Original Research Article

Assessment and treatment of chronic low back pain with psychological impact

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Abstract

Study design: A prospective intervention study.**Purpose:** Assessment and treatment of chronic low back pain with psychological impact.**Introduction:** Around 60 to 80% of the adults experience low back pain at some point or other in their life. Current studies have noticed that there is an association between low back pain with the mood of sufferers which lead to: Anxiety, Depression, Poor social interactions, Irritability.**Methods:** 80 patients with chronic back pain are been taken and Psychological assessment of these patient were done by:General anxiety disorder(GAD-7) for anxiety andPatient health questionnaire (PHQ-9) for depression. Each patients was treated and followed up for 3 months.**Results:** Out of 80 patients 51.3% were old & 48.8% were young, 80.0 % were female & 20.0 % were male,presenting complaints duration: 72.5 % suffering since < 1 Year, 22.5% since 1 to 2 Years, &5.0 % since> 2 Years. The Comparison of Anxiety, depression, oswestry score at the Follow-Up of subjects were significant (P- value is <0.05) in our study. Comparison of mean scores among Presenting Complaints groups,Anxiety, depression, oswestry scorewas significant (P- value is < 0.05) in our study.**Conclusion:** After carrying out the analysis, the results support that efficiency of the psychological interventions are significant for reducing the low back pain which are self-reported along with depression and anxiety levels which in turn increases the quality of life related to health within the persons suffering from chronic lower back pain.

Keyword: Low Back Pain, Visual Analogue Scale, Anxiety,Depression

Introduction

One of the most common health problems which affect individuals from multiple age groups from children to the elderly people is low back pain. It has been found that low back pain turns out to be the 6th highest burden and the reason for creating more amount of disability all over the world than any other medical condition. In India on an average 35% of individuals suffer due to chronic low back pain that eventually hampers the everyday routine of the patients[1].

Medically the acute pain in the lower back region is generally defined by depending on the duration of time of having a particular episode of pain in the lower back. The time durations are very critical like if the pain persists for more than or less than 6 weeks, if it persists within 6to 12 weeks and acts as a sub-acute pain in the lower back or if it acts as a chronic low back pain which persists for around 12 weeks or more[1].

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Around 60 to 80% of the adults experience low back pain at some point or other in their life. Previous researches have estimated that annually all over the world the incidence of low back pain in adults is around 15% and 30% is the point of prevalence of LBP. At least 50% of the adult experiences any episode of low back pain at some point in their life and it is one of the most common causes which forces the adults to visit a physician[2].

Current studies have noticed that there is an association between low back pain with the mood of sufferers which lead to:Anxiety, Depression, Poor social interactions, Irritability, Reduces the all over Health Status[3].

The reactions for low back pain can even create a function of social and psychological factors rather than any type of actual physical impairment. The patients who was suffering from lower back pain in them rather than the syndrome the main obstacle for treatment is that several doctors are unable to perceive the differentiation between the psychological and physical factors and fails to treat them respectively[4].

Material and method

Source of data

Adult patients with chronic low back pain presenting in Department of orthopaedic TeerthankerMahaveer Medical College and Hospital Moradabad.

Study design

A prospective interventional study was conducted in December2019 to August2021.

A total of 80 patients with chronic low back pain with psychological factor in it were included.We classified low back pain as chronic if it was present for more than 12 weeks.

Low back pain assessment done by:Oswestry low back pain disability questionnaire and Visual Analogue Scale (VAS).

Psychological assessment of these patients were done by:General anxiety disorder(GAD-7) for anxiety andPatient health questionnaire(PHQ-9) for depression.

Patient with moderate and severe anxiety and depression score were selected and treatment weregiven and follow up at interval of -1st follow-up was done at 15 days, 2nd follow-up was done at 1 months, 3rd follow-upwas done at 3 months.

Tools for assessment of end results

Oswestry low back pain disability questionnaire, Visual Analogue Scale (VAS),General anxiety disorder(GAD-7) scale, Patient health questionnaire(PHQ-9) was used to assess patients at every follow up period.

Statistical Analysis

All analysis was performed using SPSS version 20. Mean and standard deviation were calculated for quantitative data and frequency & percentages were calculated for qualitative data. Independent t-test was used to compare the mean of two independent groups whereas Paired t-test and repeated measure ANOVA were used to compare two or more than two dependent groups. The level of significance was considered as < 0.05 or 5%.

Results

Of 80 participants 41(51.3%) were old and 39 young (48.8%).

The mean age was 40.89 ± 12.04 years with minimum age was 18 and maximum age was 75 years.Among the included subject 64(80%) female 16(20%) male.

Frequency distribution of presenting complains of subject -72.5 % suffering since < 1 Year, 22.5% since 1 to 2 Years, &5.0 % since> 2 Years.

The mean of presenting complaints was 9.06 ± 7.83 months with minimum presenting complaints was 3 months and maximum presenting complaints was 36 month.

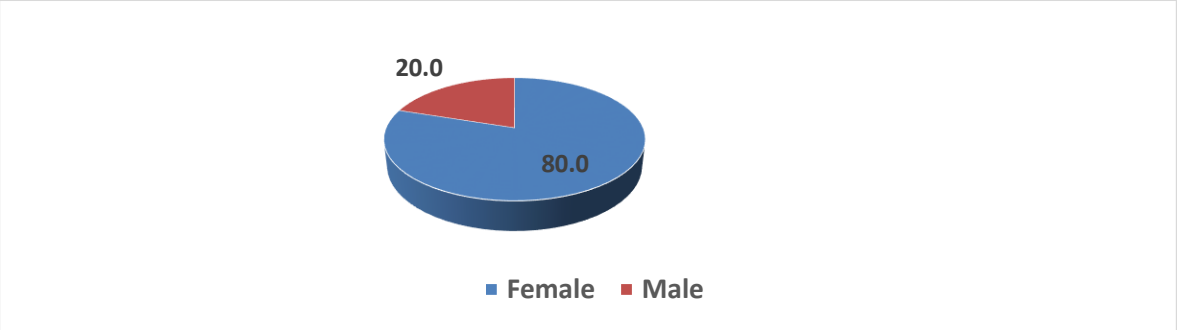

Fig 1:shows the study subjects, 80.0 % were female & 20.0 % were male.

Table 1: - Represent the distribution of Psychological Treatment

Treatments	Frequency	Percent
CHLONAZEPAM	14	17.5
DULOXATINE+MIRTAZAPINE	13	16.3
PAROXETINE	11	13.8
DULOXATINE	9	11.3
ETIZOLAM	8	10.0
DULOXATINE+ETIZOLAM	4	5.0
DULOXATINE+LORAZEPAM	4	5.0
CLONAZEPAM+DESVENLAFAXINE	3	3.8
ZOLPIDEM	3	3.8
AMITRIPTYLINE	2	2.5
AMITRIPTYLINE+NAPROXEN+DOMPERIDONE	2	2.5
ZOLPIDEM+ETIZOLAM	2	2.5
AMITRIPTYLINE+CLONAZEPAM +PROPRANOLOL	1	1.3
AMITRIPTYLINE+CLONAZEPAM +PROPRANOLOL +D VENIZEP	1	1.3
DULOXATINE+VILAZODONE	1	1.3
ETIZOLAM+ESCITALOPRAM OXALATE	1	1.3
MIRTAZAPINE+ZOLPIDEM+ETIZOLAM	1	1.3

The distribution of Psychological Treatment applied on the subjects, CHLONAZEPAM only were applying higher i.e., 17.5 % as compared to other.

The mean of VAS Score at baseline was 6.24±1.39 with minimum VAS Score was 3 and maximum was 9 whereas after 3 Months it drastically decreased with mean 0.65±0.68

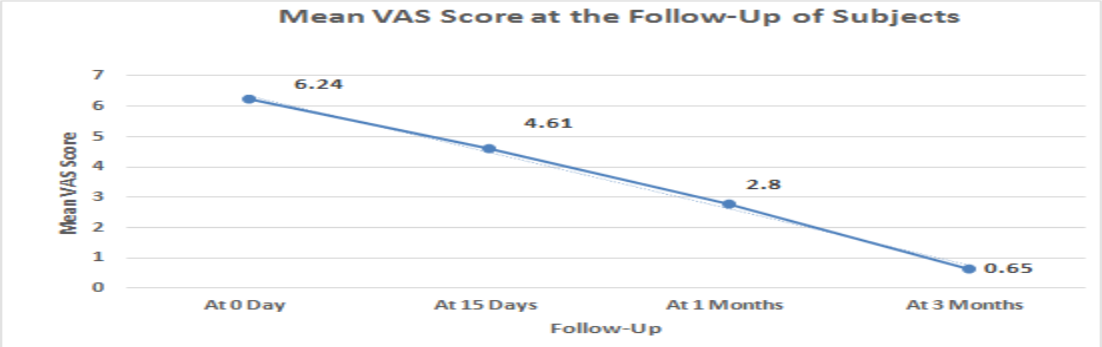

Fig 2:Mean VAS Score at the follow-up of subjects

The mean of Anxiety Score at baseline was 6.63±5.12 with minimum Score was 0 and maximum was 21 whereas after 3 Months it drastically decreased with mean 0.94±1.33

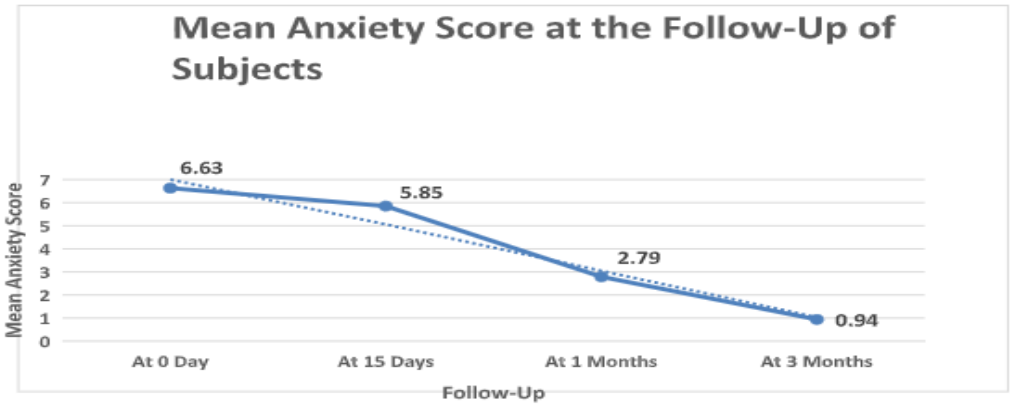

Fig 3:Mean anxiety score at the follow up of subjects

The mean of Depression Score at baseline was 7.94±6.52 with minimum depression Score was 0 and maximum was 21 whereas after 3 Months it decreased with mean 1.44±1.80

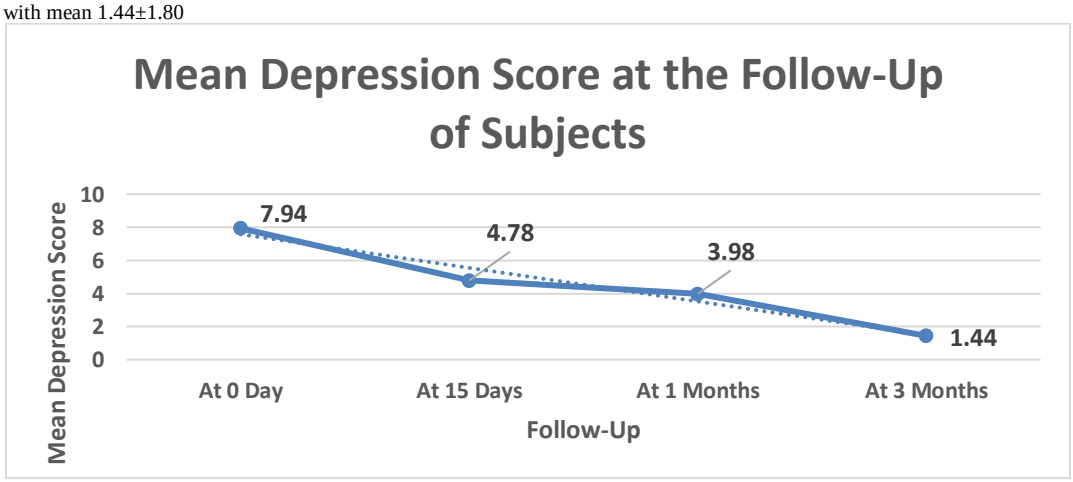

Fig 4:Mean depression score at the follow-up of subjects

The mean of Low Back Pain (%) at baseline was 34% ±11% with minimum low back pain was 14% and maximum was 74% whereas after 3 Months it decreased with mean 13% ± 6%

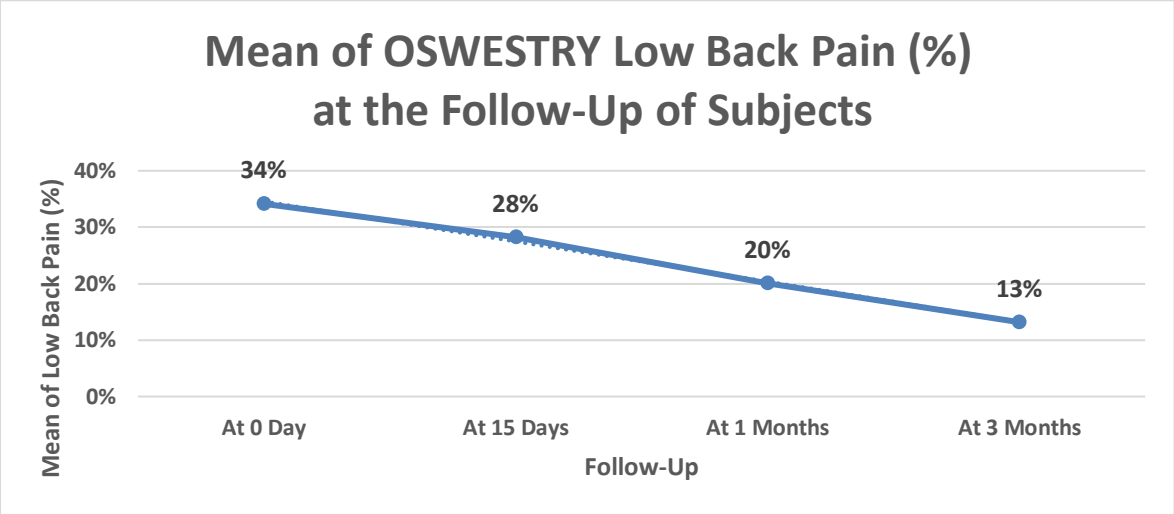

Fig 5:Mean at oswestry low back pain at the follow up of subjects

Table 2: - Comparison of the Scores between gender.

The comparison among mean scores&gender group**Depression score and Percentage of Low back Pain** were significant (P- value is < 0.05) in our study.

Scores	Group	Mean	Std. Deviation	P- Value
VAS Score	Female	3.64	0.99	0.214
	Male	3.31	0.9	
Anxiety Score	Female	3.82	3.36	0.459
	Male	4.95	5.72	
Depression Score	Female	5.12	3.82	**0.006**
	Male	2.19	3.37	
Percentage of Low back Pain	Female	25%	8%	**0.048**
	Male	21%	6%	

(For Significant difference of parametric data, we used independent t-test

Table 3: - Comparison of the VAS Scores at the Follow-Up of Subjects

Vas Score	Baseline	At 15 DAYS	At 1 MONTH	At 3 MONTHS	P-Value
Mean	6.24	4.61	2.8	0.65	**0.000**
Std. Deviation	1.39	1.4	1.22	0.68	

(For Significant difference of parametric data, we used repeated measure ANOVA-test)

The **Comparison of VAS score at the Follow-Up of subjects** were significant (P- value is <0.05) in our study

Table 4: - Comparison of the Anxiety Scores at the Follow-Up of Subjects

Vas Score	Baseline	At 15 DAYS	At 1 MONTH	At 3 MONTHS	P-Value
Mean	6.63	5.85	2.79	0.94	**0.000**
Std. Deviation	5.12	9.34	2.92	1.33	

(For Significant difference of parametric data, we used repeated measure ANOVA-test)

The **Comparison of Anxiety score at the Follow-Up of subjects** were significant (P- value is <0.05) in our study.

Table 5: - Comparison of the Depression Scores at the Follow-Up of Subjects

Vas Score	Baseline	At 15 DAYS	At 1 MONTH	At 3 MONTHS	P-Value
Mean	7.94	4.78	3.98	1.44	**0.000**
Std. Deviation	6.52	5.38	3.74	1.80	

(For Significant difference of parametric data, weusedrepeated measure ANOVA-test)

The **Comparison of Depression score at the Follow-Up of subjects** were significant (P- value is <0.05) in our study.

Table 6: - Comparison of the OSWESTRY Low Back Pain (%) at the Follow-Up of Subjects

Vas Score	Baseline	At 15 DAYS	At 1 MONTH	At 3 MONTHS	P-Value
Mean	34%	28%	20%	13%	**0.000**
Std. Deviation	11%	9%	8%	6%	

(For Significant difference of parametric data, we used repeated measure ANOVA-test)

The **Comparison of OSWESTRY Low Back Pain (%) at the Follow-Up of subjects** were significant (P- value is <0.05) in our study.

Discussion

In this study the mean age of all the cases was noted to be 40.89 years with a standard deviation of 12.04 years whereas, the minimum age was 18 years and 75 years was the maximum age. While representing the case studies according to the age groups; i.e., old and young age groups it has been noticed that a very small difference is there between the two age groups. But still the old age category was

holding the maximum frequency with 51.3 % and the young age category was having 48.8 %.

A noticeable difference was noted in the gender discrimination as 80% of the study subjects were female whereas only 20% of the study subjects were male. A similar gender discrimination was noticed by the researchers Pincus et al[5].where 72% of the study subjects were female and the rest 28% were male which signifies that the famous study subjects are affected more on an unusual basis.

Following this, in the present study while the complaints were being presented in months, it has been noticed that the mean time period was 9.06 months having a standard deviation of 7.83 months. The minimum presenting complaints was around 3 months whereas the number of maximum presenting complaints was 36 months. The distribution of frequency of these presenting complaints notified that the maximum frequency was less than one year which accounted for 72.5% who were suffering, which was followed by the time period of one to two years that was having a percentage of 22.5 and there was a least amount of percentage while moving on to more than 2 years which was 5.0 %. On the other hand, the study that was carried out by the researchers Pande et al[6].showed that around 59.8 % of the patients suffered from less than one year and 35.2 % of patients were suffering from 1 to 2 year and the rest were suffering for more than two years.While the representation of the psychological treatment was being processed, the frequency showed that Chlonazepham was having the highest percentage of 17.5% while being compared to others, and the second highest frequency was held by Duloxatine+Mirtazapine that accounted for 16.3 %, and Paroxetine was the third highest having a frequency of 13.8%. Apart from these 3, Duloxatine was holding 11.3% and Etizolam was having 10% and the rest treatments were holding a percentage less than 10%. A similar study that was carried out by the researchers Brox et al[7].identified that the distribution of the psychological treatment in their study subject was holding a higher percentage for the Duloxatine+Mirtazapine with 21%.The representation of the mean VAS score during the time of follow-up shows that the value of mean was highest at the 0 day which was 6.24 days having a standard deviation of 1.39 days and the mean value kept decreasing with the increasing number of days. At 15 days the mean value was 4.61 where the standard deviation was 1.40, then at 1 month the value of mean was 2.8, whereas the standard deviation was 1.22 and at 3 months the mean value was lowest at 0.65 with a standard deviation of 0.68 days. So, it can be identified easily that there was a drastic declination of the score as the baseline at the beginning was 0.6 was 6.24 which got reduced to 0.65. A similar result was having while representing the mean anxiety score during the time of follow-up. At 0 day the mean value was 6.63 with standard deviation of 5.12 and it decreased to 5.85 at 15 days with a standard deviation of 9.34 further reduced to 2.79 at 1 month and the standard deviation was 2.92 then at 3 months the mean value was recorded to be the lowest with 0.94 and the standard deviation was 1.33.The study of Parikh &Modi[8].also found out the mean value of their fear score getting decreased from 7.8 to 1.09 during the time of the three months follow-up period. Contrastingly, Moseley et al[9].did not come up with a significant decrease in the fear score at the time of follow-up period and the decrease was only by 1.8%.The researchers, Gatchel et al[10].had approximately studied 700 acute cases of lower back pain for identifying the status of high risk contrasting to the low risk. Their results show that the high-risk groups were having some serious symptoms of the disability of chronic pain rather than the low risk subjects. A greater cost savings was also linked with the early intervention group well compared with the no early intervention group.Similarly, the mean depression score also showed declination as the baseline at zero day was having a mean value of 7.94 with standard deviation of 6.92. At 15 days the value of mean was 4.78 with a standard deviation of 5.32. At 1 months the mean value got reduced to 3.98 and was having a standard deviation of 3.74 and finally it decreased to 1.4 mean value at 3 months having a standard deviation of 1.80. Walsh et al., also identified a similar declination in the depression score in their study subjects from day 0 to the follow-up period of 6 months.

These results were followed with the value of mean of Oswestry low back pain percentage at the time of follow up which was having a base mean value of 34% at the zero day with a standard deviation of 11%. Now the mean value decreased to 28% at 15 days having a standard deviation of 9% and it further got reduced to 20% at 1 month with a standard deviation of 8% and finally the mean value got reduced to 13% at three months with a standard deviation of 6%

Lastly, while carrying out the comparison of the VAS scores, Anxiety scores, Depression scores, and Oswestry Low back pain percentage scores, respectively as per the follow up of subjects, a similar yet significant result has been generated. By carrying out the comparison of the values of mean and standard deviation from the baseline till 3 months each of the four comparative scores, each of the four got a P value of 0.000 which was definitely significant as the P value has been <0.05 in this study.

Conclusion

After carrying out the analysis, the results support that efficiency of the psychological interventions are significant for reducing the low back pain which are self-reported along with depression and anxiety levels which in turn increases the quality of life related to health within the persons suffering from chronic lower back pain. Results of this paper shows that there has been an immense decrease in the VAS scores, anxiety scores, depression scores and Oswestry low back pain score from the baseline of 0 test till the follow-up period of 3 months. Since identification as well as proper treatment was being provided to the patients after identifying the coexistence between the psychological factors with the physical lower back pain. This paper is definitely going to be helpful material for all the clinicians and future researchers who want to progress with the treatment of chronic lower back pain by handling both the physical and psychological.

Conflict of Interest: Nil Source of support:Nil

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