

**PSYCHOLOGICAL ASPECTS**

**OF**

**CHRONIC LOW BACK PAIN**



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**M.Ch.(Orthopaedic Surgery)**

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# CHAPTER I

## INTRODUCTION

Low back pain is an enormous medical problem, especially when chronic.

“Two out of every three people will suffer from back pain at some point in their lives ”

In Western world, it has been reported that on any given day, more than 7 million Americas received some kind of treatment for their back problems.

The magnitude of problem is no less in (Asia and UAE) in particular. The disability demands and the compensation litigations are on increase, even in this part of the world.

Unfortunately, the treatment often fails. Even surgery provides no guarantee of pain relief. In fact, the number of back patients who are helped by surgery may be as low as 10 percent at the end of five years.

In clinical practise, it is more important to know which person has the disease rather than which disease the patient has.

This implies that individual psychological characteristics play a very important role in determining the outcome of clinical interventions, conservative or surgical.

Physicians and surgeons alike cannot be blind to the personal psychological characteristics of the patient in diagnosing patient's ailment, in planning and executing the therapeutic programme.

Pain is more than a just physiological phenomenon. It is also a psychological phenomenon, which seems to acquire a special meaning and a specialized purpose during the course of one's physical and psychic development.

For example, it may become an important means of dealing with guilt or one may ' utilize ' pain to " avoid or ward off even more unpleasant feeling states", or it may become an " attention seeking device " typically in a frustrated housewife. For some, pain may represent a means for stimulating affection from others. In this sense, pain may become a pleasure.

This awareness of psychological background of low back pain, long recognized in the west, has been little recognized in clinical practice in Asia.

Because of the complex nature of chronic back pain cases and the frequent failure of traditional methods in alleviating chronic pain, psychological testing has become a more and more popular adjunct to diagnosis, in west.

Striking elevations of low back pain patients on hysteria, hypochondrias and depression scales using Minnesota Multiphasic Personality inventory (MMPI), has been reported.

The empirical evidence in support of the role of personality factors in orthopaedics has been used to classify low back pain into organic, mixed and functional categories, to classify patients as litigation and non-litigation, to predict the outcome of surgeries on back.

In orthopaedic practice in Asia, surgeons no doubt report the role of psychological factors observed by them in patients of low back pain, but his vague awareness of significance of personality factors in orthopaedic complaints, needs a more systematic and convincing evidence.

This consideration provided the motivation for undertaking this study of " psychological aspects of chronic low back pain" – somewhat out of run in orthopaedic studies usually undertaken in this part of the world.

**THE AIMS AND OBJECTIVES IN UNDERTAKING THIS STUDY WERE AS FOLLOWS:**

1. To study the psychological aspects in patients with chronic low back pain without any obvious organic pathology.
2. To compare the psychological profiles of patients with chronic low back pain in functional and organic groups.
3. To study the psychological profiles of patients with chronic low back pain with reference to sex.
4. To study the clinical profile of patients with chronic low back pain and their variation in organic and functional group

## **MATERIALS AND METHODS**

The study was carried out on a sample of 100 patients of chronic low back pain who approached the orthopaedic out patients department in the period of Jan 2010 to Jan 2012.

### **Criteria for patient selection for this study were:-**

- 1 Age varying between 20 to 60 years.
- 2 History of chronic low back pain ie. Pain for more than six months.
- 3 No response to adequate and supervised conservative treatment.

The sample was divided into two group of 50 patients each:

1. Chronic low back pain with obvious organic lesion proven radiologically.
2. Chronic low back pain in which no organic cause was found either clinically or radiologically, which was termed as 'functional'.

### **Tools**

The tools used in the study may be described under two headings namely –

- a) Those used for medical evaluation.
- b) Those used for psychological evaluation.

## **A) MEDICAL EVALUATION**

### **Comprised of –**

1. Complete clinical evaluation.
2. Neurological evaluation.
3. Systemic examination especially gynaecological examination in all female patients.
4. Routine investigation and
5. Radiological examination which included
  - a) Plain x-ray of lumbosacral spine with necessary views.
  - b) MRI LS spine.

Refer Annexure I

## B) PSYCHOLOGICAL EVALUATION

The original authors of the MMPI (Minnesota Multiphasic Personality Inventory ) were Starke R Hataway PhD, and J.C.McKinley MD. The MMPI is copyrighted by the University of Minnesota.

The MMPI has been considered the gold standard in personality testing ever since its inception as an adult measure of psychopathology and personality structure in 1939. Many additions and changes to the measure have been made over time, including the addition of dozens of supplemental, validity, and other content scales to improve interpretability of the original Clinical scales, changes in the number of items in the measure, and other adjustments. The most historically significant developmental changes include.

In 1989, the MMPI became the MMPI-2 as a result of a major restandardization project.

In 2003, the restructured clinical scales were added to the published MMPI-2.

In 2008, the MMPI -2-RF (restructured form) was published after nearly two decades of extensive efforts to psychometrically and theoretically fine tune the measure.

The original MMPI test was studied and analysed. It consisted of a 550 item questionnaire, that are answered in 'true', cannot say or false categories. The results of MMPI are analysed in ten clinical scales, namely.

Scale 1	Hypochondriasis (Hs)
Scale 2	Depression (D)
Scale 3	Hysteria (Hy)
Scale 4	Psychopathic Deviate (Pd)
Scale 5	Masculinity – Femininity (Mf)
Scale 6	Paranoia (Pa)
Scale 7	Psychasthenia (Pt)
Scale 8	Schizophrenia (Sc)
Scale 9	Hypomania (Ma)
Scale 10	Social Introversion (Si)

A special test was derived from the original MMPI with specific relevance to chronic low back pain. It comprised of a sixty one item questionnaire of the ten dimensions on which assessment of personality is possible with MMPI, hypochondriasis (Hs), depression (d) and hysteria (Hy) were considered particularly relevant and hence were isolated.



In the sixty one item scale to be answered in ' Yes-can't say no' twenty one statements were for hysteria, twenty for depression and twenty for hypochondrias.

The scoring system remained same as is used in the original MMPI.

The MMPI items have been time-tested for their validity over and over, and as such no validation study was undertaken.

### **CLINICAL SCALES IN THE PRESENT PERSONALITY ASSESSMENT TEST.**

#### **Scale 1: Hypochondrias (Hs)**

This scale consisted of 20 items concerned with complaints about vague and non specifically bodily function.

Hypochondrias means an abnormal concern over bodily health.

High scores on this scale are usually seen in pessimistic, cynical and defeatist personalities.

#### **Scale 2; Depression (D)**

This scale consisted of twenty items, measuring the degree of depth of symptomatic depression, poor morale and lack of hope in the future.

#### **Scale: 3 : Hysteria (Hy)**

This scale comprised of twenty items, related to two general types –

- a) Specific somatic complaints and
- b) Denial of any emotional or inter-personal difficulty.

#### **Procedure**

After thorough clinical and radiological examination of the patient, the idea of administration of the MMPI test was given to the patient.

The test was administered in a congenial atmosphere, choosing a quiet room and in a language understood by the patient.

Patients were instructed to answer the questions honestly and the way they feel at the time of examination, in three options – 'yes' 'no' or 'can't say'. Full secrecy was guaranteed to the patients. The answers were analysed according to the original MMPI.

Refer Annexure II

# Chapter III

## OBSERVATIONS AND DISCUSSION

A total of a hundred patients with chronic low back pain coming to the Orthopaedic Out Patient Department in the period between Jan 2010 to Jan 2012 were studied and evaluated. The observations can be grouped under two headings:

- A. Clinical
- B. Psychological

### CLINICAL OBSERVATIONS

#### 1. Categories

Total of a hundred patients were studied, out of which 50 patients had an obvious organic lesion as a cause of chronic low back pain, proven radiologically, and remaining 50 patients had no clinical or radiological finding to be blamed for the cause of chronic low back pain. These were called 'functional'

#### Total 100 chr. LBA patients.

Organic	Functional
50	50

#### 2. Sex Distribution

Out of 100 patient sample, 44 were males and 56 were female patients. However, out of these in functional group, there were 36 female patients as against only 14 male patients; in organic group, there were 20 females and 30 male patients

#### Total 100 Chr. LBA

Functional		Organic	
50		50	
Male	Female	Male	Female
14	36	30	20

This indicates a higher functional year index in females with low back pain which was confirmed by applying the statistical test of significance. Chi Square value = 10.389 meaning a true difference between males and females as far as functional pain is concerned.

### Sex Relation

	Functional	Organic	Total
Male	14	30	14
Female	36	20	56
Total	50	50	N=100

These findings in the present study, are consistent with the opinions expressed by Veit H., Hann Lb. et al who studied psychological aspects of back pain in females and gave its possible explanations.

### 3. AGE DISTRIBUTION

Age	Functional	Organic	Total
20 to 40 yr.	33	28	61
40 to 60 yr.	17	22	39

Patients in between age group of 20 to 60 years were included in the present study sample. Significant correlation was found between the age and chronic low back pain, proven statistically.

It means that there is a definite correlation between age and cause of chronic low back pain. Most of the patients with functional back pain were in 20 to 40 year age group.

#### 4) OCCUPATION

The sample size included all types of occupations ie. from a secretary worker to labourers.

For the purpose of simplicity of analysis, the occupations were classified into three classes:

1. Sedentary worker – included clerks, office workers and executives.
2. Moderate exerters which included the housewives, students.
3. Severe exerters – which included labourers.

#### Work Pattern Relation

	Functional		Organic	
	M	F	M	F
Sedenary	8	9	11	5
Moderate	4	24	5	13
Severe	2	3	14	2

Chi Square = 7.95, Significant at 0.02 level.

The analysis of work pattern relation with reference to sex shows a definite high number of moderate exorter females showing functional low back pain. 22 out of 36 females grouped in functional low back pain in the present study were housewives.

After applying the statistical test of significance, (Chi Square value of 7.95, significant at 0.02 level) a significant amongst the work patterns as far as functional pain is concerned, was found in the present study sample.

The results of the work pattern studies ie. a significantly high number of housewives in the 'Functional' back pain group, may be explained by a statement made by Poussaint A F. et which states, " There are patients who frequently 'use' back pain, eg. an overwhelmed housewife who needs a rest from tension producing responsibilities."

## 5 SYMPTOM DURATION

Duration	Functional	Organic
In months		
6-12	35	34
12-18	4	6
18-24	3	6
1-24	8	4

The sample size comprised of chronic low back pain patients ie. low back pain of more than 6 months duration.

The maximum duration in our study sample was 4 years.

## 6 PRESENCE OF RADIATING PAIN IN LOWER LIMBS

	Functional	Organic
Present in		
Both LL	8	23
Absent	29	3
Only R/L	7	22
Occasional	6	7

In the present study, 29 out of 50 patients of functional low back pain had no radiation of pain at all, while only 3 out of 50 patients of organic low back pain did not complaints of radiation.

No previous study was found related to the above aspect in literature.

## 7 PRESENCE OF PARAESTHESIAS IN LOWER LIMBS

Paraesthesias	Functional	Organic
Present	22	47
Absent	28	3

In the present study, only 22 out of 50 patients in functional group complained of paraesthesias as against 47 out of 50 patients in organic group.

No such similar study previously carried out was found after scanning extensively through literature.

## 8 RELATION OF RELIEVING OR AGGRAVATING FACTORS.

In the present study, 10 relieving and 10 aggravating factors were included. Five patients belonging to the functional group did acknowledge aggravation of symptoms ie. low back pain with emotional stress. No such correlation could be found in organic group.

This finding is consistent with the results of Seargent M.M.. who found a positive relationship between emotional stress and low back pain, as well as the results of elaborate studies carried out by Engel G.L who indentified emotional stress as an aggravating factor for low back pain.

## 9 LIMITATION OF ACTIVITIES

LOA	Functional	Organic
No	8	1
Int.	25	13
Chr.	17	36

Chi Square = 16.19, significant at 0.001 level.

The degree of limitation of activities of the patients due to chronic low back pain was divided into three levels.

- 1) No limitations
- 2) Intermittent limitation.
- 3) Chronic limitation.

Majority of organic group patients had to chronically limit their activities, where as no such correlation could statistically be found in functional group.

The statistical test of significance showed significance at 0.001 level with Chi Square value of 16.19.

## **10 PAST HISTORY**

No contributory past history was told by any of the patients in the functional group.

In the organic group, 10 patients had undergone some form of back surgery in past, 2 patients gave history of significant trauma to the back and 2 patients had taken anti TB treatment in the past.



## 11. FAMILY HISTORY

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F/ H	Functional	Organic
Normal	35	45
Abnormal	15	5

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Chi Square = 5.06. significant at 0.05 level.

The detailed analysis of family background, the inter-personal relations and strains in the family was out of scope of this study, however a broad classification was done on the basis of obvious disturbances in the family life. Two groups were created.

1. Normal
2. Abnormal

The abnormal family history included the females separated from their husbands, the divorces, elderly unmarried persons and history of frequent quarrels in the family.

The table shows a relatively high number of abnormal or stress laden family histories in functional group as compared to the organic group. Statistical test of significance shows significance at 0.05 level with Chi Square value of 5.06.

The findings in this study are consistent with those of Westrin C.G who showed a positive relationship between psychological pre-stress (family disturbances / disorder) and low back pain.

## 12 BODY BUILT

	Functional	Organic
Thin	11	5
Moderate	9	30
Obese	30	15

In the present study, patients were classified into three groups, built wise ie. thin, moderate and obese.

Majority patients in functional group were overweight and in organic group were moderate built.

## 13. PAIN SCALE SCORES

Pain	Functional	Organic
Mild	29	21
Severe	21	29

In this study, the patients were graded according to the pain scale prepared, on four grades for clinical convenience:-

Grade 1 . Mild pain that does not require medication.

Grade 2. Pain requires medication and gets satisfactory relief.

Grade 3. Pain requires medication but no relief.

Grade 4. Severe pain.

Grade 1 and 2 were grouped as mild pain and Grade 3 and 4 as severe pain.

No significant correlation was found.

## 14. CLINICAL EXAMINATION FINDINGS

Only 5 out of 50 functional group patients acknowledged vague tenderness over lower back, with no other positive clinical finding.

All the patients of organic group had significant positive clinical findings in the form of step, scar, tenderness, knuckle or gibbus etc.

Straight leg rising test (SLR) was free in 43 out of 50 functional group patients, rest had only terminal stiffness.

## 15 .PARAPARESIS OR PARAPLEGIA

Weakness	Functional	Organic
Both LL	-	9
R	-	3
L	-	1
Absent	50	37

No patient of functional back pain had any weakness in lower limbs. 13 out of 50 patients of organic low back pain had weakness in lower limbs.

## 16 BLADDER OR BOWEL INVOLVEMENT

No case of functional back pain had bladder or bowel involvement. 5 out of 50 patients in organic group had both bladder and bowel involvement.

## PSYCHOLOGICAL OBSERVATIONS

### ANALYSIS OF THE MMPI SCORES

Obtained data, after applying the MMPI test to 100 patients of chronic low back pain is presented in a summary form in the table below.

AVG Scores	Male		Female	
	Functional	Organic	Functional	Organic
Hs	7.86	4.4	9.31	4.75
Hy	8.64	4.76	7.97	5.05
D	10.4	5.13	11.19	6.0

#### Mean Hs, Hy and D scores for the organic and functional subgroups

As can be seen from the above table, the scores on all the three personality dimensions namely Hypochondriasis, Hysteria and Depression for the functional group (irrespective of the sex) are significantly higher than those for the group of low back pain patients with organic cause.

This obvious elevation of functional back pain patients on all the three scales ie. Hy, D and Hs, is consistent with many of the studies carried out in past.

1. By Hanvik et al (1951) who has a similar study with elevation on all 3 scales.
2. By Sternbach et al (1973) who analysed series of 98 low back pain patients and found high depression scores in chronic low back pain patients.
3. Lisanti P.A (1989) who demonstrated higher depression scores in chronic low back pain patients than those with no back pain.

The findings of this study are contradictory to the study carried out by Beals and Hickman (1972) who demonstrated low depression scores in chronic low back pain patients.

The difference between the functional Vs organic is however not of the same magnitude for the sex group which probably indicates possibility of an interaction between the sex and organic Vs functional variable.

In order to confirm this hunch, the data was organized into a 2 x 2 factorial format of the purpose of analysis of variance.

Of the three Hy, Hs, and Scores, such analysis of variance will not only show the significance of difference between sex group and organic Vs functional group but will also reveal if these two variables will determine the status of patients on these tree variables.

### **ANALYSIS OF VARIANCE OF HYSTERIA (Hy)**

A summary of analysis of variance of hysteria (Hy) scores is shown in the table below.

	SS	df	Ms	F
A	0.0615	1	0.0615	0.0047
B	71.094	1	71.014	5.51*
AxB	1.476	1	1.476	0.11
Within cell		96/99	12.88	

\* Significant

AS can be seen in the above table, the main effect A (sex) is not significant statistically. It means that the males and females in general do not differ among themselves, with respect to their scores on the hysteria dimensions.

The main effect 'B' (Organic Vs functional) is however statistically significant indicating that the hysteria scores for the functional group are decidedly higher (8.64 for males and 7.97 for females) than for the organic group (4.67 for males and 5.05 for females).

The differences within the group of male patients is 3.88 while for the female group is 2.92. The observed difference for the two sex groups is not striking and may be a chance occurrence.

The same is borne out by the observation that A x B interaction is non significant with an 'F' ratio of 0.11.

## ANALYSIS OF VARIANCE OF HYPOCHONDRAIS

A summary of analysis of variance of hypochondriasis scores is shown in table below.

	SS	df	Ms	F
A	4.792	1	4.792	0.6288
B	94.55	1	94.55	12.41*
AxB	1.734	1	1.734	0.23
Within cell		96/99	67.62	

\* Significant

As can be seen in the above table the main effect A(sex) is not significant statistically.

It means that males and females in general do not differ among themselves with respect to their score on Hypochondriasis (Hs) scale.

The main effect 'B' (Organic Vs functional) is however statistically significant, indicating that the hypochondriasis scores for the functional group are definitely higher than for the organic group. (ie for functional, 7.86 in males & 9.31 in females. For organic, 4.4 in males and 4.75 in females).

The difference within the group of male patients is 3.46 while within the group of female patient is 4.56. The observed difference for the two sex groups is not striking and may be a chance occurrence.

The same is indicated by the fact that A x B interaction is not significant with an F ratio of 0.23.

## **ANALYSIS OF VARIANCE OF DEPRESSION (D)**

	SS	df	Ms	F
A	2.03	1	2.03	0.188
B	81.77	1	81.77	7.599*
AB	0.029	1	0.029	2.695*
Within cell		96/99	10.76	

### **\* Significant**

The results obtained with scores on the depression scale are shown in table above.

As in case of Hy and Hs variables the main effect 'A' is not significant showing thereby that group of male patients do not differ from their female counterparts with respect to depression scores, though the female average (8.59) is somewhat higher than the male average of 7.76.

The main effect 'B' (Organic Vs functional) has come out highly significant with an 'F' ratio of 7.599, indicating that the depression score for the functional group (10.17) is strikingly higher than the score for the organic group (5.56).

The examination of organic Vs functional means within the group of male and female patients show that the difference is 5.27 for the male group while it is 5.19 for the female group.

Like the other two variables, the A x B interaction has not come out significant for the depression scores, also. It indicates that the difference between the mean depression scores of organic Vs functional group is of the same magnitude for the male and female groups.

After analysing the MMPI scores of all the 3 relevant scales for low back pain is ie hysteria, hypochondrias and depression, it can safely be concluded that.

1. The MMPI scores of chronic low back pain patients in functional group are significantly higher than those in organic group, on all the three scales, especially on the dimension of depression.
2. The MMPI scores on the three scales, do not vary significantly with the sex of patient ie the scores are irrespective of whether the patient is male or female.
3. The intersection between the functional Vs organic and sex of the patient has not come out to be significant, on the three scales.

# **CHAPTER IV**

## **SUMMARY AND CONCLUSIONS**

The study of psychological aspects of chronic low backache was carried out during the period Jan 2010 to Jan 2012.

### **CLINICAL SUMMARY**

1. A total of 100 patients suffering from chronic low back pain, between the age group 20 to 60 years, were studied and evaluated.
2. Out of the hundred studied, fifty patients ha an obvious organic lesion as a cause of backache while the other fifty patients did not have any clinical or radiological evidence of organic lesion which were termed as functional.
3. Out of the functional group of fifty, thirty six were female and fourteen males and out of the organic group of fifty, twenty were females and thirty were males.

The difference between the males and females in functional group was found to be satistically significant. Ie. true high incidence of functional low back pain in females.

4. The patients were between 20 to 60 years age group, majority being in 20 to 40 years group.
5. High incidence on functional' chronic low back pain was found in moderate exerters ie housewives, while no such correlation was found in the organic group.
6. Duration of low back pain varied between 6 months to 4 years, majority of the patients coiming within a year of onset.
7. Localized low back pain with no radiation was the feature of majority of the ' functional' group, while low back pain with radiation either unilateral or bilateral, was the feature of majority patients in organic group.



8. Majority of the patients in organic group, complained of paresthesias in lower limbs, while in most patients of functional group, paraesthesias were either absent or occasional.
9. Though no particular variation of aggravating or relieving factors was found, five patients from functional group, did acknowledge the aggravation of symptoms with emotional stress.
10. Most patients in functional category had intermittent limitation of activities, while in organic group they had chronic limitation of activities.
11. No patient in functional group had undergone any major surgery in past or had any major illness in past. In the organic group, 14 patients had either major back surgery or trauma or tuberculosis, in past.
12. In the functional category, fifteen patients had psychological pre-stress in the form of disturbed family life, divorced state, frequent quarrels, elderly unmarried state or living separately from husband.  
  
Only five of the organic group, had psychological pre-stress.  
  
However, a detailed analysis of family background and a study on larger scale is recommended to strengthen this conclusion.
13. Majority of the patients in functional category were over weight and in organic category majority had a moderate built.
14. Distribution of patients on pain scale with respect to severity showed a fairly equal distribution on mild and severe pain scales.
15. Functional category patients had no obvious clinical findings whereas organic category showed positive clinical findings corresponding to the underlying pathology.
16. Thirteen out of fifty organic group patients had paraparesis in lower limbs and five had involvement of bladder and bowel.

## PSYCHOLOGICAL ANALYSIS

1. Psychological analysis of all the patients included in the above study (ie 100 patients) was carried out, by applying a sixty-one item questionnaire, relevant to low back pain, derived from the original Minnesota multiphasic personality inventory.(modified).

The results of the psychological testing were score on three scales viz. hypochondriasis, hysteria and depression.

2. The scores on all the three above mentioned personality dimensions for the functional group were significantly higher than those for the group of low back pain patients with organic cause.
3. Analysis of variance for all the three scale scores was carried out, to find out whether any variation of scores with sex is present or not and to find out if there is any interaction between sex and organic vs functional variable.
4. The analysis of variance, thus carried out, further strengthened statistically, the definite elevation of scores on all the three scales ie hypochondriasis, hysteria and depression in patients with chronic low back pain in functional category.
5. However, the scores do not vary significantly with the sex of patient.
6. The interaction between the sex and organic vs functional variable was not significant.

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## Annexure I

### PROFORMA

Name :

Age/ Sex:

Occupation :

Address:

Reg. No

DOA / DOD:

Main complaints :

1. Backache – duration :  
Origen / onset :  
Radiation :  
Pain in lower limb R/F both :  
Symptom free interval :  
Aggravating factors:  
Relieving factors:  
Present state of activities:  
Relation with posture:  
Details of referred pain:  
Claudication :

2 Paraesthesia – Onset / Present status / Anaesthesia.

3 Weakness – Onset / progressing / extent



- 4 Bladder / Bowel symptoms:  
 H/o Trauma  
 Lifting heavy weight  
 Systemic symptoms : Urinary  
 Fever/ cough / expect/ weight loss.  
 Past / family history :  
 Occupational details :- \_\_\_\_\_

**PAIN SCALE**

- Grade 1. Mild pain (does not require medication)  
 Grade 2. Pain requires medication and gets satisfactory relief.  
 Grade 3. Pain requires medication – no relief.  
 Grade 4. Severe pain.

Aggravating factors

- No particular factor  
 Standing/ sitting  
 Walking  
 Recumbency      Prone  
                             Supine  
 Bending  
 Changing position  
 Jarring / coughing  
 Straining / Lifting weight  
 Exercises  
 Emotional stress  
 Sexual act

Relieving factors

- No relieving factor  
 Standing / sitting.  
 Walking  
 Bending  
 Lying down.  
 Exercises  
 Medication  
 Support Cost brace  
 Hot formentation.

Limitation of activities

- No limitation  
 Intermittent  
 Chronic  
 Limited to what extent ?

## Examination

Mental status : Depressed / stable

Built / Gait

Walks with limp / brisk / slow

Obvious spinal deformity-

Posture – slender / muscular / flabby / scoliosis / kyphosis / lordosis.

Pelvis :

Limblength.

Cervical spine –

Thoracic spine –

### LUMBAR SPINE

Local :

Tenderness :

Deformity :

### MOVEMENTS

Range

Pain

Flexion

Extension

Lateral Bending – R/L

Flexion : Fingertip touching. Easily / with hitch.

Foot Drop- Y/N

Squatting – easy/ with difficulty

Walking- On toes

On heel.

Sacroiliac joints

SI joint strain tests.

SLR – ( R ) (L)

Neuro – Evaluation

HF

Cr. Nvs

Lower limbs            ( R )                            (L)

Motor tone

    Wasting

    Power

    DTR

    Sup. Reflexes

Sensory :    Touch

              Vibration

              Joint position

              Temp

Joint movements

Hip

Knee

Ankle / root

Peripheral circulation

Systemic examination –   Per abdomen

                                  Per vaginal

                                  Per speculum

Radiological examination

Plain X-ray LS spine       (1) AP view

                                  (2) Lateral view

                                  (3) Lateral in standing.

MRI LS spine.

## **Annexure II**

### **QUESTIONNAIRE ( Modified MMPI Questionnaire)**

- 1 I seldom worry about my health.
- 2 Even when I am with people, I feel lonely much of the time.
- 3 I have a great deal of stomach trouble.
- 4 I am likely not to speak to people until they speak to me.
- 5 I have never had a fainting spell.
- 6 I sometimes feel that I am about to go to pieces.
- 7 I am not bothered by a great deal of belching of gas from my stomach.
- 8 I hardly ever notice my heart pounding and I am seldom short of breath.
- 9 I certainly feel useless at times.
- 10 I am happy most of the time.
- 11 I am neither gaining nor losing weight.
- 12 At times I have worn myself out by undertaking too much.
- 13 The top of my head sometimes feels tender.
- 14 I have very few headaches.
- 15 The future seems hopeless to me.
- 16 What others think of me does not bother me.

- 17 I wake up fresh and rested most mornings.
- 18 I cannot do anything well.
- 19 I very seldom have spells of the blues.
- 20 My sleep is fitful and disturbed.
- 21 I frequently have to fight against showing that I am beautiful.
- 22 I am very seldom troubled by constipation.
- 23 I am about as able to work as I ever was.
- 24 I brood a great deal.
- 25 I have numbness in one or more regions of my skin.
- 26 I cry easily.
- 27 I have a good appetite.
- 28 I am bothered by acid stomach several times a week.
- 29 I drink an unusually large amount of water every day.
- 30 I am always disgusted with the law when a criminal is freed through the arguments of a smart lawyer.
- 31 There seems to be a fullness in my head or nose most of the time.
- 32 At times I think I am no good at all.
- 33 I am troubled by attacks of nausea and vomiting.

- 34 I do not dread seeing a doctor about a sickness or injury.
- 35 I am worried about sex matters.
- 36 At times I am all full of energy.
- 37 My conduit is largely controlled by the customs.
- 38 I feel weak al over much of the time.
- 39 Once in a while I laugh at a dirty joke
- 40 I think most people would lie to get ahead.
- 41 I have a cough most of the time.
- 42 I am easily awakened by noise.
- 43 I have no trouble swallowing.
- 44 I have had no difficulty starting or holding my urine.
- 45 I usually feel that life is worth while.
- 46 I think a great many people exaggerate their misfortunes in order to gain the sympathy and help of others.
- 47 At times I feel like smashing things.
- 48 I work under a great deal of tension.
- 49 I seldom or never have dizzy spells.
- 50 Much of the time my head seems to hurt all over.

- 51 I have few or no pains.
- 52 There seems to be a lump in my throat much of the time.
- 53 I do not worry about catching disease.
- 54 Criticism or scholding hurts me terribly.
- 55 Often I feel as if there were a tight band about my head.
- 56 I frequently notice my hand shakes when I try to do something.
- 57 I have little or no trouble with my muscles twitching or jumping.
- 58 I feel that it is certainly best to keep my mouth shut when I am in trouble.
- 59 I have periods in which I feel unusually cheerful without any special reason.
- 60 Once a week or often I feel suddenly hot all over, without apparent cause.
- 61 During the last few years I have been well most of the time.

### Annexure III

#### THE SCORING SYSTEM ( for mdfd MMPI)

SR.NO	ANSWER	SCALE
1	F	S
2	T	D
3	T	S
4	T	Y
5	T	Y
6	T	D
7	F	S
8	T	Y
9	T	D
10	F	Y
11	F	S
12	F	D
13	T	S
14	F	Y
15	T	D
16	F	Y
17	F	S
18	T	D
19	F	D
20	T	S
21	T	Y
22	F	S
23	F	Y



SR.NO	ANSWER	SCALE
24	T	D
25	T	S
26	T	D
27	T	D
28	T	S
29	T	Y
30	F	Y
31	T	S
32	T	D
33	F	S
34	F	Y
35	T	S
36	F	D
37	T	Y
38	T	S
39	F	D
40	T	Y
41	T	S
42	T	D
43	F	S
44	F	S
45	F	D
46	F	Y
47	T	Y
48	T	D
49	F	S
50	T	Y
51	F	S
52	T	Y
53	F	D
54	T	D
55	T	Y
56	F	Y

57	F	S
58	F	Y
59	F	D
60	T	Y
61	F	S

---

F= False

T=True

S=Hypochondriasis

Y=Hysteria

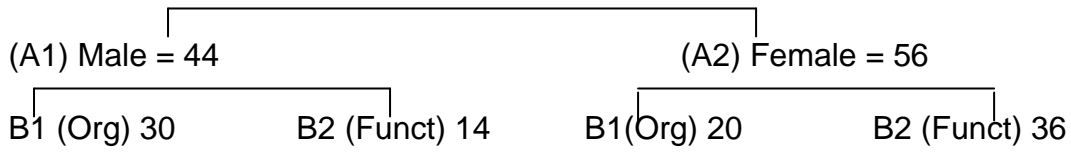
D=Depression

**Annexure IV**  
**ANALYSIS OF MMPI SCORES**  
**MMPI SCORES FOR HYSTEIA (Hy)**  
**N= 100**

(A1) Male = 44		(A2) Female = 56	
B1 (Org) 30	B2 (Funct) 14	B1(Org) 20	B2 (Funct) 36
4	10	4	5
3	7	5	12
7	7	5	10
3	11	6	13
5	8	7	10
3	7	2	11
3	13	3	7
5	8	3	7
4	7	5	8
9	6	3	8
2	11	7	9
5	7	7	4
8	11	3	9
3	8	5	9
3		7	5
5		9	7
8		6	10
7		5	6
4		2	12
6		7	7
6			11
3			2
5			14
6			7
6			14
2			6
5			10
2			6
5			10
2			6
6			8
5			10
			7
			2
			5
			2
			3
			11
$\Sigma = 143$	$\Sigma = 121$	$\Sigma = 101$	$\Sigma = 287$
M=4.76	M=8.64	M=5.05	M=7.97
M=Mean			

**MMPI SCORES FOR HYPOCHONDRIASIS (Hs)**

**N= 100**




---

5	10	3	6
2	3	6	14
3	8	3	12
8	10	5	13
8	4	8	13
8	11	5	15
5	14	9	12
2	7	5	12
3	4	1	5
2	5	5	12
5	7	8	9
8	8	8	13
2	10	4	11
2	9	3	5
6		6	4
6		6	9
8		1	5
8		2	13
3		5	12
2			10
7			
3			5
4			10
2			11
4			16
2			4
5			10
2			9
2			7
2			10
3			8
			5
			7
			5
			6
			12

---

$\Sigma = 132$	$\Sigma = 11.0$	$\Sigma = 95$	$\Sigma = 335$
M=4.4	M=7.86	M=4.75	M=9.31

---

**MMPI SCORES FOR HYPOCHONDRIASIS (Hs)**

**N= 100**

(A1) Male = 44		(A2) Female = 56	
B1 (Org) 30	B2 (Funct) 14	B1(Org) 20	B2 (Funct) 36
5	14	8	9
3	3	6	12
5	13	6	12
2	15	3	11
9	11	3	12
3	13	5	16
9	10	6	15
3	8	6	15
5	5	6	5
5	8	10	5
7	15	11	16
2	5	10	10
3	13	5	8
3	13	5	16
9		3	9
6		6	8
5		6	16
11		5	8
8		5	17
6		5	7
7			18
3			6
5			12
6			8
4			17
4			3
2			15
7			5
2			14
3			7
			12
			12
			14
			13
			9
			11
$\Sigma = 154$ M=5.13	$\Sigma = 146$ M=10.4	$\Sigma = 120$ M=6.00	$\Sigma = 403$ M=11.19