain and disability score, we found that the average disability score was 20 and average disability index was 52.64%. In a study done by Horwath G et al. [38] the Oswestry disability index was 35.1% and radiological disc degeneration was 57.5%, Marine de Goes Salvetti et al. [39] had ODI mean disability score 33.1% and 80.7% participants revealed scores compatible with moderate to severe disability, Julie M Fritz et al. [28] (42.9%), Omidi Kashani F et al. [40] (56.7%), Dewing et al. [41] (53.6%), Carragee et al. [42] (47.2%), R K Ghatak et al. [43] (49.87%). The high frequency of moderate to severe disability found can be explained by the fact that the sample exclusively comprised people with CLBP, a condition with a highly disabling potential. In addition, this sample consisted of patients attending hospital as opposed to the population prevalence study that included active workers with different forms of low back pain. The mean ODI score observed indicates severe disability, similar to findings in our study.

Conclusion
1. Patients problems and complaints asked in a regular history taking tend to be more descriptive than to the point. Instead the questionnaires are more specific and time saving. A back pain questionnaire should be

designed and framed according to the life style of the patient i.e. if the patient cannot read or understand the questionnaire than it should be framed in the local language and should be read by investigator. Also activities not done by the patient should be excluded. This is a valid method for assessement of disability.

2. Clinical examination is also an important tool for assessment of patients especially to support and exclude destructive and compressive lesions and also neurological diseases. For example in case of back pain when there may be ubiquitous symptoms on questionnaire, then clinical examination is helpful in revealing spasm/restriction of mobility/neuro deficit indicative of an underlying pathological condition.

3. X rays are an essential part of the examination in case of back pain since they can be easily done anywhere, and are cost effective for screening purposes. Patients with moderate to severe disability on questionnaire also have proportionate changes in X rays. X rays help in ruling out/detecting destructive lesions. Patients having significant symptoms and definite findings but normal looking X rays, need further imaging studies in the form of MRI and CT scan.

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