



A STUDY OF ASSOCIATION OF DEPRESSION WITH THE SEVERITY OF NECK PAIN.

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ABSTRACT

Introduction: Psychological and social factors are believed to play a significant role in the development and perpetuation of chronic pain and disability. Neck pain is a chronic pain condition, which has been found to be associated with depression.

Aim and Objectives: The present study was carried out to study the association between neck pain severity and the occurrence of depression.

Material and Methods: A prospective observational study was conducted on 50 patients of neck pain between the age group of 20-40 years. Data was collected on depressive symptomatology using the BECK'S Depression Inventory (BDI). 11- point Numerical pain rating (NPR) scale (NPRS, 0: no pain; 10: maximum pain) was used to evaluate the intensity of pain. Pearson correlation coefficient was applied to find out the association between the two.

Observations and Results: There was no significant correlation between NPR Score and BECK'S Depression Score (p-value - 0.09 i.e. $p > 0.05$)

Conclusion: Moderate to severe level of depression was associated in majority of patients with neck pain. However, no significant correlation was observed between the severity of pain and degree of depression.

KEYWORDS : Neck pain; Depression; Psychological; Social.

INTRODUCTION

Neck pain is defined as pain located between the occiput and the third thoracic vertebra.^{1,2} It is well established that pain and depression are related to each other. Depression and Chronic neck pain are two distinct ailments. Former, being a psychiatric condition, whereas latter is a distinct physical condition with presentable signs and symptoms. It has been observed in various studies that depression and chronic neck pain could be interrelated because both these ailments have been found to co-exist in a lot of patients.³ Psychological factors are believed to play a significant role in the development and perpetuation of chronic pain and disability.³⁻⁹ Chronic pain conditions may themselves be a cause of psychological states like depression, but no clear cause and effect association has been observed.⁵ Hence, it is important to understand the association of psychological factors and their coping mechanisms in chronic pain problems for their better prevention and treatment.¹⁰⁻¹²

Considerable data shows that 'psychosocial factors' are associated with neck pain and may predict onset, however there is no consistency regarding the precise factors that may impart risk, and clarity about what we are measuring is often lacking.³ A comprehensive overview of the role of psychological factors in chronic pain thus focus only on the relationship between physical and psychological parameters. There is limited knowledge about the relationship between degree of pain severity and depression in the general population. Depression and pain share biological pathways and neurotransmitters, which have implications for the treatment of both concurrently.

This study was hence, carried out to study the association between neck pain severity and occurrence of depression.

MATERIAL AND METHODS

A prospective observational study was carried out from 2014 to 2016 in the physiotherapy department of a rural teaching hospital of central India. Initially, a total of 50 patients of neck pain between the age group of 20-40 years were recruited for the study, diagnosed on history and clinical examination, after applying inclusion and exclusion criteria, after obtaining written informed consent and prior approval of "Institutional ethics committee".

Inclusion Criteria:

1. Diagnosed subject with neck pain.

2. Both Gender.
3. Age group 20-40 years.

Exclusion Criteria:

1. Age group about 40 years
2. Any sort of neurological or traumatic conditions leading to neck pain.

Data was collected on depressive symptomatology using the BECK'S Depression Inventory (BDI) and a survey was made to find out the prevalence of depression in all 50 patients of neck pain using a questionnaire (Annexure -2).¹³ 21 questions were asked and accordingly data was collected. 11- point Numerical pain rating (NPR) scale (NPRS, 0: no pain; 10: maximum pain) was used to evaluate intensity of pain (Annexure-1).¹³

Coping strategies were noted using the Numerical Pain rating scale. Coping strategies were categorized into active (strategies that involve taking responsibility for pain management and include attempts to control the pain or to function in spite of pain) and passive (strategies that involve giving responsibility for pain management to an outside source or allowing other areas of life to be adversely affected by pain).

To investigate the multifaceted nature of neck pain, the variables were collected in four specific domains: demographic (age-group, gender, marital status, location of residence) socioeconomic (annual household income, education, employment status), co morbidities (allergy, respiratory disorders, hypertension, cardiovascular disorders, digestive disorders, headache, depressive symptomatology, low back pain), and general health variables (previous injury to the neck, cigarette smoking, body mass citations between neck/low back pain and active coping).

Some general signs and symptoms that were noted included atrophy, upper extremity weakness, tender muscles, fasciculations, pain, headache, dizziness, vertigo, paresthesia, stiff neck, torticollis etc.

Findings thus obtained were entered in the proforma meant for the study. Chi square test was used to evaluate the level of significance and the P value < 0.05 was considered significant. Pearson's Correlation Coefficient was used to study the correlation between different variables studied.

OBSERVATIONS AND RESULTS

Table 1:

AGE WISE DISTRIBUTION		
Age/yr	Total No of patient	Percentage
20-25yrs	14	28%
25-30yrs	13	26%
30-35yrs	11	22%
35-40yrs	12	24%

Graph 1

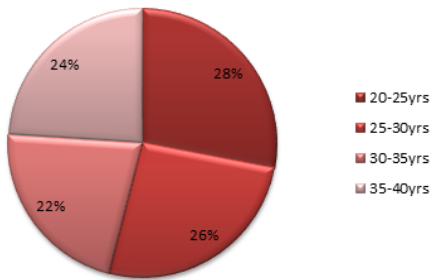


Table 1. and Graph 1 show the age wise distribution of patients with neck pain. There was maximum percentage prevalence in 20-25year age group (28%) and rest all varied accordingly. The minimum number of patients with neck pain, were in the age group of 30-35years (22%).

Table 2:

GENDER WISE DISTRIBUTION		
Gender	No. of patient	Percentage
Male	23	46%
Female	27	54%

Graph 2:

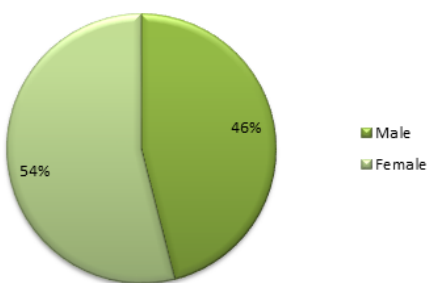
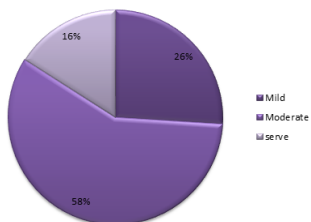


Table 2 and Graph 2 show gender wise distribution of patients with neck pain, with the percentage prevalence in females (54%) being higher than in males (46%).

Table 3:

NUMERICAL PAIN RATING SCORE:-		
Intensity of pain	No. of patients	Percentage
Mild	13	26%
Moderate	29	58%
Severe	8	16%

Graph 3:

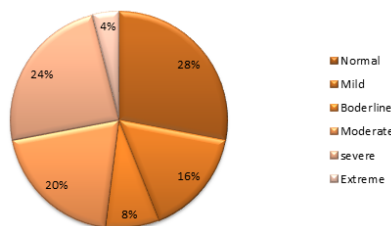


As shown in Table 3, graph 3, percentage prevalence of patients based on intensity of pain was maximum in moderate pain (58%), followed by mild pain (26%) and minimum in severe pain (16%).

Table 4:

BECK'S DEPRESSION INVENTORY SCORE:-		
Levels of depression	No of patients	Percentage
Normal	14	28%
Mild	8	16%
Boder line	4	8%
Moderate	10	20%
Severe	12	24%
Extreme	2	4%

Graph 4:

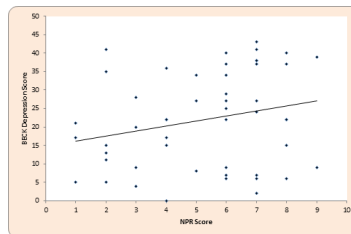


As shown in Table 4, graph 4, maximum percentage prevalence of patients with neck pain, who had depression was in group of moderate (20%) depression and severe level of depression (24%). In total, 44% of patients with neck pain suffered from moderate to severe depression.

Table 5:- Correlation between NPR Score and BECK's Depression Score Pearson's Correlation Coefficient

	Mean	Std. Deviation	N	Correlation 'r'	p-value
NPR Score	5.24	2.29	50	0.24	0.09 NS,
BECK Depression Score	21.88	12.95	50		p > 0.05

Graph 5: Correlation between NPR Score and BECK's Depression Score

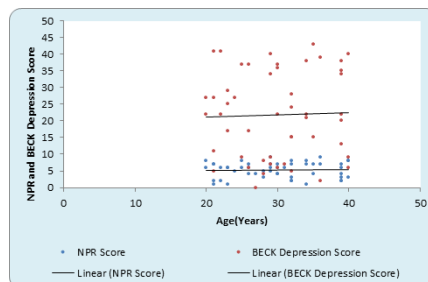


As shown in Table 5, Graph 5, by using Pearson's Correlation Coefficient, there was no significant correlation between NPR Score and BECK's Depression Score (p-value - 0.09 i.e. p>0.05)

Table 6: Correlation of age with NPR Score and BECK's Depression Score Pearson's Correlation Coefficient

	Mean	Std. Deviation	N	Correlation 'r'	p-value
Age(yrs)	29.94	6.27	50	-	-
NPR Score	5.24	2.29	50	0.02	0.87 NS,p >0.05
BECK Depression Score	21.88	12.95	50	0.03	0.83 NS,p >0.05

Graph 6: Correlation of age with NPR Score and BECK's Depression Score



As shown in Table 6 and graph 6, according to Pearson's Correlation Coefficient, there was no significant correlation between age with BECK's DEPRESSION Score and NPR score ($p < 0.87$, $p > 0.05$ and 0.83 , $p > 0.05$)

Table 7: Correlation of gender with NPR Score and BECK's Depression Score Student's unpaired t test

	Male	Female	t-value	p-value
NPR Score	5.04±2.30	5.40±2.30	0.55	0.58 NS, $p > 0.05$
BECK Depression Score	19.26±11.47	24.11±13.91	1.33	0.19 NS, $p > 0.05$

Graph 7: Correlation of gender with NPR Score and BECK's Depression Score

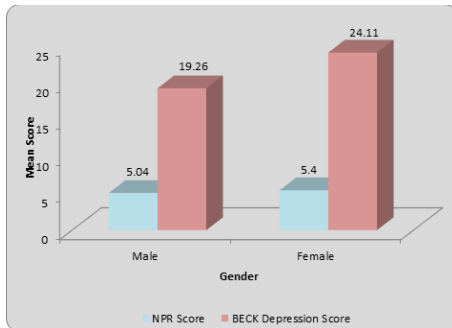


Table 7 and graph 7 represent correlation between NPRs and BECKs depression score with gender and was found to be non-significant ($p < 0.58$, $p > 0.05$ and 0.19 , $p > 0.05$)

DISCUSSION

In the present study, prevalence of moderate to extreme depression was found in as many as 48% of patients with neck pain and only 28% were found to have no associated depressive symptoms. Depression has been reported to be present in 31% to 100% of people with pain in various other studies.⁴ Few studies have found a lower prevalence rate of depression in individuals with chronic pain conditions of 11.3%, versus 5.3% in those without.¹⁴ Our results were similar to those of Miller et al, 2009, who found that approximately 35% of patients with chronic pain also had depression.¹⁵ Depression was not found to be associated with pain types or sites in their study. They found various demographic risk factors for depression like older, female, employed less than full-time, and having lesser degree of education, in patients with chronic pain.¹⁵ Certain factors such as restriction of physical activity, dependence on others, reduced sexual activities due to pain, financial burden, sleep disturbances, occupational issues and social isolation, are also responsible for depression in these patients.⁴ Gender has been suggested as one of the risk factors, in that women with pain may be at a higher risk for depression.^{4,14}

In our study, no significant correlation was found between pain severity and depression scores with gender.

Younger participants were more likely to have depression associated with chronic pain.¹⁴ In another study, pain was more likely to be reported in depressed patients who were younger, African American, Hispanic, or less educated.⁴ In our study, no significant correlation was found between pain severity and depression scores with age.

We did not find any significant correlation between NPR Score and BECK Depression Score. So our study suggests that there is no correlation between the severity of neck pain and the presence of depression. The presence of depressive symptoms increases the likelihood of future musculoskeletal disorders, but not vice versa.⁶ Other studies have also found that depressed patients or those with psychological distress report chronic pain more often than non-depressed patients.^{7,8,9}

General exercise is not considered a prognostic of better outcome for neck pain; however, several psychosocial factors including psychological health and coping patterns may be prognostic of outcome.¹⁶ Focusing on coping strategies may be helpful in breaking the vicious cycle of pain and depression.¹⁰⁻¹² Passive coping usually results in higher levels of psychological distress and depression, whereas active coping is associated with activity level and inversely related to psychological distress. Therefore, encouraging patients to limit the use of passive coping strategies may be helpful when managing disabling neck pain.

CONCLUSION

Our study concluded that level of depression in majority of patients with neck pain was varying from moderate to severe and that there was no significant correlation between the severity of pain and degree of depression.

Limitations of the study

Small sample size and hospital based study are the limitations of the study.

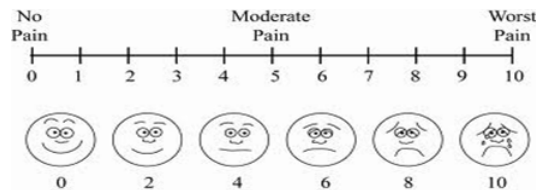
Suggestions

Large sample size survey and studies conducted in community are needed.

Annexure - I: PROFORMA FOR EVALUATION

- Name :-
- Age :-
- Sex :- M/F
- Residence :-
- Occupation :-
- Diagnosis :-

1. NUMERICAL PAIN RATING SCALE:-



Annexure - II :Beck's Depression Inventory

This depression inventory can be self-scored. The scoring scale is at the end of the questionnaire.

1. I do not feel sad.
1. I feel sad
2. I am sad all the time and I can't snap out of it.
3. I am so sad and unhappy that I can't stand it.
2. I am not particularly discouraged about the future.
1. I feel discouraged about the future.
2. I feel I have nothing to look forward to.
3. I feel the future is hopeless and that things cannot improve.
3. I do not feel like a failure.
1. I feel I have failed more than the average person.
2. As I look back on my life, all I can see is a lot of failures.
3. I feel I am a complete failure as a person.
4. I get as much satisfaction out of things as I used to.
1. I don't enjoy things the way I used to.
2. I don't get real satisfaction out of anything anymore.
3. I am dissatisfied or bored with everything.
5. I don't feel particularly guilty

1. I feel guilty a good part of the time.
 2. I feel quite guilty most of the time.
 3. I feel guilty all of the time.
- 6.
 0. I don't feel I am being punished.
 1. I feel I may be punished.
 2. I expect to be punished.
 3. I feel I am being punished.
- 7.
 0. I don't feel disappointed in myself.
 1. I am disappointed in myself.
 2. I am disgusted with myself.
 3. I hate myself.
- 8.
 0. I don't feel I am any worse than anybody else.
 1. I am critical of myself for my weaknesses or mistakes.
 2. I blame myself all the time for my faults.
 3. I blame myself for everything bad that happens.
- 9.
 0. I don't have any thoughts of killing myself.
 1. I have thoughts of killing myself, but I would not carry them out.
 2. I would like to kill myself.
 3. I would kill myself if I had the chance.
- 10.
 0. I don't cry any more than usual.
 1. I cry more now than I used to.
 2. I cry all the time now.
 3. I used to be able to cry, but now I can't cry even though I want to.
- 11.
 0. I am no more irritated by things than I ever was.
 1. I am slightly more irritated now than usual.
 2. I am quite annoyed or irritated a good deal of the time.
 3. I feel irritated all the time.
- 12.
 0. I have not lost interest in other people.
 1. I am less interested in other people than I used to be.
 2. I have lost most of my interest in other people.
 3. I have lost all of my interest in other people.
- 13.
 0. I make decisions about as well as I ever could.
 1. I put off making decisions more than I used to.
 2. I have greater difficulty in making decisions more than I used to.
 3. I can't make decisions at all anymore.
- 14.
 0. I don't feel that I look any worse than I used to.
 1. I am worried that I am looking old or unattractive.
 2. I feel there are permanent changes in my appearance that make me look unattractive.
 3. I believe that I look ugly.
- 15.
 0. I can work about as well as before.
 1. It takes an extra effort to get started at doing something.
 2. I have to push myself very hard to do anything.
 3. I can't do any work at all.
- 16.
 0. I can sleep as well as usual.
 1. I don't sleep as well as I used to.
 2. I wake up 1-2 hours earlier than usual and find it hard to get back to sleep.
 3. I wake up several hours earlier than I used to and cannot get back to sleep.

- 17.
 0. I don't get more tired than usual.
 1. I get tired more easily than I used to.
 2. I get tired from doing almost anything.
 3. I am too tired to do anything.
- 18.
 0. My appetite is no worse than usual.
 1. My appetite is not as good as it used to be.
 2. My appetite is much worse now.
 3. I have no appetite at all anymore.
- 19.
 0. I haven't lost much weight, if any, lately.
 1. I have lost more than five pounds.
 2. I have lost more than ten pounds.
 3. I have lost more than fifteen pounds.
- 20.
 0. I am no more worried about my health than usual.
 1. I am worried about physical problems like aches, pains, upset stomach, or constipation.
 2. I am very worried about physical problems and it's hard to think of much else.
 3. I am so worried about my physical problems that I cannot think of anything else.
- 21.
 0. I have not noticed any recent change in my interest in sex.
 1. I am less interested in sex than I used to be.
 2. I have almost no interest in sex.
 3. I have lost interest in sex completely.

Total Score _____ Levels of Depression
 1-10 _____ These ups and downs are considered normal
 11-16 _____ Mild mood disturbance
 17-20 _____ Borderline clinical depression
 21-30 _____ Moderate depression
 31-40 _____ Severe depression
 over 40 _____ Extreme depression

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