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EFFICACY OF COMPREHENSIVE PSYCHOTHERAPEUTIC INTERVENTION ON ANXIETY AMONG CHRONIC LOW BACK PAIN PATIENTS

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Abstract

In recent years, comprehensive pain programs were seen to be successfully treated. Patients based on a combination of psychological and physiotherapeutic interventions. The present investigation was carried out to study the efficacy of comprehensive psychotherapeutic intervention (where the psychotherapy and physiotherapy included as treatment component) on the experience of anxiety level among chronic low back pain patients. N=60 out patients with chronic low back pain of at least 6 months duration, with different medical diagnosis, were selected randomly, from the physiotherapy centre in a multi specialty hospital were subjected with pre test and post test by administrating Spielberg's state and Trait Anxiety Scale to measure anxiety level before and after the intervention. The comprehensive psychotherapy intervention employed was Behavioral counseling, muscle relaxation technique, eye movement desensitization and reprocessing, self instructions, physiotherapy. The paired t-test was utilized to analyze the entire data. The findings show that there was a significant reduction in the anxiety level among the chronic low back pain patients after the comprehensive psychotherapeutic intervention. The present study indicates the efficacy of comprehensive psychotherapeutic intervention in significantly decreasing the level of anxiety in chronic low back pain patients, and the reduction was maintained till the last stage. These findings are discussed.

Keywords: physiotherapy, Spielberg's state, Trait Anxiety Scale, tissue, Anxious

Introduction

The low back pain is most common, and 80 to 90 percent of people suffer from it in their life at least once. The international Association for study of pain defines pain is more tangible term as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage", arising out of injury, distress, anxiety, and sometimes due to fear. Pain has been managed by physicians and other health workers. Traditional pain management techniques include pharmacological, surgical, and sensory techniques. But still at times pain was reported by some patients. Increasingly, psychologists have become involved in pain management and, as a result, techniques that include a heavy

psychological component have been used to combat pain. Normally, the pain may be classified into a) Acute Pain and b) Chronic pain which basically represents the intensity and duration of the pain respectively. Pains that last for more than three months despite medical intervention & treatment can be defined as Chronic Pain. The causes for chronic pain are due to an initial misshape e.g. a sprained back or there may be an ongoing reason of pain, e.g. pot belly, wrong posture etc. Stress and fatigue can have great effect on the physical performance of the back pain. Whatever the cause of chronic pain is real, unremitting and demoralizing. It is often progressive, and the cause can be difficult to determine. Dunn KM, Croft PR. (2004) describe that most adults at some point during their lifetime effect with a common problem low back pain. Grabois M. (2005) stated that chronic low back pain is general trouble it presents a clinical challenge with general implications for resource utilization on a national scale. Borenstein, D.G. (1996) the most episodes of low back pain are related to long-term problems of posture, lifting techniques and repetitive motions or simple irritation of the back muscles and resolve within a 12-week period.

The relationship between anxiety and chronic pain has been poorly studied. K. Ranga Rama Krishnan et al. (1985) studied the occurrence of symptoms of anxiety in chronic low back pain patients. Anxious mood and other symptoms of anxiety were commonly seen in patients with chronic low back pain. This anxiety has been experimentally shown to maximize the intensity of pain and its resultant impairment. Anxiety has well as psychologically enhancing pain appreciation, been considered to have a hormonal and a chemical relationship. Anxiety also increases the muscular reaction by inciting exaggerated muscular contraction and tonus which, in itself, becomes a source of pain. A question was posed by Rene cailliet of chronic pain “is it necessary”? His point was that if acute pain was adequately addressed fewer if any begin chronic pain syndromes would result. Many causes of acute low back pain fail to address the presence of acute anxiety. Anxiety is a psychological and physiological condition characterized by cognitive, somatic, emotional, and behavioral mechanism. It is the displeasing feeling of fear and concern. Everyone has worries and fears, even the rich and the famous. The anxious person who is waiting for the worst to happen is often unable to enjoy a personal life or gain gratification from work. Anxious may thus prevent them from experiencing positive outcomes in life.

Anxious mood and other symptoms of anxiety were commonly seen in patients with chronic low back pain. This anxiety has been experimentally shown to maximize the intensity of pain, which is one of the most disabling conditions in the modern industrialized society. The traditional medical and physiotherapeutic approaches for its management have a positive outcome; by reducing the anxiety level by implementing the comprehensive psychotherapeutic intervention the results can be maintained by the patient for long

duration, which ultimately helps the patients to reduce the dependency on the medicine and improve personal effectiveness and satisfaction with life.

Statement of the Problem

The problem taken up in the present investigation is to study the efficacy of comprehensive psychotherapeutic intervention (includes both physiotherapy and psychotherapy) on the experience of anxiety among the chronic low back pain patients.

Objectives of the Study

To measure the efficacy of comprehensive psychotherapeutic intervention on the experience of anxiety among the chronic low back pain patients.

Hypotheses Framed

There will be a significant reduction in the anxiety level among the chronic low back pain patients after the comprehensive psychotherapeutic intervention.

Methodology

Research Design

The research design adopted for present study is a one group pre and post test without (control group), where the effects of the comprehensive psychotherapeutic approach on chronic low back pain were judged by differences or gains between the pre test and the post test scores.

Test focus area	Level of phenomenon before treatment (X)	Treatment introduction	Level of phenomenon after treatment (Y)
Intervention effect = (y) – (x) ⟶			

Sample

The total sample size is 60, (n=60), with chronic low back pain of at least 6 months duration, with different medical diagnosis, are selected from the physiotherapy department of Ayush hospital, Port Blair, Andaman Island. Age of the samples ranges from 20-60 years and the duration of pain reported where 8 months to 20 years. The patients who are unable to concentrate and cooperate for the intervention, and who was having the back pain below 6 months of duration where not included for the study.

Sampling Technique

Considering the nature of the study, which is exploratory and quasi experimental design in nature, the Pre and Post without Control Group Design was adopted. Hence, Purposive Sampling technique was used in selecting the samples. The control group was not maintained, since it was felt that it is unethical either to deny or delay the treatment to

the patient suffering from pain, who is approaching the therapist to obtain treatment for the said reduction of pain for the sake of research purpose. Moreover, the treatment facilities are less in the island when compared to the mainland. So the researcher felt that Pre and Post without Control Group Design may be adopted.

Tools Used

1) A Demographic chart was incorporated to obtain the personal data as a part of case history taking.
2) To measure the level of anxiety Spielberg's state and trait Anxiety scale (STAI) were used.

Description and Administration of Tools

1) Demographic chart

It is used to obtain the personal data as a part of case history taking. Self made chart was used to collect the data regarding Name, Age, Sex and Duration of pain etc.

2) Anxiety scale

Spielberg's State and Trait Anxiety Scale (STAI) tool consists of 40 items, that is twenty items each measuring both state and trait anxiety of the samples. Item no.1-20 assesses the State Anxiety of the individuals and item no 21-40 assesses the Trait Anxiety level.

Procedure for Intervention

After obtaining the necessary permission from concerned hospital authorities, the investigator selected the patients, who has completed the medical consultation and has been diagnosed as chronic low back pain of at least 6 months duration, referred for outpatient physiotherapy programme, and interviewed individually obtained their personal data and their consent to undergo the intervention, and also a pretest was conducted through the administration of anxiety scale on patient's 1st visit.

The selected patients are treated with both psychotherapeutic & physiotherapeutic interventions. Which was extended up to 15 days or 15 sessions which sometimes spread up to 30 days and the follow up checkup for level of anxiety was done for every 3 months only and being done up to nearing eleven months.

The session last for two hours, and for each session, the patient was treated with physiotherapy modalities for 30 minutes and the rest of 1 hour 30 minutes was utilized to introduce the psychotherapy techniques, progressively and sequentially according to the patients learning capacity, throughout the program by the investigator. The patient is advised to do the home assignment/ exercise on the learned psychotherapeutic techniques.

At the end of the 15 days/session as the case may be, for every 3months for level of anxiety, the follow up checkup (after the post-test) was conducted as well as the follow up will be continuing for one more year.

Assessment Schedule for the therapeutic interventions

Phase	P-1	P-2	P-3	P-4	P-5
Anxiety	√	√	√	√	√

P-1 = Before intervention
P-2 = After intervention 1 month & 15 Days
P-3 = After intervention 4 months & 15 Days
P-4 = After intervention 7 months & 15 Days
P-5 = After intervention 10 months & 15 Days

Therapeutic Interventions

Comprehensive psychotherapeutic technique includes both physiotherapy and psychotherapy (Behavioural counselling + muscle relaxation technique + eye movement desensitization and reprocessing + self instructions.)

Physiotherapy interventions

This is also called as Physical therapy. Well planned physical assessment was done on the chronic low back pain patients, helps the physical therapist to choose the appropriate electrotherapy modalities and therapeutic exercises to enhance the ability level and decrease the pain intensity. Commonly chosen electrotherapy modalities are Short Wave Diathermy (SWD: heating the tissue through high frequency waves), Interferential Therapy (IFT: Medium frequency current which interferes with the pain modulation to the higher centers), Transcutaneous Electrical Nerve Stimulation (TENS: these are direct currents which can block the pain path way) and Continuous/Intermittent Pelvic Traction (mechanical distraction of the lumbar vertebrae and facet joints, relives the compression of the nerve roots). Commonly used physiotherapeutic exercises are: spinal extension and flexion, stretching, pelvic tilting exercise which are advised according to the ability of the patient, to rehabilitate the back. The patient was educated on 'back school' or ergonomics to provide rest and prevents the physical stress on the back. The patients are instructed to do home work on the exercises, prescribed to them.

Psychotherapy Interventions

This intervention consisted of three components, namely, i) Behavioral Counseling, ii) Jacobson's Progressive (Deep) Muscle Relaxation and iii) Eye Movement Desensitization and Reprocessing (EMDR).

i) Behavioral counseling

Step - I: The investigator patiently listens to the patients problems, and gathers information to know how the patient expresses his/her pain behaviour, and also to notify the myths regarding their pain and treatment etc.

Step - II: Patient has been educated regarding the medical diagnosis, anatomy, body mechanics (Structure & function of the low back region), various causes of pain, first aid and preventive behavior for back pain, emotional, psychological issues of chronic low back pain, posture and its role in the back pain and self management techniques and finally about necessity of physiotherapy, psychotherapy treatment and comprehensive psychotherapy intervention for its management. The investigator exchanged ideas with the patient regarding his/her back pain and motivated participate in the comprehensive psychotherapeutic treatment programme. In this process any myths and confusions of the patient regarding pain are clarified.

ii) Jacobson's Progressive (Deep) Muscle Relaxation

General instructions were given to the patient regarding the internal environment (empty bladder, and not with the hunger or thirst) and external environment (the room which is free from distractions and with well ventilation) before starting the procedure. The patient was advised to follow following sequence, while lying supine on the floor.

Step - I: The investigator had instructed the patient to squeeze his/her own right hand make a fist and asked to experience the tightness for 10 seconds and suggested him to relax by opening the fingers and experience the relaxation in his/her right forearm muscles & hand for 20 seconds advised to perform another time.

Step - II: Repeat the Step-1 on the left hand for 2 times.

Step - III: Instructed to, bend both the elbow's inside, suggested to feel the tightness for 10 seconds in the biceps muscle on both the arms and asked to stretch out both the elbows and advised to experience the relaxation in the arms for 20 seconds advised to perform another time.

Step - IV: Instructed to press both the arms against the floor & feel the tightness in both the triceps for 10 seconds and advised to relax for 20 seconds and experience the relaxation in both his arm-instructed to repeat the same process for another time.

Step - V: Instructed to relax the hands and arms maximally and also to relax the rest of the body and to concentrate on the feeling of relaxation.

Step - VI: Patient was instructed to wrinkle the forehead by raising the eyebrows, maintains it for 10 seconds and advised to feel the tightness and then relaxed to smoothing it out for 20 seconds to repeat the same process another time.

Step – VII: Instructed to frown and crease the brows and feel the tightness for 10 seconds, then relaxed for 20 seconds by smoothing the forehead-repeated the same process another time.

Step – VIII: Instructed to close both the eyes tightly for 10 seconds and then relaxed by keeping them gently and comfortably closed for 20 seconds-repeated the same process another time.

Step – IX: Instructed to clench the patient teeth together and feel the tightness in the jaw muscles for 10 seconds and suggested to release the tension and feel the relaxation for 20 seconds-advised to repeat it for another time.

Step – X: instructed to press the tongue tightly against to roof of the mouth for 10 seconds and then released the tension and advised to experience the relaxation for 20 seconds-repeated the same process another time.

Step – XI: Instructed to press the lips tightly together for 10 seconds and relaxed for 20 seconds same was repeated for another time.

Step – XII: Instructed to relax all the facial muscles and also the rest of the body and concentrate on the feeling of relaxation.

Step – XIII: Instructed to press the head against the floor as far as possible, 5 seconds, and advised to feel the tightness, then relax the neck muscles for 20 seconds and repeat the same for another time.

Step – XIV: Instructed to raise both the shoulders advised to hold them and feel the tightness for 10 seconds, then dropped for relaxing them to 20 seconds. Repeat the same process for another time.

Step – XV: Instructed to move both the shoulders in a rotator movement -upwards, forwards, downwards and backwards for 10 seconds than relaxed for 20 seconds in a comfortable position-repeated the procedure for another time.

Step – XVI: Instructed to relax all neck, shoulder and back muscles and the rest of the body and to enjoy the sensation of relaxation.

Step – XVII: Instructed to concentrate on breathing pattern, inhale and hold the breath for 10 seconds and exhale and relax for 20 seconds repeat the same process one more time.

Step – XVIII: Instructed to tighten the stomach muscles by pushing them out-ward for 10 seconds, and then relaxed for 20 seconds repeated the procedure for another time.

Step – XIX: Instructed to tighten the stomach muscles by drawing them in tightly for 10 seconds and then relaxed for 20 seconds repeated the procedure for another time.

Step – XX: Instruction was given to feel the smooth movements of the fingers on the chest and stomach and relax as much as possible.

Step – XXI: Instructed to arch the lower back by lifting it up, and feel the tightness in the lower back for 10 seconds then rest it comfortably and experience the relaxation for 20 seconds-repeated the same for another time.

Step – XXII: Instructed to relax chest, stomach and lower back and also the rest of the body and to concentrate on and deeper the same of relaxation advised to enjoy the relaxation.
Step – XXIII: Instructed to press right heel into the floor and feel the tightness in the right thigh muscles for 10 seconds then suggested relaxing for 20 seconds-repeating the process for another time.
Step – XXIV: Repeated the step XXIII on the left leg-2times.
Step – XXV: Instructed to press feet and toes towards the face, fell the stretch in the calf muscles for 10 seconds then relaxed for 20 seconds-repeat the same process for another time.
Step – XXVI: Instructed to bend the both feet and toes away from the face and feel the stretch in the shin muscles for 10 seconds and relaxed for 20 seconds-repeated the same for another time.
Step – XXVII: Instructed to focus the patients mind sequentially from toes, legs, thighs, buttocks, lower back, stomach, chest, face, neck and both the upper limbs and advised to enjoy the relaxation for 30 seconds.
Step – XXVIII: Instructed to close the eyes, take the breath in, hold the tightness for 10 seconds and relaxed by exhaling the breath out for 20 seconds-repeated the same process for 2 more times.
Step – XXIX: Instructed to relax completely advised to think of the effort that is required to raise the arm, advised to think, notice the tension in the shoulder and arm.
Step – XXX: Patient was instructed not to fill the hand, advised to relax and observe the relief and disappearance of tension.
Step – XXXI: Instructed to relax completely, if patient wanted to get up, advised to count back ward from 5-1, if he wanted to sleep, he would just relax and sleep.

Patient was instructed to do home work on this technique to practice once/day.

iii) Eye Movement Desensitization and Reprocessing (EMDR)

Step – I: The patient was advised to select a calm environment and switch on the favorite music tape which last for 90 minutes, and lie down in supine position.
Step – II: The patient was instructed to focus their attention on pain or some aspect of how the pain has affected the sufferer's life, at the same time, advised to listen to the music tape for 90 minutes. Many people find this aspect most difficult, but literally they don't have to do anything other than pay attention to their experience. Each person will process information uniquely, based on personal experience and values. This process set of eye movements are continued until the sensation become less disturbing and positive thoughts or beliefs begin to emerge for example. "I can control my pain".

Before starting the procedure the patient are cautioned about increase in pain experience and about different sensations felt during the EMDR session and assurance was

given about the reduction in the level of the disturbance at the end of the EMDR session.

Patient was instructed to do home work on this technique, to practice once/day.

iv) Self Instructions

In present study the investigator used this self instruction technique for cognitive awareness of the posture, by changing the habits and style of work, which can help the patient to reduce the mechanical stress and prevent the recurrence of chronic low back pain, which involves the following steps :-

Step I: The investigator loudly and clearly instructed the following "back care instruction"/ "postural training instructions" according to the patients, necessity, work style/occupation.

Back care instructions

I – Standing

1. Stand straight/erect
2. Both legs should equally bear the weight
3. Hold the weight near to the body
4. If, standing for longer duration advised to keep the foot on a small stool

II – Sitting

1. Sit straight in the chair, advised not to lean on the chair
2. Advised not to lean on the table
3. Take the weight of the upper body through the arms to the arm rest of the chair once for every hour.
4. Advised to keep the foot on the foot rest of the table.

III – Bending

1. While lifting the weight, instructed to bend the hips, knees and sit down without bending the back, weight should be adjusted conveniently between the two feet and advised to lift the weight.
2. Twisting the back should be avoided when lifting the weights.

IV – Exercises

1. Stretch the back for every 2 hours, while doing the desk job.
2. Stretch the back 5 (or) 6 times before lifting the weights.
3. Advised to perform the exercise according to advice.

Step II: These above mentioned instruction are repeated by the patient to the investigator/therapist.

Step III: Patient was instructed to self talk/whisper these instructions and correct his/her posture, when they are assuming that particular posture.

Step IV: Advised to practice these newly learned instructions.

By following these self instructions, there will be a chance to assume good posture due to changing the habits, style of work, which can ultimately, prevents the recurrence of back pain.

Results and Discussion

The present investigation was undertaken to examine the effect of comprehensive psychotherapeutic intervention on the experience of anxiety level among chronic low back pain patients; the data obtained was included pre and post tests results of anxiety scale from 60 subjects were analyzed with the paired t-test and it is presented below.

Table 1Shows the results of paired t-tests for the significance of the mean difference between the conditions of comprehensive psychotherapeutic intervention on level of anxiety

Pairs	Anxiety	Mean	N	SD	t- value	df	P
Pair 1	P1	93.75	20	11.069	.942	19	.358
	P2	91.69	20	5.096			
Pair 2	P1	93.75	20	11.069	2.010	19	.059
	P3	88.41	20	7.681			
Pair 3	P1	93.75	20	11.069	2.851	19	.010
	P4	86.73	20	6.539			
Pair 4	P1	93.75	20	11.069	4.549	19	.000
	P5	82.10	20	5.067			
Pair 5	P2	91.69	20	5.096	2.280	19	.034
	P3	88.41	20	7.681			
Pair 6	P2	91.69	20	5.096	2.986	19	.008
	P4	86.73	20	6.539			
Pair 7	P2	91.69	20	5.096	6.197	19	.000
	P5	82.10	20	5.067			
Pair 8	P3	88.41	20	7.681	1.019	19	.321
	P4	86.73	20	6.539			
Pair 9	P3	88.41	20	7.681	3.820	19	.001
	P5	82.10	20	5.067			
Pair 10	P4	86.73	20	6.539	5.067	19	.000
	P5	82.10	20	5.067			

The table portrays the results of the Paired t-tests conducted to find out whether there is any significant reduction occurs in the level of anxiety among chronic low back pain patients after taking the comprehensive psychotherapeutic intervention.

As quoted above, ten pairs of combinations were arrived, that is finding whether any significant difference existed between the differential conditions of intervention. The obtained paired t-values respectively are as follows: Pair 1= 0.942 and significance:0.358, Pair 2 = 2.010, and significance:0.059, Pair 3 = 2.851 and significance:0.010, Pair 4 = 4.549 and significance:0.000, Pair 5 = 2.280 and significance: 0.034, Pair 6= 2.986 and significance:0.008, Pair 7= 6.197, and significance: 0.000, Pair 8 = 1.019 and significance:0.321, Pair 9 = 3.820 significance: 0.001, Pair 10= 5.067 and significance:0.000.

From the table above, it shows that comprehensive psychotherapy had performed well in the reduction of anxiety before and after therapeutic session (that is P1 to P10).

From the mean values of phase 2 indicates that the reduction of anxiety was very minimal. From the mean values of phase 3 we can understand that the anxiety was much reduced and the same trend was continued till phase 10. Observing the graphical presentation we can infer that the anxiety level was reduced drastically and the reduction was continue till the last condition. On close scrutiny of the mean values we can understand that the anxiety reduction was drastically at the initial stages and the reduction was maintained at the later conditions also, indicating that as per the mean values the reduction is noticed till the last stage. Hence, we accept the hypothesis. There will be a significant reduction in the level of anxiety among the chronic low back pain patients after Comprehensive psychotherapeutic intervention condition was accepted partially (except for the pairs, 1, 2 and 8).

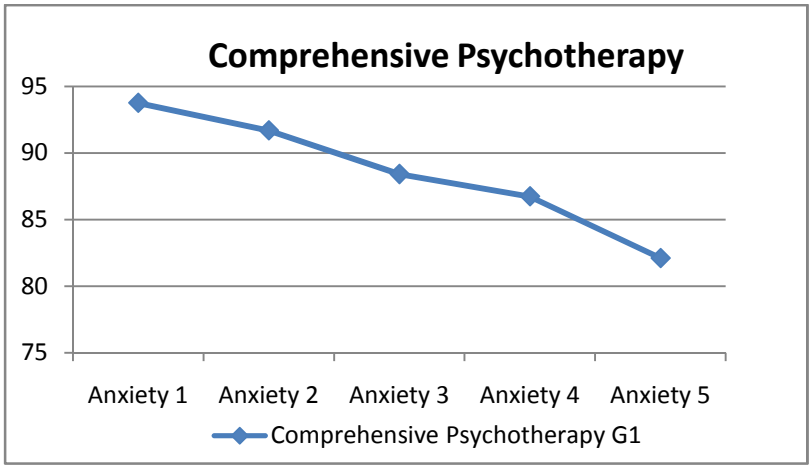

Figure 1 Showing the results of the significance of mean difference between the conditions of comprehensive psychotherapy intervention (G3) on the level of anxiety

Conclusion

Comprehensive Psychotherapy can yield fruitful out comes, in relation to decreasing anxiety level as well as decrease the experience of pain intensity, with in short duration, and the reduction was maintained up to the last stage among chronic low back pain patients.

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