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Control and Learning Motor in Depression From The Relationship Physiotherapy-Mental Health

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Abstract

Introduction: The mental health as field of action for the physiotherapists is an important challenge that implies formation and investigation. The alterations of the mental health on a global scale are nowadays a problem of public health that it makes necessary that the professionals of the area of the health have a deeper knowledge on the topic to act of way adapted from the prevention and intervention. The control and learning motor are theoretical modality of the neurorehabilitación that allow to analyze the body and the movement beyond the biological dimension. The main mental alterations affect the system límbico entrusted of learning, the emotions and the memory; it has a big relation with the autonomous system and different components of the central and peripheral nervous system, what justifies that the physical therapy in neurorrehabilitación must understand in a suitable way the mental health. A bibliographical review was presented that allowed to interpret the motor control and learning in the depression from the relationship of physiotherapy and mental health.

Interpreted from the analysis of content of the selected documents, control and motor learning in the depression on the basis of the relationship of physical and mental health.

Physiotherapist intervention strategies used in mental health include human body movement beyond the biological dimensions of motor control, are closer to learning and motor behavior. They use techniques and parameters of work with physical exercise, body awareness and respiration.

Key words: Mental Health; Physiotherapy; Motor Learning; Motor Control; Depression; Mental Disorders

Introduction

The neurorrehabilitación has been a performance area for different professionals who have contributed with knowledge and strategies to the persons' intervention with pathologies that affect the neurological system, it has spent for diverse moments that have been sustained across the theoretical modality of control and motive learning; we can understand motor control as all the internal capacities (structures and functions) that a person has to achieve movement and as motor learning, the experience of the movement we are acquiring throughout our lives to develop Skills and abilities.

The profession of physiotherapy in the field of neurorehabilitation presents a timeline that has shown how these two theoretical references have been understood in various ways trying to explain how human body movement is created and constructed (MCH), has been passed to understand it as an activity reflects and automatic up to interpret it as a complex and dynamic process that takes implicit life experiences and emotions [1].

There are important challenges in physiotherapy such as understanding the body and movement beyond the physical dimension, taking into account other dimensions such as psychosocial, relational and aesthetic; this would open up other fields of action such as mental health and generate evidence-based practice as proposed by the WCPT (International Physiotherapy Confederation) [2].

The mental health is a welfare state in which the individual realizes his own capacities, it is capable of confronting the normal tensions of the life, it can work of productive form and it is capable of doing a contribution to its community [3]. The social determinants that affect mental health established by WHO (Word Health Organization) as social inclusion, absence of discrimination and violence and economic participation, they are important when understanding mental health beyond the absence of psychiatric illnesses, being fundamental to the personal and community well being [4].

Who presents some 450 million of people around the world suffering from mental illness and a third of the years lived with disabilities can be attributed to neuropsychiatric disorders, globally, 12% of them are due only to depression [5]. In recent years depression has become a priority of public health due to its high prevalence and the consequences that it causes on society in terms of mortality, morbidity, economic and social costs; It significantly affects physical, mental and social functions and is associated with an increased risk of premature death. WHO mentions that the prevalence of cardiovascular disease for 2020 is surpassed by mental illness, such as depression and anxiety, located among the top ten health problems at the global level [6].

Depending on its severity, it can hinder the person's ability to perform basic activities of daily life, causing a great deterioration in its normal functioning and in its quality of life, that is why it is considered that depression is one of the leading causes of disease burden in the world, it alters the functioning of a person up to even leading to the death [7].

The main mental disturbances affect the limbic system in charge of learning, emotions and memory; It has a great relationship with the autonomous system and different components of the central and peripheral nervous system, which justifies that physiotherapy in neurorehabilitation should adequately understand mental health.[3]

Donaghy and Durward defined that the role of 112 fisioterapeuta in mental health as "the professional who offers a great arsenal of physical 113 treatment approaches aimed at improving symptoms and quality of life, providing a Excellent 114 support in the evaluation and treatment of mental patients, which is usually offered in connection 115 with pharmacological and psychotherapeutic treatment in the context of the interdisciplinary team [8].

The role of physiotherapy in this field includes the evaluation and treatment of patients with pain, somatoform disorders, anxiety, depression, personality disorder, acquired brain injury, dementias, behavior problems, disorders of the Food, additions, and other [9].

For all of the above, the objective of the present investigation, was "interpret the strategies physiotherapy in mental health used in people with depression from the control and motor learning" with the purpose of showing the importance of physiotherapy in mental health.

Method

It was made a bibliographic review that used a strategy of content analysis taking into account the relationship of physiotherapy, mental health and depression.

The key words used were physiotherapy, mental health, motor learning, motor control, depression and mental disorders. We used the search engines of Pubmed, Elsevier, MedScape, ScienceDirect, OvidSP, EBSCOhots, dianamed, rehabilitation Reference Center, Siberlink, Hinari, Pedro, Scielo, Lilacs. Virtual libraries such as SINAB, Cochrane, University Library of the Universidad de Málaga and UsNational Library of Medicine National Institutes of Health. Due to the little documentation found, recourse was had to search for groups in academic communities that could serve as a reference, these groups took into account the Tertiary source http://www.icppmh.org/Conferences.html from which there were analyzed the memoirs of the meetings Physical Therapy in Mental Psychiatry and Health of 2010, 2012, 2014 and 2016. With the combination of the words keys found 72 documents which 30 discarded because they were not presenting in a clear way the physical therapy relation in mental health specially in interventions for the depression. Eleven duplicated articles were presented and of the 42 that remained, 15 documents were selected according to the inclusion criteria where the documents presenting the physical physiotherapy interventions in mental health in depression were taken into account in a clear way.

Results

Analysis of the Depression from the Motor Control

It is understood as motor control the regulatory process that allows the planning, structuring and reorganization of the execution of the movement; sensoperceptivas interactions are presented to generate a planned, coordinated and specific action to meet motor objectives; In this way the motor control is understood as a complex pillar within the movement of the human being; because the human being moves thanks to psychological, biological and social factors according to his needs taking into account the interaction with the environment and the development of skills in the context in which he performs [10,11].

In a person with major depression the biological and social factors become deficient in relation to the movement control system to plan and execute it, which generates a decrease in the motivation to carry out a motor action, causing a deterioration in their own activities and those related to their environment, therefore the motor capacity of the individual with major depression will be mainly affected by the biological components, because as mentioned above the main mental disorders affect the limbic system in charge of learning, emotions and memory; It has a great relationship with the autonomous system and different components of the central and peripheral nervous system.

In the biological component, the hereditary element is one of the most relevant, because the genetic and epigenetic characteristics of the individual favor and influence directly on their actions allowing the subject to interact with others and with their environment through motor acts, movement patterns and engine behavior [12].

Analysis of Physiotherapy Intervention Strategies from the Motor Control used in Depression

The depression is a state of the human being that is considered pathological and little related to alterations of movement and motor control. The treatments proposed for the intervention of this pathology are usually pharmacological to level the neurotransmitters affected. In a person with major depression, the ability to execute a movement is clearly distorted, generating a deficiency in most categories of the movement; deficiencies ranging from postural control, balance, gait locomotion and balance. In the motor control of a person with depression we can find postural and biomechanical alterations that lead to headaches, lumbalgías, cervicalgías, muscle chain alterations-myofascial, temporamandibular Articulation problems, and circulation problems [13].

In this sense, the physiotherapy strategies should be focused on the usual clinical treatment to decrease as far as possible the osteomuscular and circulatory deficiencies found. For this, strategies are used as physical exercise with adequate prescription and progression which has shown neuromodulation of some neurotransmitters. It also uses strategies such as hydrotherapy with the technique of watsú, myofascial therapy with the approaches used in the countries of Argentina, Uruguay and Chile (osteopathy) and the technique of Touch therapy [14].

Physical exercise with an appropriate prescription may be helpful in reducing the symptoms of depression in early stages or to prevent it; however, experimental research is needed to know the appropriate parameters for the prescription and progression of the exercise in this type of disorder and in other similar, hence the importance of working between different specialties of physiotherapy and other professions as this would allow to generate scientific evidence through practice based on evidence. The physical exercise contributes to the reduction of depression and anxiety, as well as to the optimization of the physical and cognitive function, presenting multisystem improvements; skeletal muscle level, improvements in flexibility, strength and weight control are observed, in the cardiovascular system physical exercise offers an effect that facilitates changes in behavior, lifestyles and helps to contribute to the quality of life of people, which will facilitate the Recovery of their capacities and their level of psychosocial functioning [15].

The effects of physical exercise promote psychological changes, which favor their state of mind, preventing and controlling the emergence of chronic noncommunicable diseases, helping the skeletal muscle system by depositing a greater proportion of minerals that favor the support of the load of the same [16].

Aerobic exercise (walking and jogging) and strength and flexibility exercises, with 10-minute warm-up sessions, 20-30 minutes of walking to 50-75% RH Reserve (perceived effort index-RPE of 4-6 on the CR-10 scale) and 10 minutes of cooling (Flexibility and breathing exercises), it has demonstrated a significant progress in pre and post it tries on the depressive symptoms ($p \leq 0{,}001$) evaluated with Scale of Geriatric Depression (GDS) and in all the tests of fitness ($p \leq 0.05$) evaluated with Senior Fitness Test, with the exception of the flexibility ($p \geq 0{,}05$) [17].

Analysis of Depression from Motor Learning

Understanding motor learning involves addressing the permanent transformation of movement patterns as a result of the interaction of biological capacities and simultaneously the dimension of the motor act in relation to the psychological conditions of the which determine the characteristics of endurance and flexibility of learning [10]. Motor learning is the process of continuous feedback between activity and behavior, since action is the functional unit of motor activity, in this way it is able to identify that there is a direct interaction between major depression and motor learning processes [18].

In depression there is an alteration of the limbic system and basal ganglia that directly affects motor planning. The limbic system is directly related to memory, emotions, motor activity related to postural control, muscle tone and learning processes, in this way it is able to identify that the kinetic deterioration is expressed from the learning motor by not having capacity to comply with a motor action taking into account a directionality, intentionality and specific motivation which blocks the movement experience [12].

The capacity of somatizar is common to all cultures and social groups studied. The presence of symptoms somatic in patients with depression does not seem to depend on socio-economic factors such as gender, the level of income, the educational level or age. Somatic symptoms have therefore been described as part of a cultural language of affective disorders that, if misinterpreted by the clinician, may lead to unnecessary diagnostic procedures or inadequate treatment [19]. In people suffering from depression with moderate and severe intensity, there is evidence of an alteration in the interaction with the environment. In the first instance, his driving capacity is deficient, he expresses the lack of motivation to carry out the tasks involving mental activities such as decision making and activities of daily life such as bathing and feeding. People with this health condition prefer to be alone by alienating their relatives and even their work because their biological capacities for the intent to move are affected and do not allow them to properly structure a motor planning what It leads to the affectation and generation of other circumstances that can lead to death.

Analysis of Physiotherapy Intervention Strategies from Motor Learning used in Depression

Strategies that work the perception of movement and body should be used, listening to what the body says is to integrate this idea of corporeity as construction and development of body consciousness, health care, self acceptance and pleasure by the movement therefore, it is important in mental health physiotherapy to work motor learning, to learn to observe and read through the body

and movement the life experience of people; somatic education is a disciplinary field that is interested in body awareness and the ability of that living body to educate itself through perception. All this applies to the interior of the educational, investigative and vocational training processes, which seeks to improve the quality of personal processes and our interactions with the context of our environment in everyday life [19].

One of the evaluative and interventional strategies that can be used at this level is the body consciousness therapy of the author Gertrud Roxendal which works two techniques based on two complementary aspects of body awareness and behavior engine one from the general functions common to all human beings and another from the individuality of non-verbal conduct [20].

The technique Alexander and the method Feldenkrais are techniques of somatic education destined to establish a greater awareness of the movements. The desired result is to become more functional and conscious of one's movements spatially throughout the daily routine activity. The Alexander technique and the Feldenkrais method, unlike other forms of alternative therapies, are relatively new and not so widely understood by society [21].

In the cognitive therapeutic exercise, it is a method of rehabilitation which is born in Italy at the beginning of the years 70 known commonly with the name of its creator, Perffetti but the real one is cognitive therapeutic exercise (ETC). His study hypothesis is that the quality of movement recovery, both spontaneous and guided by the rehabilitation, depends directly on the type of cognitive processes that are activated (perception, attention, memory, language) and its mode of activation , in other words, the way in which they are activated. These intervention strategies can be applied because they work the perception of movement and the body [22].

In the motor learning it is important to take into account the interaction with the context, which is characterized by having a minimum delimitation and a high dependence of the environment, since it constitutes in social and cultural construction of the men, like the scenario temporo-spatial, determined by norms and social rules, which condition the motor capacity where the action, the activity and the motor behavior are acted and transformed [18].

Mental health physiotherapy is based on an understanding of the close relationship that exists between existential, cultural, social, mental and physical factors, pursuing an integration of all these through physiotherapy strategies. The basic philosophy of this discipline consists in the understanding of the human being as a carrier of personal vital experiences, leaving marks on the bodily functions and patterns of the movement , therefore; interventions should be taken into account in an interdisciplinary manner in order to carry out the analysis of the person in their different roles and in their participation in society to adequately establish the different strategies therapeutic in their everyday environments. From other professions we can see that in the last decades, a new set of models has emerged within the cognitive-behavioural orientation: The cognitive therapy based on mindfulness, the dialectical behavioural therapy, the therapy of acceptance and commitment, meta-cognitive therapy, the system of cognitive-behavioural analysis psychotherapy and functional analytical psychotherapy [7]. The emergence of these new models has been accompanied by intense debates on the role of cognition and the incorporation of mindfulness skills [23].

Discussion

Physiotherapy for the field of neurorehabilitation should take into account the theories of motor control and motor learning, as well as the history because initially were strong theoretical supports where treatment was prioritized to facilitate Execution of human body movement and has evolved to neurocognitive theories where the relationship body-mind-emotions-movement potentiates Bearing in mind that the limbic system is related to cognitive, emotional and motor planning functions. Authors such as Rodolfo LLinás and Carlo Perfetti have been able to find the importance of the analysis of human body movement not only from execution but from other components such as fixed action patterns, cualias and different neurological structures. That are involved in motor control and learning from a complex approach.

The foregoing is important in the analysis of mental disorders, since it must go beyond understanding the physical deficiencies that generate these pathologies, you must understand that it is failing in the ideation and planning of human body movement and as it is affecting the perception of movement and body.

The different strategies of intervention physiotherapist used in mental health assume the human body movement beyond the scientific explanations of the motor control, take into account the emotions and as these affect all the development of the body and movement perception.

It is important in the major depression to work the meaning of the body through movement taking into account breathing, physical exercise, pelvic floor work, stomatognathic system and awareness, image and body diagram.

It is recommended to initiate experimental research on issues of measurement, evaluation and intervention for motor learning which necessitates an interdisciplinary work [24].

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