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Construction of a Valid Tool to Assess the Knowledge and Perception of Physiotherapy Students about the Role of Physiotherapy in Depression and Anxiety due to Chronic Pain Syndrome

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Pain relief is the prior reason of a patient who seeks the health care sector. Effective treatment of pain needs a biopsychosocial approach. To address it, the physiotherapist must have sound knowledge about the psychological aspects of pain.A Qualitative design was utilized to frame questions on the basis of the previously established studies and literature reviews. A 24 item questionnaire under 2 sub domain knowledge and perception was then sent to expert reviews for content validation followed by a face validation. This valid tool can be used as a measurement tool; to assess the knowledge and perception of students; especially students who belong to neurology, rehabilitation and pain relief sectors;about the role of physiotherapy in depression and anxiety in chronic pain syndrome.

Keywords: Pain, Psychology, Knowledge, Perception, Physiotherapy, Biopsychosocial approach.

Pain relief is the prior reason of a patient who seeks the health care sector. The WHO and International classification of Function, Disability and Health (ICF) defines pain as a subjective experience and promotes the application of biopsychosocial model rather than the biomedical model as the pain is not just physical but also due to psychological, social and financial causes [1,2].

People those who suffer with chronic pain are also vulnerable for mental health disorders such as anxiety, depression, stress, social disengagement[3]. It is noted that the chronic pain arises most commonly with physiological, psychological and social factors[4]. At the same time it was found that the people with depression and stress are more suspected to report physical pain which in turn becomes chronic pain, thus making mental health and physical health bidirectional[5].

Chronic pain and depression are not only correlated in their occurrence but also in their progress [6]. Physiotherapists are accepted integral part of pain management team regardless of the

origin which may be musculoskeletal or neurogenic or orthopaedic or of cardiorespiratory causes and thus they are not only expected to treat the physical causes but also the mental aspects of the pain [2,7].

The emergence of depression and other mental health disorders makes it difficult not only in treatment aspects but also in diagnosing thus ultimately it reduces the treatment progress [4]. Unfortunately people who seek help for their pain relief tend to report only about their somatic pain thus the underlying depression is over looked [5].Associated mental health disorders of chronic pain hinders the process of rehabilitation.

Thus to gain an improved response and prevent long term disability due to chronic pain it is important for a physiotherapist to follow the biopsychosocial model of approach towards the patient [2]. To address these psychological symptoms and to break the underlying depression and pain cycle, it is important for a physiotherapist to know about the physiological basis of the anxiety and depression that occurs in chronic pain and its impact on patient's progress and the possible physiotherapy management and its effects.

Our study aims to develop a valid questionnaire that aids in assessing the knowledge and perception of physiotherapy students toward the role of physiotherapy in anxiety and depression in chronic pain syndrome.

METHODOLOGY

The questions included in this tool were framed in such a way that it helps in assessing their knowledge and perception towards depression and anxiety in chronic pain syndrome and its physiotherapy management and all those questions were framed on the basis of the previously established studies and literature reviews. The framed questionnaire was then sent for content validation followed by a face validation.

Development of the tool literature review

Many articles that is related to depression and anxiety that occurs along with the chronic pain syndromes were reviewed. The physiology behind the depression and anxiety that occurs in chronic cases were reviewed. Articles giving a note on the adverse effects that the anxiety and depression could have on individuals with chronic pain were identified and reviewed. The possible effective physiotherapy interventions to deal with the anxiety and depression were also identified from the literature reviews and experimental studies.

The search was based on the key words such as chronic pain syndrome, anxiety and depression in chronic pain, physiotherapy managements of anxiety and depression, correlation between chronic pain and depression, depression and treatment outcomes.

Based on these articles, the first framed questionnaire was developed.

Selection of contents of the tool

Based on the literature reviews questions were framed. The first framed questionnaire was then revised for several to make it more precise to the topic and more feasible for administration.

The questions were framed that it checks the knowledge about the basis of anxiety and depression that occurs in chronic pain syndrome and the possible impacts that it could have on the chronic pain patients and the treatment outcome. The questions were also framed to assess the knowledge of the physiotherapy students about the exercises and physiotherapy managements that can help the chronic pain patients to cope up with anxiety and depression and its physiology of its effects. Few questions were framed such that it grades their perception about depression and anxiety and its physiotherapy managements.

The selected contents were placed under appropriate domains of knowledge and perception to make it more convenient for usage and evaluation. While knowledge about the depression and anxiety and the role of physiotherapy consisted of fifteen items under the two sub domains: essential physiology and exercise physiology whereas the perception about anxiety and depression consisted of nine questions. Over the tool consisted of twenty four items to be administered to the physiotherapy students

Content validity

The framed questionnaire was then sent to expert committee for content validation which consisted of an eight senior physiotherapists who were experts in teaching as well as clinical practice. The experts individually evaluated the questionnaire for its relevance and a face to face discussion session was conducted where the experts discussed about the formation of the questions and the basis of the formulation and suggestions

were given to improve the quality of the framed questionnaire.

Face validity

After being validated by a panel of experts the questionnaire was then sent for face validation to check it feasibility and level of agreement to the tool. For face validation the targeted population was post graduate students especially post graduate neurology students. Apart from them physiotherapy students of other specialization and physiotherapy internship students, who were interested in the study also volunteered themselves for face validating the questionnaire. Majority of the population found that the questionnaire was suitable for the objectives of the study and more relevant and feasible for the objective study.

After undergoing all the necessary alterations, the final version of the questionnaire was framed based on the maximum acceptance level towards the content of the tool by both the experts and students.

Scoring of the tool

Eight items were placed under the essential physiology and 7 items were placed under the exercise physiology. This domain provided with options of true, false and do not know. For each question, correct answer was provided with 1 point while the wrong answer was to be given zero. This sums up to the maximum score of fifteen. The higher the score, the higher the knowledge.

There were nine items placed under the perceptions. The grades for the questions of perception were based on a five point Likert scale ranging from strongly agree to strongly disagree. While strongly disagree is given 5 points, strongly disagree is to be given one point. Thus it makes the maximum score of forty five.

DISCUSSION

There are several theories proposed to cause mental health problems in chronic pain. Shared neuro – biological pathway, the dysregulation of Hypothalamic Pituitary Adrenal axis in case of long term stress leads to increased cortisol secretion that interrupts its negative feedback mechanism is proposed as a factor for major depression in chronic pain conditions. Chronic pain has negative impact on the secretion of Brain Derived Neurotrophic Factor (BDNF) which increases the neuronal damage and maladapted neuronal plasticity along with decreased serotonin which leads to decreased tolerance to pain making the individual hypersensitive. This makes the individual to exacerbate the pain again making it difficult to treat. BDNF is negatively correlated with depression. Prolonged inflammation mediated pain will also lead to decreased BDNF and dysregulation of HPA axis and neurotransmitter secretion such asmonamine.[5,6,8]

Treating mental health problems or chronic pain alone will lead to relapsing symptoms in future, thus making it important to address both the aspects for long term recovery[5]. Treating the underlying depression is essential for the long term recovery. And it requires an additional care andintervention[9].It is not uncommon for a chronic pain patient with depression tobe socially disengaged this is owing to the inhibition of basal ganglia and the limbic system that makes the patient lack the motive to move. This lack of intent to move and kinesiophobia will lead to deconditioning syndrome including disuse muscular atrophy[10,11].

It is also to be noted that depression leads to delayed tissue repair and immune suppression while anxiety leads to skin diseases and destruction immunoglobulins[10,12]. In severe cases depression is potent to alter osteo-muscular mechanics and may also cause aches in lumbar, cervical, knee and head regions[5,13]. Depression leads to decreased blood perfusion in lungs[14].

Studies prove that the strongest pain killer is capable of achieving its aim only in half of the population to which the drug is administered [15]. In contrast exercise has an effect higher than of the drugs administered. This analgesic and anti-depressive effects of the exercises prescribed is because it stimulates secretion of Brain Derived Neurotrophic Factor, endorphin, serotonin, nor epinephrine which acts as natural anti-depressants and analgesics and it also reduces the secretion of the stress hormone [14,16,17,18].

Patients who suffer from depression will have poor coping strategies to pain and increased dropouts to treatment. Adherence being a key of pain coping strategy has to be encouraged and for this reason it is important that a physiotherapist should address the mental status of the individual suffering from somatic symptoms. To achieve a good prognosis and a long term effect it is

essential for the physiotherapist to understand the relationship between cognition, emotion, behaviour and the recovery process[2, 3,9,19].

Rather than strengthening exercises, low intensity exercises and aerobic exercises were efficient in treating depression and was as effective sertraline. Focusing on cardiorespiratory exercises improves cerebral vascularization and leads to cortical thickening. Aerobic exercises do help in regulation of HPA axis. Exercise is proved to be inversely related with cognitive detoriation[17,20]. Postural re-education, bio feedback, functional restoration, reassurance, motor learning were found to be effective to motivate the patient and to overcome depression. To overcome depression, making the individual to actively take a role in social life is inevitable which can be achieved by increased physical activity [5,9,10,13,14,16].

Graded exercise activity is a key to break the cycle of inactivity and kinesiophobia. Relaxation exercises, breathing exercises has an effect on autonomic nervous system which leads to inhibitory effects on depression [2,14]. Myofascial release has an significant effect on mood by relaxing the sympathetic fibers[14].Inspite of it being necessary to address patients in psychosocial model, physiotherapists fail todo so. This is due to lack of training. Studies says that this failure prevails in all fields of health sciences and they are least trained to approach the patients in aspects of psychology.

In most of the health sectors, only physical complaints are noted and least importance is given to their psychological symptoms and is often neglected[2].

Despite all these positive effects that the exercise, relaxation, graded activity has on stress, depression and anxiety that are commonly related to chronic pain, these techniques are mostly confined to articles rather than being practically implemented. Though understanding the psychological aspects of a condition is important for clinical decision making, physiotherapists are not prepared for it[2]. This is due lack in education about mental health in curriculum. To confirm this and to make necessary changes it becomes necessary to assess their knowledge in thissector[7]. This questionnaire can be used to assess the knowledge and perception of students especially those who belong to neurology, rehabilitation sectors and pain relief sectors.

Limitation

The questionnaire was only checked for a qualitative content validation and face validation. The questionnaire has to be checked for its reliability and a pilot testing has to be done.

CONCLUSION

This is the first study done to frame a questionnaire that aids in assessing the knowledge and perception towards the depression and anxiety in chronic pain syndrome and its relevant physiotherapy management. Both content and face validation was done and accepted as a valid tool for its objectives.

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Conflict of interest

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