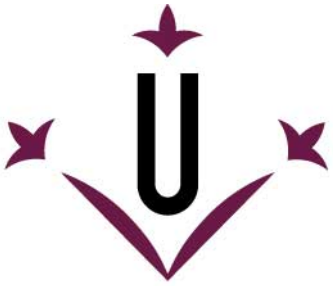
Universitat de Lleida

Physiotherapy in Mental Health Effectiveness of Basic Body Awareness Therapy in patients suffering from fibromyalgia

Cristina Bravo Navarro

http://hdl.handle.net/10803/441751



Universitat de Lleida

DOCTORAL THESIS

Physiotherapy in Mental Health Effectiveness of Basic Body Awareness Therapy in Patients Suffering from Fibromyalgia

Cristina Bravo Navarro

Memòria presentada per optar al grau de Doctor per la
Universitat de Lleida
Programa de Doctorat en Salut

Directors
Luisa Guitard Sein-Echaluce
Daniel Catalan-Matamoros

2017

"No conozco un valor mayor que el necesario para mirar dentro de uno mismo"

"I don't know highest courage that necessary to look inside oneself"

Osho

Universitat de Lleida

Los Dres. M. Luisa Guitard Sein-Echaluce y Daniel Catalán Matamoros

CERTIFICAN:

Que la Tesis Doctoral Internacional presentada por Dña. Cristina Bravo Navarro ha sido realizada bajo nuestra dirección, dando nuestra conformidad para que sea presentada, leída y defendida ante el Tribunal que le sea asignado para optar al Grado de Doctor con mención Internacional por la Universitat de Lleida.

Hecho que ponemos de manifiesto para que conste allá donde proceda.

En Lleida, 18 de Abril de 2017

Dra. M. Luisa Guitard Sein-Echaluce

Dr. Daniel Catalán Matamoros

ACKNOWLEDGEMENTS

To Dr. Daniel Catalan because I owe this adventure to you. He taught me all about research and publishing, and he gave me the oportunity to start all by guiding me to Bergen. Many Thanks!

I am grateful to Luisa Guitard who helped me and provided all the resources and guidance in the University. She always believed in my project and worked with efficiency and celerity.

A very special gratitude goes out to all staff of Public Health Center of Igualada Nord, in special Aurora Garriga who opened the doors of the center and provided all the needed material. What a great place to work!

With a special mention to Liv Helvik Sjkaerven, Mary Anne Sundal, Taisei Yamamoto who taught me all about movement quality and awareness. I am also grateful to my colleges of BBAM that encouraged me during my learning process.

My eternal grateful to my family and special to my mother Maria and my children who have provided me through moral and emotional support in my life. This acccomplishment would not have been possible without them. Thanks for all your encouragement.

Cristina Bravo

Table of contents

ABSTRACT

RESUMEN

RESUM

ABSTRACT

Fibromyalgia is recognised as one of the major common causes of disability behind osteoarthritis. There is a need to expand the knowledge of physiotherapeutic approaches in fibromyalgia. The aim of this thesis is to assess the clinical outcomes and experiences of Basic Body Awareness Therapy (BBAT) in people suffering from fibromyalgia. The specific aims are: a) review clinical trials about the effectiveness of body awareness in patients suffering from fibromyalgia, b) evaluate the effectiveness of BBAT in relation pain, movement quality, psychological function and quality of life, c) analyse the experiences of a group of patients with fibromyalgia in relation to BBAT, d) explore the implementation of BBAT education in the University Bachelor.

This thesis has been developed in four scientific articles which have been conducted using different methodologies. 1) a systematic review of clinical trials about the effectiveness of body awareness in patients suffering from fibromyalgia. 2) a randomized clinical trial which comparing the effects of BBAT with treatment as usual. The quantitative variables were assessed before intervention, post-test immediately measured after intervention, and follow-ups at 12 and 24 weeks. 3) qualitative data was collected from a BBAT group of patients with fibromyalgia which were interviewed individually and in groups. 4) qualitative study on the experiences of physiotherapy students enrolled in a BBAT introduction course.

This thesis has shown that Body Awareness Therapies may be applied as an intervention for people suffering from fibromyalgia in relation to pain, sleep quality, fatigue, anxiety, depression and quality of life. Moreover, there were significant differences in the level of pain, movement quality and anxiety when people suffering fibromyalgia received a BBAT intervention. BBAT might be an effective and a safe intervention for this group of people.

RESUMEN

La fibromialgia está reconocida como una de las mayores causas de incapacidad detrás de la osteoartritis. Existe una necesidad de expandir el conocimiento fisioterapéutico en la fibromialgia. El objetivo de esta tesis es evaluar los resultados clínicos y experiencias de la Terapia de Conciencia Corporal Basal (TCCB) en pacientes que sufren fibromialgia en comparación con el tratamiento habitual. Objetivos específicos son: a) revisión de los ensayos clínicos sobre la efectividad de las terapias de conciencia corporal en pacientes diagnosticados de fibromialgia, b) evaluar la efectividad de TCCB en relación al dolor, calidad de movimiento, funciones psicológicas y la calidad de vida, c) analizar las experiencias de un grupo de pacientes con fibromialgia en relación a TCCB, d) explorar la implementación de un curso de TCCB en el grado de fisioterapia.

Esta tesis ha sido desarrollada en 4 artículos científicos los cuales han sido elaborados a través de diferentes metodologías. 1) una revisión sistemática de los ensayos clínicos sobre la efectividad de las terapias de conciencia corporal en pacientes con fibromialgia, 2) un ensayo clínico randomizado en el cual se compara los efectos de TCCB con el tratamiento habitual. Las variables cuantitativas fueron valoradas antes, después de la intervención, a las 12 y 24 semanas. 3) fueron recogidos datos cualitativos del grupo de TCCB que fue entrevistado individualmente y en grupo. 4) un estudio cualitativo sobre las experiencias de estudiantes de fisioterapia que cursaron un curso introductorio de TCCB

Esta tesis ha demostrado que las terapias de conciencia corporal pueden ser una intervención efectiva para pacientes con fibromialgia en relación al dolor, la calidad del sueño, la fatiga, ansiedad, depresión y calidad de vida. Además, existen diferencias significativas en el nivel del dolor, calidad de movimiento y ansiedad cuando personas con fibromialgia reciben una intervención de TCCB. TCCB puede ser una intervención efectiva en pacientes diagnosticados de fibromialgia.

RESUM

La fibromiàlgia està reconeguda com una de les majors causes d'incapacitat darrera de la osteoartritis. Existeix una necessitat d'expandir el coneixement fisioterapèutic sobre la fibromiàlgia. L'objectiu d'aquesta tesis es evaluar els resultats clínics y experiències de la Teràpia de Consciència Corporal Basal (TCCB) en pacients amb fibromiàlgia en comparació amb el tractament habitual. Objectius específics són: a) revisió dels assajos clínics sobre l'efectivitat de les teràpies de conciència corporal en pacients diagnosticats de fibromiàlgia, b) evaluar l'efectivitat de TCCB en relació al dolor, la qualitat de moviment, funcions psicològiques i la qualitat de vida c) analitzar les experiències d'un grup de pacients amb fibromiàlgia en relació a la TCCB, d) explorar la implementació d'un curs de TCCB al grau de fisioteràpia.

Aquesta tesis ha sigut desenvolupada en 4 articles científics els quals han sigut elaborats a través de diferents metodologies. 1) una revisió sistemàtica dels assajos clínics sobre l'efectivitat de les terapies de conciència corporal en pacients amb fibromiàlgia, 2) un assaig clínic randomitzat en el qual es compara els efectes de la TCCB amb el tractament habitual. Les variables van ser van ser mesurades abans, després de la intervenció, a les 12 i 24 setmanes. 3) van ser recollides dades qualitatives del grup de TCCB que va ser entrevistat individualment i en grup. 4) un estudi qualitatiu sobre les experiències dels estudiants de fisioteràpia que van cursar un curs introductori de TCCB

Aquesta tesis ha demostrat que les teràpies de conciència corporal poden ser una intervenció efectiva per pacients amb fibromiàlgia en relació al dolor, qualitat del son, fatiga, ansietat, depressió i qualitat de vida. A més, existeixen diferències significatives en el nivell de dolor, qualitat de moviment i ansietat quan persones amb fibromiàlgia reben una intervenció de TCCB. TCCB pot ser una efectiva i segura intervenció en pacients diagnosticats de fibromiàlgia.

INTRODUCTION

INTRODUCTION

Physiotherapy has experienced a significant development in recent decades, especially since 1981, when it was implemented in higher education[1] in Spain. The increasing quantity and quality in both research and education led the profession to divide into specialisations. Among the specialties established in physiotherapy, mental health has emerged as a new area of specialisation for physiotherapists not only in Spain but worldwide[2].

Physiotherapy in mental health is implemented in different health settings such as psychiatry and psychosomatics. It is person-centred and is provided for children, adolescents, adults and older people with mild, moderate or severe, acute and chronic mental health problems, in primary and community care as inpatients or outpatients. Physiotherapists in mental health provide health promotion, preventive health care, treatment and rehabilitation for individuals, groups and in group therapy settings. Physiotherapists in mental health create a therapeutic relationship to provide assessment and services specifically related to the complexity of mental health within a supportive environment applying a model that includes biological and psycho-social aspects. The aim of physiotherapy in mental health is to optimise well-being and to

empower the individual by promoting functional movement, movement awareness, physical activity, and exercises, bringing together physical and mental aspects. Physiotherapists in mental health contribute to the multidisciplinary team and inter-professional care. Physiotherapy in mental health is based on the available scientific and best clinical evidence[3].

Physiotherapy in Mental Health

Although in the twentieth century physiotherapy in mental health was included in mental health services, physiotherapists in Spain usually treated other chronic conditions in patients with psychiatric diseases. In other European countries, physiotherapists developed different treatment methodologies under the specialisation of mental health. In Norway, the main authorities in the field were Bülow-Hansen and Heir-Bunkan who created Norwegian Psychomotor Physiotherapy[4]. Another Scandinavian developer was the Swede Roxendal who published the first PhD thesis about physiotherapy in mental health in 1985, creating the Basic Body Awareness Therapy and Body Awareness Scale[5]. In 1998 and 2001, respectively, the Swedish physiotherapists Mattson and Lundvik-Gyllensten published their PhD theses[6,7] about clinical settings of physiotherapy in mental health. In 1990 the Norwegian

physiotherapist Skatteboe published her master's thesis[8] about the experiences of Basic Body Awareness Therapy (BBAT) group in patients suffering from chronic neurosis and personality disorder. In 1999, the Norwegian Skjærven wrote her master's thesis[9] about the dimensions of movement quality. Indeed, the Scandinavian countries have made great developments in the field of physiotherapy in mental health, which is a standard practice in mental health services. In addition, clinicians and researchers in other countries have contributed to the development of the physiotherapy specialisation in mental health, such as Dr. Probst, from Belgium, who in 1995 published his doctoral thesis[10] on body awareness in patients suffering from eating disorders, and validated the measurement tool "Body Attitude Test"[11] which is today used worldwide in the clinical practice of eating disorders and has been translated into more than 20 languages. Probst had led countless researches and created different evaluation techniques to apply in patients suffering from eating disorders[12,13].

Since 2011, the International Organisation of Physical Therapists in Mental Health (IOPTMH) has existed as an official subgroup of the World Confederation of Physical Therapy. It currently includes 20 member countries, which have organised subsections of physical therapy in mental health. The IOPTMH has

also organised the International Conference of Physiotherapy in Psychiatry and Mental Health since 2006. The conference has taken place in many countries every other year, as follows: 2006 Belgium, 2008 Bergen, 2010 Lund, 2012 the United Kingdom, 2014 The Netherlands, and 2016 Spain.

Mental Health Physiotherapy in Spain

Spain is a country of 46 millions of inhabitants and about 46.000 physiotherapists. As in many high-income countries, the prevalence of mental disorders among the Spanish population is increasing dramatically since the last decade, and at least the 20% of the population have suffered from mental disorders during their lives[14].

The Spanish Association of Physiotherapists in Mental Health (AEF-SM, according to the Spanish acronym) was built to improve health and quality of life in the society by advancing education, research, clinical practice and advocacy in the fields of Physiotherapy in Psychiatry, Psychosomatics and Mental Health.

AEF-SM was officially launched during the 14th National Congress of Physiotherapy in April 2012 and was included in the National Register of Associations (number 600555). Additionally, AEF-SM was adopted as a subsection by the Spanish Association of Physiotherapists and it's also the Spanish representative and

founding member of the International Organization for Physiotherapists in Mental Health.

The Association is promoting the research field by organising national scientific meetings and disseminating research activities through its website (http://www.fisioterapiasm.es). A growing number of physiotherapists are preparing their PhD thesis since 2007 when the first Spanish PhD thesis was published with the title "Physiotherapy in Mental Health: the effectiveness of a physiotherapeutic intervention in eating disorders"[15]. Spanish physiotherapists are also publishing research articles in both national and international scientific journals working together within an international network of colleagues from Belgium, Norway, Sweden, UK and Holland.

In the field of education, AEF-SM is organizing training programs and providing support to educational institutions to promote specialized mental health physiotherapists nationwide. At the moment, Spanish Universities such as the Autonomous University of Barcelona, University of Salamanca, University of Malaga, University of Murcia, University of Almeria, Nebrija University and University of Lleida are actively providing educational programs on mental health.

The Scandinavian approach in mental health physiotherapy applies body awareness and psychomotor therapies. Body awareness therapies refer to a group of interventions sharing a common perspective that focuses on the internal subjective experience of the body[16,17] encompassing balance, movement, concentration, massage, breathing, relaxation and body awareness. Body awareness therapies can be defined as body-oriented therapeutic approaches using a holistic perspective directed towards an awareness of how the body is used, in terms of body function, behaviour and interaction with oneself and others[18,19]. This group of interventions promotes physical, mental and emotional well-being. Examples of body awareness therapies are BBAT and Norwegian Psychomotor Physiotherapy[20].

BBAT is a health-oriented and person-centred approach with a focus on the patient's resources[5,21-22] from a multi-perspective view based on the biomechanical, physiological, bio-psychosocial, and existential perspectives[22-23]. These aspects mutually and simultaneously influence each other. BBAT is a movement awareness training approach in physiotherapy aiming to promote movement quality in daily life through self-exploration and self-experience with a goal of learning new movement habits.

Understanding movement quality as the art of consciously being, doing, and relating to oneself and others results in a more functional daily life, relationships, and actions[24]. In BBAT, the physiotherapist focuses the guidance on postural balance, free breathing, and awareness to gain more functional movement quality and movement coordination[25].

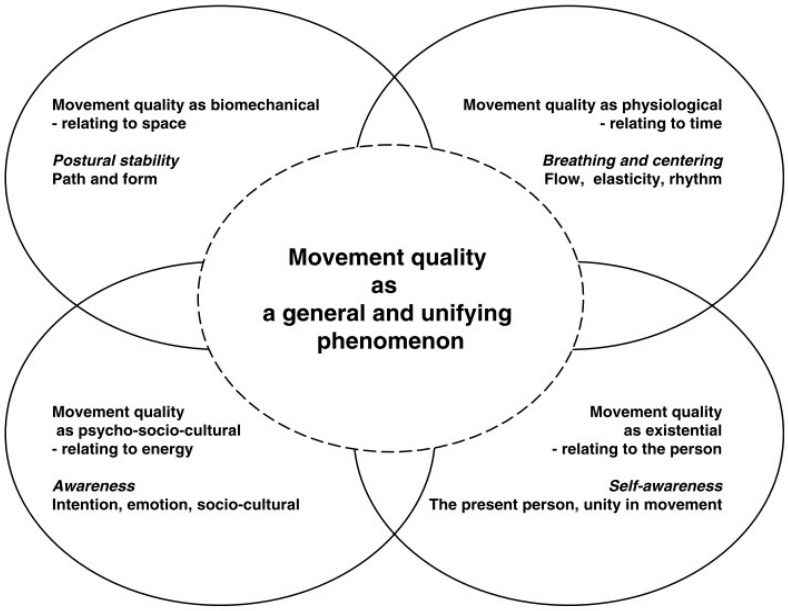


Figure 1. The movement Quality Model (MQM): seeing movement quality as interacting processes[23].

Furthermore, BBAT includes a broad scope of daily life movements in different positions such as lying, sitting, standing, and walking, as well as relational movements and use of the voice. These movements are practised in therapy with other components such as rhythm, form, elasticity, flow, intention, and voice to gain

quality in the movements[5,26,27]. Assessment tools such as the Body Awareness Rating Scale (BARS)[26] or Body Awareness Scale Interview (BAS-I)[5] have also been used to observe the development of people. Basic Body Awareness Therapy is applied in multiple conditions such as psychosomatics,[6,28,29] long lasting pain[4,31] and mental health[20,32].

BARS shows high internal consistency, high inter-tester and test-retest reliability, and low measurement error[33]. The scale is composed of 12 movements that are evaluated with a score between 1 and 7. A score of 1 is given to the most pathological and disharmonious coordination, and 7 to the most healthy and harmonious; 4 is the midpoint of the scale. The scale represents the four perspectives of the movement quality model; it gives a range from the biomechanical perspective (movements 1 to 3) to the physiological perspective (movements 3 to 5) to the psychological aspect (movements 5 to 7). Two main variables are evaluated: 1) psychomotor function through observation of movement quality, quantitative data arise from that variable 2) movement experiences through description of the immediate movement awareness experience; qualitative data arise from that variable.

BAS-I is based on the Comprehensive Psychopathological Rating Scale (CPRS) created by Asberg[34] and modified by

Roxendal[5] to include some body-oriented items as well. It was validated by the Swede Dr. Lunkvik-Gyllensten[35]. The interview is structured and consists of 20 items. Fifteen items concern psychiatric symptoms and five are bodily oriented items, such as the description of the body and the attitude towards looks, body hygiene, functional ability, and exercise habits. Each item is rated on a four step scale, where 0 represents the absence of symptoms and 3 represents the greatest severity of a symptom[7].

Different authors have described the importance of awareness for BBAT[14,23,37]. Awareness can be defined as an attentive, relaxed, and alert presence, not analogous to concentration. Being aware means continually monitoring internal and external environments[25]. Movement awareness is defined as a precondition of movement quality expressed when the movement comes into contact with the body[23].

Moreover, the concept of body awareness involves an attentional focus on and awareness of internal body sensations. Body awareness can be defined as the subjective, phenomenological aspect of propioception and interoception that enters conscious awareness. It is modifiable by mental processes including attention, interpretation, appraisal, beliefs, memories, conditioning, attitudes, and affect[18]. In physiotherapy practice the concept of body

awareness includes the experience dimension of the body[32]. This can be viewed as the subjective body from the phenomenological perspective: We exist in our world through our bodies.

BBAT is applied individually but also in group physiotherapy. According to Yalom[37], the therapeutic factors are effective from any perspective in all models of group therapy and are common to all therapeutic models, including basic mechanisms of change[38]. Skatteboe[8] identified five therapeutic factors most applicable to clinical work in relation to group therapy in BBAT: interpersonal learning, trust and confidence, group cohesion, altruism, and motivation.

Fibromyalgia

Fibromyalgia is a chronic condition causing widespread pain. It is recognised as one of the major common causes of disability. Daily life activities and movement quality are worsened in people suffering from fibromyalgia and its several symptoms are not well controlled by existing treatments[39]. The prevalence of fibromyalgia in the world population is 2.7% and it is higher in women (4.2%) than in men (1.4%)[40]. The standard clinical guidelines for fibromyalgia include both pharmacological and non-pharmacological interventions. It was officially declared as a

syndrome by the World Health Organization in 1992[41]. Fibromyalgia is associated with widespread pain, no restorative sleep, fatigue, cognitive dysfunction, and other somatic symptoms negatively impacting physical and emotional function and reducing quality of life. The classification criteria[42] are generalised pain, defined as pain in at least four of five regions, with symptoms present at a similar level for at least three months scoring: a scoring widespread 5; or a widespread pain index of 4-6 and symptom severity scale score ≥ 9.

Evidence-based guidelines[43] suggest that fibromyalgia should be managed with a multidisciplinary approach, including pharmacological, psychological, and physiotherapeutic treatments. In the physiotherapy field, moderate aerobic strengthening exercises and stretching movements are recommended in clinical guidelines[43,44] and systematic reviews[45]. According to the latter recommendations of the European League Against Rheumatism (EULAR), non-pharmacological therapy should be first-line therapy[43]. However, clinical trial evidence is lacking in rehabilitation techniques, although reviews have reported some benefits[45,46]. Additionally, while exercise is beneficial for those with fibromyalgia, patients continue suffering from symptoms throughout their lives, since, so far, interventions for fibromyalgia

only improve symptoms and quality of life.

Most patients with fibromyalgia have difficulties managing activities at home, at work, and during leisure time. This affects quality of life, with a subsequent high degree of stress[47]. However, the way to cope with these difficulties is different in the fibromyalgia population. Some patients manage their disabilities by adapting to their limitation or by struggling with the problems they encounter in their daily life; others feel despair, as they no longer can cope with their symptoms, feel powerless, and are at risk of giving up[47,48].

Some clinical trials demonstrating the self-management of symptoms have been developed in people suffering from fibromyalgia whose function, symptoms, and, consequently, distress have been improved[6,28,47]. Hence, a qualitative analysis was necessary to explore the phenomenological experiences of patients with fibromyalgia.

There is evidence that one's mental state and stressors in daily life influence several physiological processes in the body, with impact on sensory-motor co-ordination and movement awareness[49,50]. Decreased awareness is reflected in dysfunctional movements and compensatory movement strategies[51,52]. According to Dropsy, this observation is named as the threefold contact

problem in subconscious and disharmonious psychomotor function[24,50,53] relating to 1) the physical body, 2) the inner physiological and psychological life, and 3) the outer environment and relationship to other persons. All of this can be expressed in poor balance, blocked breathing, and dysfunctional movement quality as inadequate compensatory movement[53].

Main and secondary objectives

The main objective of this thesis is to analyse the effectiveness of BBAT in patients suffering from fibromyalgia.

The following secondary objectives emerged and were accomplished among the following studies:

Study 1. Effectiveness of body awareness therapies in patients suffering from fibromyalgia: a systematic review

- Provide a summary of Body Awareness Therapies in patients with fibromyalgia
- Compare the different therapies in relation to psychological and physiological symptoms.

Study 2. Basic body awareness therapy in patients suffering from fibromyalgia: a randomized clinical trial

- Examine the effectiveness of BBAT in patients suffering from fibromyalgia in relation to 1) level of pain, 2) postural

pattern and quality of movement, 3) psychological perspective as anxiety and depression disease, and 4) quality of life.

Study 3. Experiences from group basic body awareness therapy by patients suffering from fibromyalgia: a qualitative study

- Explore the qualitative phenomena of participants' lives and how a group of patients suffering from fibromyalgia described their experiences from participating in BBAT treatment.

Study 4. Introduction of Basic Body Awareness Therapy (BBAT) in the subject of Mental Health Physiotherapy in the fourth year bachelor education: a qualitative study

- Study the experiences, attitudes, and beliefs of students regarding BBAT in an eight-hour introductory course to physiotherapy in relation to mental health within a bachelor's programme.

GENERAL METHODOLOGY

One systematic review, one randomised controlled trial and two observational studies were conducted in 2015 and 2016, and articles were developed and submitted as a result. This research project was approved by the Ethics Committee of Clinical Research of the University Bellvitge Hospital (reference no. PR183/14). The clinical trial was registered in ClinicalTrials.gov (code NCT 02830295). The effects of BBAT in addition to treatment as usual (TAU) were studied in a randomised controlled trial. 41 patients with fibromyalgia were randomly assigned to control group (n= 21) and intervention group (n=20). The variables to study were pain, movement quality, anxiety, depression and quality of life. The assessments tools used were VAS, BARS, STAI, BDI, HAD and SF-36.

Current status of the studies' publicationn

– Study 1: "Effectiveness of body awareness therapies in patients with fibromyalgia: a systematic review". Authors: Cristina Bravo, Daniel Catalan-Matamoros, Liv Helvik Skjaerven, Luisa Guitard Sein-Echaluce. Submitted to European Journal of Physical and Rehabilitation Medicine in July 2017 and now

under review.

- Study 2: “Basic body awareness therapy in patients suffering from fibromyalgia: a randomised clinical trial”. Authors: Cristina Bravo, Anna Espart, Liv Helvik Skjaerven, Luisa Guitard Sein-Echaluce, Daniel Catalan-Matamoros. Submitted to Physiotherapy Theory and Practice in January 2017 and is under second review.

- Study 3: “Experiences from group basic body awareness therapy by patients suffering from fibromyalgia: a qualitative study”. Authors: Cristina Bravo, Daniel Catalan-Matamoros, Luisa Guitard Sein-Echaluce, Liv Helvik Skjaerven. Submitted to Physiotherapy Theory and Practice in July 2017 and is under review.

- Study 4: “Introduction of Basic Body Awareness Therapy (BBAT) in the subject of Mental Health Physiotherapy in the fourth-year bachelor program: a qualitative study”. Authors: Cristina Bravo, Liv Helvik Skjaerven, Luisa Guitard Sein-Echaluce, Daniel Catalan-Matamoros. The article is remained to adjust to Physiotherapy Journal in September 2017.

STUDY 1

Effectiveness of body awareness therapies in patients with fibromyalgia: a systematic review

Abstract

Introduction: Fibromyalgia is a long-term condition that causes widespread pain and it is recognized as one of the major common causes of disability. The standard clinical guidance for fibromyalgia includes both pharmacological and non-pharmacological interventions. In the latter, very different interventions are being implemented such as aerobic exercises, flexibility exercises, strength training, stretching and body awareness therapies. The aims of this review were to provide a summary of Body Awareness Therapies in patients with fibromyalgia and to compare the different therapies in relation to outcomes.

Evidence acquisition: The search strategy was undertaken using the following databases until December 2016: Pubmed, Cinahl, PEDro, PsychoInfo and The Cochrane Library. Articles were eligible if they were randomized controlled trials (RCTs) compared body awareness therapies with another intervention.

Evidence synthesis: two authors independently extracted data and assessed trial quality. 218 studies were found, twenty three of which met the inclusion criteria. Pain symptom was improved with body awareness therapies such as, Affective Self-Awareness, T'ai Chi, Yoga, Belly dance, strengthening programm, Resseguier method. Positive results in relation to psychological and physiological symptoms were showed too.

Conclusion: this systematic review shows positives results in favour of body awareness therapies as adjunct treatment to usual care in patients who suffer from fibromyalgia.

Keywords

Awareness, movement quality, pain, exercise, physical activity, physical therapy.

Fibromyalgia is a long-term condition that causes widespread pain and it is recognized as one of the major common causes of disability. The activities of daily life and movement quality are worsened in people suffering from fibromyalgia being its several symptoms are not well controlled by existing treatments[39]. The prevalence of fibromyalgia in the world population is 2.7%[40], higher in women (4.2%) than in men (1.4%). The standard clinical guidance for fibromyalgia includes both pharmacological and non-pharmacological interventions. In the latter, very different interventions are being implemented such as aerobic exercises, flexibility exercises, strength training, stretching and body awareness therapies[46,54]. Effectiveness of body awareness therapies have been assessed by several authorsman[16,55,56].

Body awareness therapies refer to a group of interventions sharing a common perspective that focuses on the internal subjective experience of the body[18,19]. Body Awareness Therapies can be defined as body-oriented therapeutic approaches using an holistic perspective directed towards an awareness of how the body is used, in terms of body function, behavior and interaction with self and others[16,56]. This group of interventions promotes physical, mental and emotional well-being. As examples of body awareness therapies are Basic Body Awareness Therapy and Norwegian Psychomotor Physiotherapy[20]. However, the classification of body awareness therapies remains unclear since there are other approaches and traditions in the field. Eastern approaches such as T'ai Chi, Qigong and Yoga are considered as meditative movement therapies which represent a new category of exercise defined by some form of movement or body positioning, focusing on breathing and a cleared or calm state of mind with a goal of deep states of relaxation[57]. Body Awareness Therapies are applied in physical therapy or rehabilitation departments across Europe providing services that develop, maintain and restore people's maximum movement and functional ability. These departments help people at any stage of life, when movement and function are threatened by ageing, injury, diseases, disorders, conditions or environmental factors[58]. Consequently, authors of this article will consider as body awareness therapies those included in structured

rehabilitation programs with valid and reliable assessment tools.

Body Awareness Therapies have shown positive outcomes in several pathologies such as cancer[59] in terms of physical, psychological and immune function[60], quality of life and bone density[61]. On the other hand, European movement approaches such as dance therapy, Feldenkrais and Alexander Technique[62] or integrative dance therapies as biodance and aquatic biodance[63] have also shown effectiveness in the rehabilitation programmes for fibromyalgia. Therefore, this systematic review intends to provide a summary of Body Awareness Therapies in patients suffering from fibromyalgia and to compare the different approaches in relation to clinical outcomes.

Evidence acquisition

The study undertook a systematic review of randomized controlled trials according to the criteria of PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses)[64]. Only randomized controlled trials examining body awareness therapies on the treatment of fibromyalgia were included. The articles were included according to the following criteria: a) studies with participants with a diagnosis of fibromyalgia by international classification of diseases with the code M79.0 such as rheumatism[65]; b) participants were treated with one body awareness therapy approach compared with placebo, control intervention or standard care using a randomized controlled trial (RCT); c) English language.

Two independent reviewers searched in PubMed, CINAHL, The Cochrane Library, PEDro and PsycINFO from database inception to December 2016. The terms used were “fibromyalgia” AND “body therapy” OR “body awareness” OR “body mind therapy” OR “body awareness therapy” OR “movement therapy” OR “movement quality” in the text. The filter “clinical trial” was also used (see search strategy in Table 1).

Table 1. Example of search strategy in PubMed

	Search terms	Items found
#1	Search **fibromyalgia**	9508
#2	Search **body awareness**	6332
#3	Search **body therapy**	394090
#4	Search **body mind therapy**	4511
#5	Search **movement therapy**	186939
#6	Search **movement quality**	22720
#7	Search **body awareness therapy**	2857
#8	Search **(#2 OR #3 OR #4 OR #5 OR #6 OR #7)** Filters: **Clinical Trial**	66575
#9	Search **(#1 AND #8)** Filters: **Clinical Trial**	172

The reviewers screened the titles and abstracts of publications found in the databases and selected articles based on the eligibility criteria. As well as manual search was also performed through the cross-referencing with the studies selected in the previous search. In addition, to locate the unpublished research, we searched in websites. After selecting the articles based on the eligibility criteria, the studies were evaluated with the five-points Jadad scale[66] to assess the completeness and quality of reporting of randomized controlled trials, as well as potential bias in the trials. A trial score of at least 3/5 is considered to be of sufficient quality.

The body awareness therapy interventions had to include any of the following: t'ai chi, yoga, qigong, the Rességuier method, Mindfulness-Based Cognitive Therapy, Basic Body Awareness Therapy, Norwegian Psychomotor Therapy or a combination of these, as well as any other similar body awareness therapy. In this review, standard care was defined as care that people would normally receive in the community, hospital or primary centre according to clinical guidance.

The information from the included studies was presented descriptively (see table 2). The study outcomes were classified according to the following aspects: a) physical aspects, which include level of pain, pain threshold and number of tender points; b) psychological aspects, such as quality of life, self-efficacy, depression and anxiety; c) physiological aspects, such as fatigue and sleep quality.

Table 2. Overview of included articles in patients with fibromyalgia

Authors	Participants	Intervention group *versus* control	Duration and follow-up	Intensity and Frequency	Relevant outcomes (experimental versus control)	Relevant instruments	Adverse Effects	Jadad Scale
Astin et al. (2003)[67]	N=128 ♀ 127 ♂ 1 M=47.7	Mindfulness +Qigong group =64 Educational group=64	8 weeks Measurement baseline, 8, 14, 24 weeks	2,5 hours 1 x week	Both groups showed statistical improvements in pain, FIQ, depression and total mialgic but not significant differences were found between groups	FIQ, Total Myalgic Score, SF- 36 pain score, 6 minute walk test, BDI	no	4/5
Baptista et al. (2012)[68]	N= 80♀ Age 18-65	Belly dance group=40 Control group= 40	16 weeks Measurement baseline, 16 and 32 weeks	1 hour 2 x week	Significant improvements in pain 40%, quality of sleep, emotional aspects and mental health of SF-36. No significant differences were obtained about depression or anxiety.	VAS, 6 minute walk test, FIQ, SF-36, BDI, STAI, BDDE	no	3/5
Parra-Delgado et al. (2013)[69]	N= 33♀ Age 30-70 M=52.6	Mindfulness-Based Cognitive Therapy (MBCT).	3 months Measurements Pre-test post-test and follow-up 3 months	2 hours and half 8 sessions	Reduces depressive symptoms and this decrease is maintained over time. The value for lumbar pain intensity decreases significantly after treatment although this decrease does not continue in the follow-up. No change in pain intensity	MINI, BDI, FIQ, VAS	no	3/5

Table 2. Overview of included articles in patients with fibromyalgia

Authors	Participants	Intervention group *versus* control	Duration and follow-up	Intensity and Frequency	Relevant outcomes (experimental versus control)	Relevant instruments	Adverse Effects	Jadad Scale
Hsu et al. (2010)[70]	N= 45 ♀ Age 25-66 M= 50.1	Affective Self-Awareness (ASA) intervention n = 24 Control group n= 21	6 months Measurements post-test and follow-up 6 months	First: 90-min individual consultation 2 hours 1 x week	45.8% of treatment participants had at least 30% pain reduction, and 20.8% had at least 50% pain reduction. The ASA group had less fatigue at post-treatment and had lower post- treatment and 6-month scores for the beliefs about pain. Improvements in both pain and physical function at 6 months	BPI, SF-36, MFI-20, Beliefs about Pain Control Questionnaire, Dolorimeter	no	4/5
Liu et al (2012) [71]	N= 14 ♀ Age 20-70 M=55.7	Qigong group n=8 Control Group: Sham Qigong n=6	6 weeks Pre-test and post-test.	45-60 min 1 x week	Feasibility of a specific Qigong exercise format. Improve pain, fatigue, sleep quality, and functional limitation	SMPQ, MFI-20, PSQI, FIQ	no	3/5
Jones et al. (2012)[72]	N= 101 ♀ Age 20-70 M=55.7	8-form Yang-style T'ai chi program n= 51 Education intervention n=50	12 weeks Measurements Pre-test and post-test.	90 min 2 x week	Pain decreased significantly in the t'ai chi group. Improved in t'ai chi group: Sleep quality, all seven FIQ non-pain symptoms, Self-assessment of physical function, three functional mobility measures: static and dynamic balance, and timed Get-Up-and-Go, self-efficacy (pain, function and other symptoms)	BPI, ASES, PSQI, FIQ, TUG, body mass index	no	3/5

Authors	Participants	Intervention group *versus* control	Duration and follow-up	Intensity and Frequency	Relevant outcomes (experimental versus control)	Relevant instruments	Adverse Effects	Jadad Scale
Jones et al. (2002)[73]	N=68 ♀ Age 20-60	strengthening program n= 28 group control: stretching program n=28	12 weeks Measurements Pre-test and post-test.	60 min 2 x week	It was unable to determine statistically significant between group differences. Treatment group demonstrated statistically and clinically significant changes in 12 measures. The control group demonstrated statistically significant changes in 6 measures	Cybex II isokinetic dynamometer (Cybex Inc.), 2-prong spring loaded caliper (Harpenden) VAS, BDI, QOLS, ASES	no	3/5
Maddali Bongi et al. (2010)[74]	N=41 M= 45.5 38 ♀ 3♂ M= 51	Resseguier group n= 22 Control group n=19	2 months Pre-test and post-test and follow-up of 6 months.	60 min 1 x week	It improved pain, movement, sleep and relaxation, assumption of analgesics, with the achieved results maintained after a 6-month follow-up	SF- 36, FIQ, number rating scale 0–10 (NRS- 0–10), HADS	no	4/5
Maddali Bongi et al. (2012)[75]	N=30 M=57.3	Group 1: Resseguier Method (RM) and Qi gong (QG) n= 15 Group 2: Qi gong and Resseguier Method n=15	15 weeks Pre-test and post-test and follow-up of 12 weeks.	60 min RM and 45 min QG 7 weeks= 1xweek rest+ 7 weeks 2 x week with a total of 10 sessions	RM and QG reduce pain, tenderness and disability and improve anxious symptoms. RM also ameliorates sleep quality and QG acts on depressive symptoms. Most of the results are confirrmed at a long term follow up. The comparison at the end of protocols (T2) were not different between the 2 groups	SF- 36, FIQ, number rating scale 0–10 (NRS- 0–10), HADS	no	3/5

Authors	Participants	Intervention group *versus* control	Duration and follow-up	Intensity and Frequency	Relevant outcomes (experimental versus control)	Relevant instruments	Adverse Effects	Jadad Scale
Carson et al. (2010)[76]	N=53 ♀ M=53.7	Yoga group n= 25 Standard care wait-listed =28	8 weeks Measurements Pre-test and post-test	120 min 1 x week	Improve FIQR symptoms pain, fatigue, stiffness, poor, sleep, depression, poor memory, anxiety, tenderness, poor balance and environment sensitivity.	FIQR, PIGC, TMS, Timed Chair Rise, SCBT, CPAQ, CSQ, VMPCI	no	4/5
Wang et al. (2010)[77]	N= 66 56♀ 10♂ M=50	T'ai Chi group n=33 Control group wellness education and stretching program n=33	12 weeks Test at baseline, 12 weeks and 24 weeks follow up	60 min Twice a week	Significantly greater decrease in the total FIQ score -27.8%. The improvement in sleep quality was -2.9 points. Also in 6-minute walk test was significantly better with a difference 44.4 yd. According SF-36 physical component the difference between groups was 7.1 points, in the mental component was 6.1 points. The grade of dysphoria was −5.9 points. Improvements with t'ai chi were maintained at 24 weeks.	FIQ, SF-36, VAS, PSQI, 6 minutes walking test, Patient's Global Assessment Score Physian's Global Assessment Score Body mass index Center for Epidemiologic Studies Depression (CES-D) Chronic Pain Self-Efficacy Scale (CPSS)	no	3/5
Mannerkorpi et al. (2004)[55]	N=36 ♀	Qigong + body awareness therapy n=19 Control group n =17	3 months	1.5 hours Once a week	Significant improvement in movement harmony for the treatment group (p = 0.03)	Body awareness Rating Scale BARS, Fibromyalgia impact Questionnaire FIQ, Hand Grip test, Chair Test	Experienced exacerbation of symptoms while standing, and/or difficulty in concentrating	2/5

Authors	Participants	Intervention group *versus* control	Duration and follow-up	Intensity and Frequency	Relevant outcomes (experimental versus control)	Relevant instruments	Adverse Effects	Jadad Scale
Toussaint et al. (2012)[78]	N=44 M= 48 years (27-56) 91%♀	Amygdala retraining	One month	2.5 hours A training course	Statistically significant improvements in scores for physical health, energy, pain, symptom distress, and fatigue	Short Form-36 Measure Yourself Medical Outcome Profile, Multidimensional Fatigue Inventory, Epworth Sleepiness Scale, and Fibromyalgia Impact Questionnaire.		2/5
Kendall et al. (2000)[79]	N=20 ♀	Mensendieck system group Body awareness therapy	20 weeks Follow-up 3 and 6 months	MS: 40 minutes BAT: 90 minutes MS twice a week BAT once a week	The BAT group had improved global health at 18 months followup, but lower results than the MS group. The MS group had improved FIQ, ASES other symptoms, and pain at worst site at 18 months followup.	VAS, FIQ, ASES, Coping Strategies Questionnaire CSQ, Quality of Life Scale QOLS	no	2/5
Fontaine et al. (2010)[80]	N=92 88♀ 4♂ M= 47.7±10.7 years	Lifestyle physical activity group Education control group	Twelve weeks	30 minutes Five to seven days each week	LPA group reported significantly less perceived functional deficits (P = .032) and less pain (P = .006). There were no differences between the groups on the six-minute walk test (P = .067), fatigue, depression, body mass index, or tenderness.	VAS, Fatigue Severity Scale (FSS), Center for epidemiologic Studies Depression Scale (CES-D), digital tender point examination, Body mass index, six-minute walk test	no	2/5

Authors	Participants	Intervention group *versus* control	Duration and follow-up	Intensity and Frequency	Relevant outcomes (experimental versus control)	Relevant instruments	Adverse Effects	Jadad Scale
Carbonell-Baeza et al. (2010)[63]	N= 59	Biodanza intervention group (n=27) Usual care group (n=32)	3 months	120 minutes Once a week	significant improvement in pain threshold of the anterior cervical R and L and supraspinatus R and L tender points (all $p < 0.05$), algometer score ($p = 0.008$), tender point count ($p = 0.002$), body fat percentage ($p = 0.001$), and FIQ total score ($p = 0.003$)	FIQ, SF-36, Vaderbilt Pain Management Inventory VPMI, Hospital Anxiety and Depression Scale HADS, General Self-Efficacy Scale GSES, Rosenberg Self-Esteem Scale RSES	no	1/5
Hävermark et al. (2006)[81]	N= 240	Physical therapy-based educational programme	10 weeks	120 minutes Twice a week	Significant improvement on several symptoms when comparing before and after the programme, and at the time of follow up the patients' rated well-being was still improved	FIQ	no	1/5
Horwitz, et al. (2006)[82]	N= 36	Dance/movement therapy treatment (n=20) Control group (n=16)	6 months 8 months follow-up	60 minutes Once a week	In the self-figure drawings, significant differences were seen in the variables “amount of body details” and “amount of paper use in percent”	Self-figure drawings CPRS, SOC, Swedish Universities Scale of Personality SSP, VAS, Global Assessment of well-being and pain, Ranking dance/music and drawing	no	2/5

Authors	Participants	Intervention group *versus* control	Duration and follow-up	Intensity and Frequency	Relevant outcomes (experimental versus control)	Relevant instruments	Adverse Effects	Jadad Scale
Lopez-Rodriguez et al. (2013)[83]	N= 59	Aquatic Biodanza group Stretching group	12 weeks	60 minutes Twice a week	Significant differences in the experimental group (P<.05) on sleep quality (49.7%), anxiety (14.1%), impact of fibromyalgia (18.3%), pain (27.9%), McGill (23.7%) and tender points (34.4%).	Pittsburgh questionnaire, STAI, CESDS, VAS, Algometry and McGill, FIQ	no	2/5
Lopez-Rodriguez et al. (2012)[84]	N=39	Aquatic Biodanza group (n=19) Stretching group (n=20)	12 weeks	60 minutes Twice a week	There were significant differences (P<.05) between groups, in pain (P<.01), fibromyalgia impact (P<.01), and depression (P<.04) after the treatment.	FIQ, McGill-Melzack questionnaire, VAS, Pressure algometry Beck Inventory	no	2/5
Taggart et al. (2003)[85]	N=21	T'ai Chi group	6 weeks	60 minutes Twice a week	Statistically significant improvement in symptom management and health-related quality of life	FIQ, SF-36,	no	1/5
Ismael Martins et al. (2013)[86]	Intervention group N= 12 with fibromyalgi aControl group N= 15 no diagnosed of FM	Weekly Interdisciplinary program	12 weeks	60 minutes Once a week	There was statistical difference between the groups in terms of efficacy post intervention WIP	FIQ, VAS, Post-Sleep Protocol PSI, SF 12, HAD	no	1/5

Authors	Participants	Intervention group *versus* control	Duration and follow-up	Intensity and Frequency	Relevant outcomes (experimental versus control)	Relevant instruments	Adverse Effects	Jadad Scale
Creamer et al. (2000)[87]	N= 28	Education/cognitive-behavioural component + Relaxation + Qi Gong	8 weeks	2.5 hours Once a week	Significant improvement was seen in the Fibromyalgia Impact Questionnaire and a range of other outcome measures including tender points and pain threshold	FIQ, VAS, Health Status RAND, BDI, Fibromyalgia Attitudes Index FAI, CSQ, Health Assessment Questionnaire HAQ, Physical Activity Recall Scale PAR	no	1/5

Fibromyalgia Impact Questionnaire (FIQ), Short Form 36 (SF-36), Beck Depression Inventory (BDI), Visual Analogue Scale (VAS), Mini International Neuropsychiatric Interview (MINI), Brief Pain Inventory (BPI), Body Dysmorphic Disorder Examination (BDDE), Short- FormMcGill Pain Questionnaire (SMPQ), Multidimensional Fatigue Inventory (MFI-20), Pittsburgh Sleep Quality Index (PSQI), Arthritis Self-Efficacy Questionnaire (ASES), 8-Foot Timed Get Up and Go (TUG), Quality of Life Scale (QOLS), Hospital Anxiety and Depression Scale (HADS), Patient Global Impression of Change (PGIC), Total Myalgic Score (TMS), Sensory Integration for Balance Test (SCBT), Chronic Pain Acceptance Questionnaire (CPAQ), Coping Strategies Questionnaire (CSQ), Vanderbilt Multidimensional Pain Coping Inventory (VMPCI), Present pain rating intensity (PPI) Patient's Global Assessment Score, Physian's Global Assessment Score, Center for Epidemiologic Studies Depression (CES-D), Chronic Pain Self-Efficacy Scale (CPSS)

Evidence synthesis

The initial electronic database search resulted in a total of 218 studies. Additional manual searches of reference lists and websites were also performed but did not provide any study. After the removal of duplicates, non-English language articles, non randomized clinical trials and movement therapy interventions, 195 were excluded and 23 were finally included in this review.

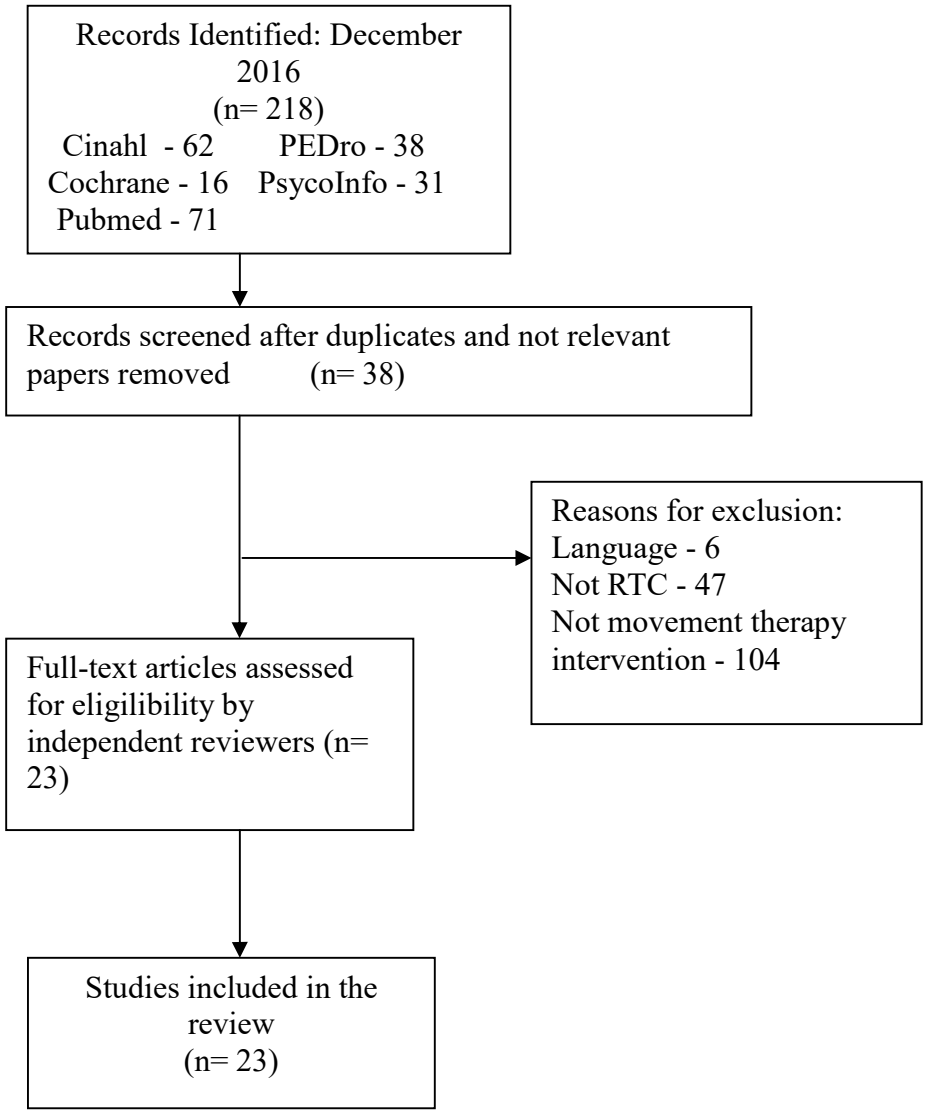


Figure 1. Flow chart of systematic review inclusion and exclusion.

According to the Jadad Scale[66] twenty three studies[55,63,67-87] were considered to be of sufficient methodological quality (see table 2). The most important limitation was that no randomized controlled trial was conducted in a single or double-blind fashion. For measuring outcomes, all trials included a self-report measure of fibromyalgia symptoms. The most common assessment tools were Fibromyalgia Impact Questionnaire in 21 of 23 articles, Short-Form-36 in 8 articles, Visual Analogue Scale in 10 articles, Beck Depression Inventory and Arthritis Self-Efficacy Questionnaire. Fibromyalgia Impact Questionnaire is held as one of the most sensitive tools to assess fibromyalgia course over the time and a key endpoint in clinical trials aimed at evaluating individual's responsiveness to different intervention models[88]. The range of possible total scores is 0 to 10 of 10 items for the measurement of physical function and severity of symptoms.

In total, 1344 patients who were suffering from fibromyalgia were included in the analyses. The studies also included community-based participants. The age range of the participants was between 20 and 77 with an average of 51.7 years. According to the gender of participants, there were 828 women, 22 men and in 494 the gender was not specified as eleven studies did not define the gender of the participants[63,75,78,82–84,86,87]. In all studies fibromyalgia was diagnosed using the criteria of the American College of Rheumatology (ACR) except the article of Ismael Martins[86] that compared patients with fibromyalgia and patients diagnosed of pain. The duration of the interventions was between 8 weeks to eight months. Further information on the characteristics of participants is provided in table 1.

The effect on physical symptoms

The outcomes related to physical symptoms of people suffering from fibromyalgia differ according to the therapy. In Affective Self-Awareness (ASA)[70], 45.8% of treated participants showed at least 30% reduction in pain and the results were also maintained at six month follow-up. Moreover, Qigong[71] improved the general pain and functional limitation in the FIQ score ($p < .0125$) over 6 weeks. This study compared two modalities of qigong and both improved the general pain and functional limitation. In

the other hand, another study[55] which combined Qigong and body awareness therapy only achieved improvement in movement harmony, however this approach should be further analysed due to the small number of subjects and the high drop-out rate.

Moreover, the program of a specific eight-form Yang-style t'ai chi[72] also showed improvements in the level of pain, physical function, static and dynamic balance, and timed Get-up-and-Go, with the FIQ scores improving by 27.8% and the six minute walking test with a difference of 44.4 yd. Other studies showed that stretching, strengthening[73], amygdala retraining[78], body awareness therapy and Mesendieck[79] improves the symptoms of fibromyalgia as general pain, according to FIQ scores. Additionally, Rességuier method[74], qigong[75] and yoga[76] lifestyle physical activity[80], improve all symptoms such as general pain, movement quality, functional limitations and quality of life. Dance Therapy[68], biodance[63] and aquatic biodance[83] also led to improvement in pain and the best results were obtained 32 weeks later ($p < 0.022$).

The effect on psychological outcomes

The body awareness therapies showing effects on psychological outcomes are Mindfulness-Based Cognitive Therapy, Affective Self-Awareness (ASA), qigong, t'ai chi, strengthening programmes, the Rességuier method and yoga. The most relevant assessment tools that have been used are FIQ, BDI, SMPQ, SF-36 and HADS. Mindfulness-Based Cognitive and mindfulness meditation plus qigong[67] and qi gong improve depression symptoms. Moreover, T'ai Chi[89] showed that the mental component of SF-36 improved by 6.1 points and the grade of dysphoria improved 5.9 points, with both being maintained over 24 weeks. In addition, it shows benefits in psychological aspects. Strengthening[73] improves BDI, FIQ scores and quality of life. Other studies about the Rességuier method[74,75] and Aquatic biodance[83], where the variables of anxiety and depression were measured by the HADS scale and SF-36 items, showed improved anxiety and depression symptoms. Yoga[76] reduced anxiety by 42.2%, depression by 41.5% and emotional distress by 30.1% over 8 weeks treatment.

The effect on physiological outcomes

People diagnosed with fibromyalgia also suffer some physiological symptoms such as sleep disturbances and fatigue. Affective Self-Awareness comprised less fatigue post-treatment, although this was not observed at follow-up. T'ai chi[72,89] improved sleep quality with a score of 2.0 versus 0.3 group control. T'ai Chi[89] also showed an improvement of about 2.9 points in sleep quality. Moreover, qigong[71] shows 37.3% decrease in sleep disturbances and 24.8% in fatigue, and FIQ impact improved by 44.3%. Following use of the Rességuier method, sleep quality was increased and it was maintained at follow-up. Yoga showed benefits in fatigue of 29.9% and in poor sleep of 23.9%. Belly dancing also showed significant improvements in the sleep quality item of the FIQ ($p < 0.006$).

Adverse events

Only Qigong plus body awareness therapy[55] reported exacerbation of symptoms while standing, and/or problems in concentrating. Adverse events were not reported in the other included studies (see table 2).

Discussion

General findings

This systematic review studied the efficacy of body awareness therapies as an adjunct treatment for patients with fibromyalgia. Our review demonstrated that there are a considerable number of studies but some findings are contradictory and difficult to interpret in light of significant methodological shortcomings. Most of the eligible studies did not have strong methodological evidence. According to the Jadad Scale, only 23 had high methodological quality with a score from 4 to 5. Moreover, only 4 of the studies analysed the same therapies: qigong, the Rességuier method, dance therapies and t'ai chi. However, with some limitations, our review does indicate that the body awareness therapies improve the symptoms of fibromyalgia: the physical symptoms are improved by Mindfulness-Based Cognitive Therapy, Affective Self-Awareness, strengthening, stretching programmes, t'ai chi, qigong, yoga, the Rességuier method and amygdala

retraining, Mesendieck system, Body Awareness Therapy, educational physical activity and dance interventions..

Hence, the therapies that produced benefits in all aspects of the disease are Affective Self-Awareness, t'ai chi, qigong, the Rességuier method, Mesendieck system, Body Awareness Therapy, aquatic biodance and yoga. Their common feature is the person's holistic view which has been previously described by authors such as Husserl[90], Sartre[91] and Merleau-Ponty[92]. Merleau-Ponty considered the body as the center of all human qualities, such as perception, thoughts and feelings, characterizing the perceptual processes as belonging to the body. The therapeutic approach is included by the awareness training of how to keep or restore health concerning bodily and mental processes. All body awareness therapies involve the whole person including all movement perspectives – physical, psychological, physiological and existential perspectives[23] – and focus on breathing, postural balance and awareness[23]. Since research is still limited, further studies should focus on other movement awareness therapies that might also be used among people suffering from fibromyalgia such as Basic Body Awareness Therapy[45].

Although the theoretical model of the most of the body awareness therapies is still not defined, there are some plausible explanations for the observed benefits. First, the therapies achieve positive outcomes, and actively involve awareness of the body in the treatment. Some of the analysed therapies such as mindfulness did not involve all perspectives of holistic view, with a possible explanation being justified by why they didn't produce improvement in all symptoms of fibromyalgia. Second, the therapies that achieved positive outcomes are centred around individual resources as balance, breathing and awareness. With this regard, the Rességuier method[75] is based on continuous attention given to the patient during the whole session.

The adverse effects of symptoms exacerbation in body awareness therapy must be confirmed with further studies due to the small number of subjects and the high drop-out rate. Some explanations of this could be the increase of symptoms awareness[23,30,45]; the learning stimulated self-observation which could have increased the perception of pain.

Due to the increasing interest of body awareness therapies and their effect on fibromyalgia, various systematic reviews have been conducted. In 2013, Courtois[46] conducted a review focused on body awareness interventions. In our current review, the search methodology is wider since Courtois only searched for a limited group of therapies such as massage, hypnosis and autogenic training. This could have left out some eligible interventions. Another review was published by Cadenas-Sanchez[47], which is relevant for analysing the interventions focused on physical activity. In this review we can find some of our articles analysed. The conclusions of Courtois review are consistent showing that body awareness therapies, such as t'ai chi, for example, improve the symptoms of fibromyalgia, but it is difficult to predict positive outcomes, especially for Fibromyalgia Impact Questionnaire and pain, due to limitations to their implementation in clinical practice.

Limitations

As with any systematic review, there is a potential for selection bias. Screening references of identified trials may bring positive results because trials with positive results are more likely to be published than trials with negative outcomes. On the other hand, none of the included studies were double-blind, and in addition the researchers may not always be able to be blind to the participants in the intervention. Moreover, most of the selected research compares the experimental intervention with a control/comparison group, which uses the standard care which could differ among studies. In addition, the level of education or clinical experience of the therapists who ran the body awareness therapy interventions is unknown, which might be a bias according to the clinical outcomes. Finally, all studies included follow-up in the short or medium term, so the long-term effect of body awareness therapies remains unclear.

*Clinical implication*s

Twenty three studies of body awareness therapies obtained positive results in the treatment of fibromyalgia. Body awareness therapies are a cheap intervention as it is shown in other fields as psychiatry[20], and simple to implement in clinical settings.

Moreover, no clear adverse effects have been reported. For this reason, these therapies could be implemented within the rehabilitation programme at minimal cost for the health system/government. However, this implication should be further analysed through an economic evaluation study. The evidence of the positive effects of body awareness therapies as well as the lower costs for healthcare and social services is discussed. Once body awareness therapies in patients with fibromyalgia seem to be an effective intervention, these therapies should be studied in deep and could be implemented as innovative rehabilitation programs. However, while body awareness therapies appear to be a promising intervention for fibromyalgia symptoms, many questions remain unanswered. We need to know whether the benefits are maintained in the long term, and due to the extensive number of existing body awareness therapy studies we need to clarify whether others are also effective. This would allow a greater level of recommendation to include body awareness therapies as a first-line intervention together with pharmacological treatment for people suffering from fibromyalgia, although it would be necessary a better understanding about these therapies in terms of effects, sessions, etc.

Future research

Due to the positive preliminary results regarding the effects body awareness approaches as a professional treatment for persons suffering from fibromyalgia, future research may be focused on analyzing the long-term effects, deeper analysis of each body awareness therapy approach in terms of physiological mechanisms as well as exploring other therapies which might also have positive effects to these patients. Economic evaluations are also suggested.

Conclusion

This systematic review demonstrates the effectiveness of body awareness therapies approaches as an adjunct treatment to usual care in people suffering from fibromyalgia. The therapies that may improve a wide range of symptoms are t'ai chi, qigong, yoga, Affective Self-Awareness and the Rességuier method.

The beneficial outcomes for fibromyalgia are achieved in relation to pain, pain threshold, number of tender points, sleep quality, fatigue, anxiety, depression and quality of life. Future research on other body awareness therapies and on long-term outcomes may contribute to currently available evidence.

Declaration of interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this article.

Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

STUDY 2

Basic Body Awareness Therapy in patients suffering from fibromyalgia: a randomised clinical trial

Abstract

There is a need to expand the knowledge of therapeutic approaches in fibromyalgia. The aim of this study is to assess whether Basic Body Awareness Therapy (BBAT) improves musculoskeletal pain, movement quality, psychological function and quality of life. Methods: The effects of BBAT in addition to treatment as usual (TAU) were studied in a randomised controlled trial. 41 patients with fibromyalgia were randomly assigned to control group (n= 21) and intervention group (n=20). Both groups received TAU including pharmacological therapy. The intervention group received 10 BBAT sessions. Outcomes variables were measured regarding pain, movement quality, psychological function, and quality of life. Outcome measures were assessed before intervention, post-test immediately measured after intervention, and follow-ups at 12 and 24 weeks. Results: BBAT group showed a significantly improvement in 'pain' at post-test (p=0.037), and in 'movement quality' from baseline to 24 weeks (p=0.000). The intragroup analysis showed significant improvements in SF-36 body pain subscale at 12 and 24 weeks (p=0.001, p=0.014), HAD scale in anxiety subscale at 12 weeks (p=0.019), STAI anxiety questionnaire at 12 and 24 weeks (p=0.012, p=0.002) and STAI state at 12 and 24 weeks (p=0.042, p=0.004). Conclusion: This study has shown that BBAT might be an effective intervention in patients suffering from fibromyalgia in relation to pain, movement quality and anxiety.

Keywords: Pain, depression, anxiety, physiotherapy, movement quality, body awareness therapy.

Introduction

Fibromyalgia (FM) was first described in 1904 and later defined in 1990 by the American College of Rheumatologist (ACR)[39] after carrying out a clinical trial referring the diagnosis criteria developed for FM. FM was subsequently officially declared a syndrome by the World Health Organization in 1992[41]. Since then, it has been recognized as the most common cause of widespread chronic muscle pain, being frequently diagnosed in the last decade. This disorder has been described by widespread pain, no restorative sleep, fatigue, cognitive dysfunction, and other somatic symptoms, negatively physical impacts and emotional function such as depression and anxiety[42,93] and diminishes the quality of life[54]. FM is included in the Tenth Revision of the International Statistical Classification of Diseases and Related Health Problems with number M79.0 as Rheumatism unspecified. The classification criteria[42] are generalized pain, defined as pain in at least 4 of 5 regions, symptoms have been present at a 5, or widespread pain index of 4-6 and symptom severity scale score ≥ 9.

Evidence-based guidelines suggest that FM should be managed with a multidisciplinary approach including pharmacological, psychological and physiotherapeutic treatments. In the physiotherapy field, moderate aerobic strengthening exercises and stretching movements are recommended by clinical guidelines[43,44] and systematic reviews[94]. According the latter recommendations of the European League Against Rheumatism (EULAR) non-pharmacological therapy should be first-line therapy[43]. However in rehabilitation techniques clinical trial evidence is lacking, although reviews report some benefits[95]. Moreover, body awareness interventions such as yoga, t'ai chi and Basic Body Awareness Therapy are being currently studied[46]. The EULAR committee suggested an update to determine whether those therapies have enough evidence for the management of fibromyalgia[43].

FM is a disorder of central pain processing/modulation, that can no longer be categorized as a musculoskeletal disease process, but rather as a pain syndrome maintained by perturbed central nervous system activity[96]. We now understand pain as a complex and highly sophisticated protective mechanism. Pain depends upon the brain evaluating a massive amount of information, including data from the danger detection system, but also cognitive data; for

example expectations, previous exposure, cultural and social norms, beliefs[97] and other sensory data such as from vision[98], or from other sensors in the area. In chronic pain, the biological structures involved in conveying and processing danger messages and in integrating other threatening cues increases its sensitivity[97].

Basic Body Awareness Therapy (BBAT), which is a health oriented, multi-perspective and person-centred approach with focus on the patient's resources[5,21,22,26], is a movement awareness training approach in physiotherapy, aiming to promote movement quality in daily life through self-exploration and self-experience to learn new movement habits. Understanding movement quality as the art of consciously being, doing and relating to oneself and others will result in a more functional daily life, relationship and actions[24]. The features of movement quality as phenomenon in a physiotherapeutic context are classified in four perspectives: the biomechanical, physiological, bio-psycho-social and existential[23,53] which mutually and simultaneously influence and are influenced by each other. In relation to biomechanical perspective, the movement quality includes the analysis of postural stability and the path and form of movement; regarding physiological perspective, flow, elasticity, rhythm, free breathing and centering are considered; moreover psycho-socio-cultural perspective includes the concepts of awareness and emotional, cognitive, intentional aspects; at last, existential perspective as self-awareness, the presence and unity in movement are experienced though the movement[23]. To gain more functional movement quality, the physiotherapist focuses the guidance on postural balance, free breathing and awareness searching to integrate them into movement[25]. BBAT consists of a broad scope of movements in the following positions: lying, sitting, standing and walking. Relational movements and use of the voice are also performed. Those movements are practiced in therapy with components as rhythm, form, elasticity, flow, intention and voice[5,22,26]. Assessment tools such as the Body Awareness Rating Scale or Body Awareness Scale Interview[21] have also been developed. This method is applied in multiple conditions such as psychosomatic[6,28,29], long lasting pain and mental health[20,32,15,99].

Therefore, in order to expand the knowledge-base about new therapeutic approaches in FM, in this trial we conducted a randomised control trial to compare the physical and psychological benefits of BBAT in addition to treatment as usual. The aim of this study is to

assess whether Basic Body Awareness Therapy (BBAT) improves musculoskeletal pain and psychological function, as well as movement quality and quality of life.

Methods

Trial design

A clinical trial was conducted with two controlled and randomized parallel groups. The randomised process was done using the software Epidat v 4.0. A number was assigned to the participants and then the programme generated two groups of numbers, the control and intervention groups. The results of randomisation were communicated by telephone to the participants. The study started in April 2015 during 30 weeks and all participants were assessed at baseline, at the end of 5 weeks treatment period, and 12 weeks and 24 weeks follow-ups were also done. Participants of both groups continued their pharmacological treatments as usual which included pharmacological therapy only (see in Introduction main pharmacological recommendations in FM). Participants in the control group had the same exposure in time as the intervention group. The control group was kindly asked to maintain their lifestyle during the whole study and to refrain from starting any new regular physical activity or exercise programmes unrelated to the study or other non-pharmacological interventions for FM. In case they could not maintain the same lifestyle during the study period, they were asked to inform the researchers at any of the assessments.

Study Participants

According to the research protocol, the study was conducted at a primary healthcare centre. The Ethical Committee of Clinical Research of Bellvitge University Hospital approved the research protocol with the reference number PR183/14. The clinical trial was registered in ClinicalTrials.gov with the number NCT02830295. Participants were eligible if they were 18-65 years old and fulfilled the American College of Rheumatology 1990 diagnostic criteria for FM. The patients had been diagnosed at least for 6 months ago and they could manage to

stand in lying, sitting and standing positions without assistance. The exclusion criteria were a) pregnancy or those women who were planning to become pregnant during the study period; b) those who were suffering from other diseases that increased the pain or another specific diagnosis as rheumatic, heart and infectious diseases c) those who changed their lifestyle and physical activity habits during the study period.

All the patients were recruited through the database of the primary healthcare centre and they were invited to attend an informational meeting. In this meeting all patients willing to participate signed the written informed consent to participate in the trial according to the Helsinki declaration[100].

The therapist who leaded the intervention CB is a senior clinical physiotherapist and graduated in Basic Body Awareness Methodology by Bergen University College (Norway). Evaluation was performed by CB and AE, and analysis of results were done by DC and LG.

Assessment

The main outcome was musculoskeletal pain, and the secondary outcomes were movement quality, psychological function and quality of life. Pain was measured by the Visual Analogue Scale (VAS) which measures subjective characteristics that cannot be directly measured as pain in this case. The pain is measured from 0 to 10 with 0 representing “no pain” and 10 “unbearable pain”. This scale has been useful in pain[101] and in fatigue[102,103].

Movement quality was measured with Basic Awareness Rating Scale (BARS), which shows a high internal consistency, high inter-tester and test-retest reliability, and low measurement error[33]. The scale contains two parts:

Part 1: the physiotherapist guides each patient in the BARS movements which is composed of 12 movements. The patients performed five repetitions of each movement (3–4 min for each), and the most healthy, functional movement was scored. The scale includes half (0.5) scores to make the scale more sensitive to differences between individuals and sensitive to nuances of change, both over time and within each therapy session. A score of 7 is defined as the most healthy, functional movement quality, described as balanced, free, centered, unified, rhythmic, and synchronous. A score of 1 is defined as the most pathological, dysfunctional movement quality, described as unstable, mechanical, stiff, un-rhythmical and

with a lack of unity[23]. The sum score of all items ranges from 12 to 84; and was collected by notebook.

Part 2: interview with the patient about movement awareness immediately after exploring each movement. In BARS the patients' general movement quality is evaluated and scored according to the way the movements are performed, relating to space, time and energy. When observing movement quality using BARS, the physiotherapist directs attention to the whole moving person, more than separate parts of the body[33].

Depression was assessed by the Beck Depression Inventory (BDI-II)[104] consisting in 21 items score range from 0 to 63, with a higher score indicating a greater degree of depression. Depression was also assessed by the Hospital Anxiety Depression (HAD) questionnaire, which measures the depression and anxiety. It consists of 14 statements and two subscales of depression and anxiety that range score is from 0 to 21 each one. A score higher than or equal to 11 indicates moderate to severe intensity symptoms. This instrument is validated and reliable[105]. Anxiety was measured with State-Trait Anxiety Inventory (STAI), with statements scoring from 1 to 4, the whole score is from 0 to 60 with higher scores indicating a greater degree of anxiety[106]. Quality of life was measured with Short Form 36 (SF-36) which is a generic tool whose scores range from 0 to 100; higher scores denote a better quality of life. It contains 36 items grouped into 8 subscales: physical functioning, physical role, bodily pain, general health, vitality, social functioning, emotional role and mental health. In this study, we used the language-adapted version[107] in the patient's language.

Data analysis

Data analysis was performed using IBM SPSS Statistics for Windows Version 20.0 (SPSS Armonk, NY, IBM Corp). The data from all patients were analysed using the intention-to-treat approach. First, descriptive statistical analyses were performed to describe the participants' profile. Baseline differences in demographics and illness characteristics between participants from both groups were investigated by independent t-tests and chi-square. Second, the comparison between the effects produced in the experimental group and in the control group were analysed for each dependent variable. This measure represents the amount of change in the value of the questionnaires (dependent variables) that can be attributed to the effect of the

physical therapy intervention (independent variable). The analyses of the effects between both groups as intersubject factors were done through parametric t-tests or and chi-square test, which were used to analyse categorical variables between groups to determine whether there were any differences between the experimental and control groups. The confidence interval was 95% and the level of significance was 0.05 in all analyses.

BBAT intervention

Basic Body Awareness Therapy was developed twice a week for 5 weeks. The intervention consisted of two individual sessions of 1 hour each. In the first two sessions, the BBAT sessions individually consisted on 12 movements of BARS-MQ and dropsy massage[108]. During the subsequent sessions, the patients participated in BBAT group sessions of 90 min each. Each session included BBAT movements, dropsy massage, and 15 minutes for sharing reflections about the experiences during the session within the group. During the guidance, the therapist focused on balance, free breathing, awareness as well as new habits in the movements. In each treatment session, the patients were stimulated to include these movements in their daily life.

The control group followed the treatment as usual according to the guidelines of the primary healthcare centre. The treatment as usual consisted in pharmacological treatment under medical prescription. According to the European League Against Rheumatism, the pharmacological recommendations are amitriptyline, pregabalin and cyclobenaprine[43]. This pharmacological treatment is recommended by the psychiatrist or physician.

Results

After baseline evaluation, the 41 patients enrolled in the study were randomly allocated to either BBAT group (n=20) or control group (n=21). One patient assigned to control group withdrew because she had health problems that did not let her attend the appointment, and another patient from BBAT group withdrew because scheduling conflicts were reported (see figure 1). Thus, a total of 39 FM patients (1 male and 38 female) participated in the study; the average age 51.05 ± 10.75 and 53.50 ± 9.19 in the BBAT and control group, respectively. On average, participants had had fibromyalgia for 8.16 ± 6.68 and 8.98 ± 5.68 years, for the

BBAT and control group, respectively (see table 1). Data analysis of the baseline evaluation showed that both groups were homogeneous for the majority of variables studied. However, the SF-36 variables -physical and mental component and body pain- were not homogeneous between groups in the pretest analysis, according to the Levene test ($p<0.05$); wherewith no statistical differences could be analyzed using the t-Student test.

Figure 1. Screening, randomization and completion 24 week evaluation

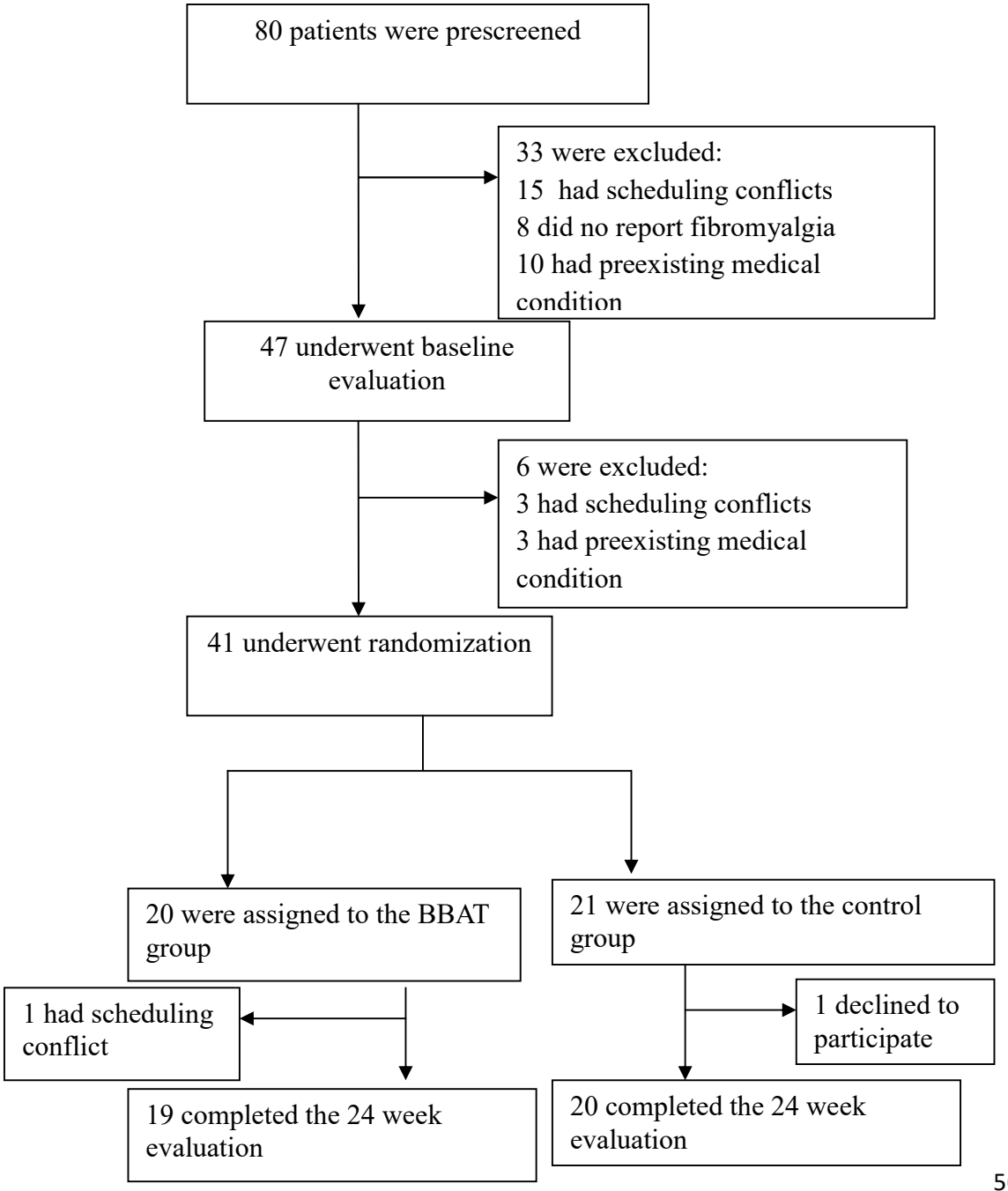


Table 1. Baseline characteristics of the study participants

Variable	BBAT group N=19	Control group N=20
Female sex - n (%)	18 (94.70)	20 (100)
Age average ± SD	51.05 ± 10.75	53.5 ±9.19
High school or higher education – n (%)	13 (68.40)	10 (50)
Years of diagnosed fibromyalgia ± SD	8.16 ± 6.68	8.98 ± 5.68
Civil State		
Married n (%)	13 (68.40)	16 (80)
Single (separated/divorced/widowed) n (%)	6 (31.50)	4 (20)
Occupational Status		
Working people n (%)	6 (31.50)	8 (40)
Unemployed n (%)	5 (26.30)	4 (20)
Retired n (%)	8 (42.10)	8 (40)
Visual-analogue Scale [a] score ±SD	7.89 ±1.98	7.55 ±2.40
BARS score[b] ± SD	26.97 ±5.43	29.80 ±4.91
SF- 36 score [c]		
Mental Component ± SD	33.42 ±11.63	33.80 ±15.15
Physical Component ± SD	29.09 ±5.10	34.50 ±11.17
Body pain ± SD	14.36±9.55	30.93 ±18.72
HAD score [d]		
Anxiety- n with score > 10 n (%)	18 (94.70)	14 (70)
Depression - n with score > 10 n (%)	12 (63.10)	8 (40)
BDI score[e] – n with score >29 n (%)	8 (42.10)	8 (40)
STAI score [f]		
Anxiety –n high anxiety n (%)	11 (57.80)	11 (55)
State–n high state n (%)	10 (52.60)	8 (40)

a Visual Analogue Scale (VAS). Scores range from 0 to 10, with 0 equaling no pain

b Basic Awareness Rating Scale (BARS). In this questionnaire were evaluated 11 movements with a score from 1 to 7, with 7 equaling very good functional movement quality. The range of score was to 11 to 77.

c Short-Form 36 (SF- 36); Ware y Sherbourne, 1992 patient-reported survey of patient health. Score of 0 is equivalent to maximum disability and a score of 100 is equivalent to no disability.

d Hospital Anxiety Depression (HAD). Score range from 0 to 21. This questionnaire measures the depression and anxiety. The score > 10 indicates more severe symptoms.

e Beck Depression Inventory (BDI-II). This questionnaire measures the depression. Score range from 0 to 63. The score > 29 indicates more severe depression.

F State-Trait Anxiety Inventory (STAI).This questionnaire evaluated the anxiety and the state to be anxious. Score range from 0 to 60. The score > 40 indicates more severe symptoms

One of the main findings was found in the VAS post-test analysis, as severe pain was improved significantly in the BBAT group compared to the control group (p=0.037). BARS also revealed significant differences between groups showing better movement quality in the intervention group (p=0,000). However, chi-square $p<0.05$ of BARS at 3 months ($p=0.075$) and 6 months ($p=0.072$) did not show significant differences between groups. In relation to BARS score, the study showed that 2 participants in the BBAT group and 20 participants in the control group scored a low movement quality of 11 to 30 points respectively, where 77 points is the maximum possible score and 11 points is the minimum score according to BARS. Full analysis can be found in tables 2 and 3

Table 2. Changes in categorical variable. No. of patients with high score and % of each group

Variable	BBAT group	Control group	*p* value *p*< 0.05
Visual-analogue Scale[a]- patients with high intensity of pain n (%)			
Post-test	12 (63.1)	5 (26.3)	0.037
12 weeks	13 (72.2)	10 (52.6)	0.320
24 weeks	10 (55.5)	11 (68.7)	0.593
BARS score[b] –patients with a mostly dysfunctional movement n (%)			
Post-test	2 (5.26)	20 (100)	0.000
12 weeks	10 (52.6)	16 (88.8)	0.075
24 weeks	3 (17.6)	6 (40.0)	0.072
HAD score[c]			
Anxiety- patients with score > 10 - n (%)			
Post-test	12 (66)	14 (82.3)	0.058
12 weeks	13 (76.4)	10 (62.5)	0.598
24 weeks	13 (72.2)	9 (69.2)	0.940
Depression –patients with score > 10 - n(%)			
Post-test	6 (33.3)	8 (47)	0.584
12 weeks	7 (41.1)	7 (43.7)	0.452
24 weeks	8 (44.4)	7 (53.8)	0.875
BDI score[d] –patients with score >29 n (%)			
Post-test	4 (22.2)	7 (41.1)	0.275
12 weeks	7 (41.1)	8 (44.4)	0.592
24 weeks	7 (38.8)	7 (53.8)	0.389
STAI score[e]			
Anxiety –patients high anxiety- n (%)			
Post-test	10 (52.6)	10 (55.5)	0.591
12 weeks	9 (50)	6 (35.2)	0.657
24 weeks	8 (44.4)	9 (69.2)	0.231
State–patients high state n (%)			
Post-test	6 (31.5)	8 (50)	0.304
12 weeks	8 (44.4)	6 (35.2)	0.744
24 weeks	7 (38.8)	6 (46.1)	0.164

HAD n of patients with score > 10- STAI n of patients high anxiety > 40- BDI n of patients with score >29-VAS n of patients with high intensity of pain >7-BARS n of patients with a mostly dysfunctional movement <30

a Visual Analogue Scale (VAS). Scores range from 0 to 10, with 0 equaling no pain

b Basic Awareness Rating Scale (BARS). In this questionnaire were evaluated 11 movements with a score from 1 to 7, with 7 equaling very good functional movement quality. The range of score was to 11 to 77

c Hospital Anxiety Depression (HAD). Score range from 0 to 21. This questionnaire measures the depression and anxiety. The score > 10 indicates more severe symptoms.

d Beck Depression Inventory (BDI-II). This questionnaire measures the depression. Score range from 0 to 63. The score > 29 indicates more severe depression.

e State-Trait Anxiety Inventory (STAI).This questionnaire evaluated the anxiety and the state to be anxious. Score range from 0 to 60. The score > 40 indicates more severe symptoms

Table 3. Changes of BARS at post intervention between control and BBAT group

BARS post test	**Control group**	**BBAT group**	**total**	***p*<0.05**
Dysfunctional movement	0	0	0	
Mostly dysfunctional movement	10	1	11	
Weak functional movement	10	1	11	***p*=0.000**
Some functional movement	0	6	6	
Moderate functional movement	0	9	9	
Good functional movement	0	2	2	
TOTAL participants	20	19	39	

More statistical significances were found through the comparison of variables in the BBAT group over time. The HAD scale on the anxiety subscale shows a significant improvement at 12 and 24 weeks (p=0.019, p=0.071, respectively), STAI questionnaire anxiety at 12 and 24 weeks (p=0.012, p=0.002 respectively); STAI state at 12 and 24 weeks (p=0.042, p=0.004 respectively); and SF-36 body pain subscale at 12 and 24 weeks (p=0.001, p=0.014 respectively). Full analysis can be found in table 4.

Table 4. Changes intra group intervention. Number of patient with high level of symptoms n (%) and mean and ± SD

Variable	Baseline	Post test	*p* value *p*< 0.05	12 weeks	*p*value *p*<0.05	24 weeks	*p*value *p*<0.05
VAS n (%)	11 (57.8)	5 (26.3)	0.483	10 (52.6)	0.336	10 (55.5)	0.340
BARS n (%)	14 (73.6)	2 (5.26)	0.955	10 (52.6)	0.538	3 (17.6)	0.365
SF-36 mental score ± SD	33.4 ±11.63	38.59± 14.07	0.385	35.05 ± 14.62	0.684	36.50 ± 15.20	0.199
SF-36 physical score ± SD	29.09 ± 5.10	31.99 ± 9.05	0.094	29.72± 4.81	0.156	29.70 ± 4.59	0.714
SF-36 body pain score ± SD	14.36 ± 9.55	28.57 ± 28.67	0.084	29.62 ± 19.90	0.001	24.82 ± 17.65	0.014
HAD Anxiety n(%)	18 (94.7)	12 (66)	0.667	13 (76.4)	0.019	13 (72.2)	0.071
HAD Depression n (%)	12 (63.1)	6 (33.3)	0.206	7 (41.1)	0.447	8 (44.4)	0.098
BDI n (%)	8 (42.1)	4 (22.2)	0.539	7 (41.1)	0.086	7 (38.8)	0.078
STAI Anxiety n(%)	11 (57.8)	10 (52.6)	0.121	9 (50)	0.012	8 (44.4)	0.002
STAI State n(%)	10 (52.6)	6 (31.5)	0.138	8 (44.4)	0.042	7 (38.8)	0.004

HAD patients with score > 10- STAI patients high anxiety > 40- BDI patients with score >29-VAS patients with high intensity of pain >7-BARS patients with a mostly dysfunctional movement <30

Discussion

This randomized controlled trial shows that BBAT might be an effective intervention for our sample of people suffering from FM in terms of pain, movement quality and anxiety, which were improved after the BBAT intervention. No adverse events were reported among the study participants, suggesting that BBAT might be a safe therapy for patients with fibromyalgia.

Dysfunctional movements and pain are common characteristics in patients with FM, in whom body awareness interventions indicate to be effective[16,46,72]. A relevant finding was in relation to the level of pain. Significant differences were found in the score of Visual Analog Scale. VAS tests are widely used to assess pain in patients with FM[68]. The improvement in the level of pain might be a result of the effect of Basic Body Awareness Therapy in the postural control. According to Jones[109] middle-aged people with fibromyalgia have consistent objective sensory deficits as measured by dynamic posturography, despite a normal clinical neurological

examination. In addition, Russek and Fulk[110] found that patients suffering from fibromyalgia have problems in postural control, sensory organization, and balance self-efficacy. BBAT provides stability in the vertical axis improving balance and efficacy of the motor muscles and perceptual experience[111]. Therefore, BBAT effects on postural control may have decreased pain symptoms in people suffering from FM

During the intervention, almost all patients referred to a pain increase around the second week treatment. According to Coppieters[112], the patients with FM experience a detrimental effect on endogenous pain inhibition after a session of relaxation. Recently, a systematic review regarding the effects of relaxation therapy on pain also showed limited evidence supporting the use of muscle relaxation[113]. However, in our study the level of pain described by the patients improved gradually. That fact point to the theory of central sensitisation explaining an increase in symptom severity post-treatment in response to low to moderate exercise therapy[114]. Alternatively, the factors known to influence central sensitisation could be tackled, including the stress response system, cognition, emotions and tissue specific factors, among others[113].

Another aim of BBAT in patients with FM is to improve the quality of movement in daily life through self-exploration and self-experience. According to Skjaerven the movement in fibromyalgia is mostly dysfunctional; the vertical axis mostly lacks balance, stability, firmness and freedom. In addition, other aspects of the person such as physiological, bio-psycho-social and existential, also improve with BBAT[23]. One of the important hypothesis of BBAT is the lack of contact with the body, and since the three basic co-ordination movements connect with the psychological perspective[26], those movements are intimately related to the emotional life through the close connection with breathing[26,115,116]. Three basic co-ordination in the trunk are regarded as the core of all human movement. They have a close connection to the breathing co-ordination and the psychological functions through the origin of the co-ordinations as located in the center of the trunk, at the level of the diaphragm[22]. This fact may explain the improvement in the score of anxiety on the STAI and HAD scale. Moreover, BBAT also include a structure to integrate movements in daily life[117], not only during the therapy session. The concrete and structured strategy, training to integrate what is learned in the therapy session, directly into daily life, guided by the physiotherapist, may explain the

improvement in the score for HAD and STAI anxiety at 12 and 24 weeks intra group. According to Di Tella[118] the patients suffering from fibromyalgia have a high prevalence of psychological distress levels of depressive and anxiety symptoms. Furthermore, alexithymia is especially present in the subscales "Difficulty in identifying feelings" and "Difficulty describing feelings". Through BBAT they come in contact with psychological life and learn to handle difficult situations[22]. Because of this, the patients have impairments both in the regulation of their own affect and in recognising other's emotions, as well as in representing other people's affective mental states. With this regard, researchers as Okur Güney[119] have shared this finding and discussed the idea that the patient had a more restricted awareness and reflection to his own and other's emotions, as well as being prone to anger and poor anger regulation. Though BBAT the patients learn to handle symptoms of FM, getting concrete strategies to use in daily life, simple but strong components to cope with FM.

With regards to body awareness, there are various approaches, according to Sze[120] body awareness training was not associated with differences in emotional reactivity, but with greater coherence between subjective emotional experience and heart period during film-induced emotional episodes[121]. Moreover, the association between emotional experience and somatic symptoms was stronger in those whose training emphasises visceral awareness such as Vipassana meditation, and intermediate in those whose training emphasises somatic awareness in modern dance and ballet. Damasio[122] adds that the requirement for awareness is that the substrate of sensations has to be known before by the body. In this way, feelings depend on a previous cerebral mechanism of vital regulation as the feelings do not appear from a real body states. In relation to BBAT, the main aim is to connect with whole body that was lacking contact with itself, so we assume that previously, the patient's whole body was connected and there was an innate awareness.

Limitations

Despite the encouraging preliminary data presented here, there were some limitations in the study. First, the intervention period in the study was short when compared to similar studies that included over 20 sessions[16]. In fact, the patients described major improvement in the lasts sessions. To overcome this limitation, further studies should be conducted during longer

periods. Blinding was another major limitation of this study, the outcome assessor was not blinded to the patient group. Consequently, there could be large bias in favour of the experimental treatment. However, it should be taking into account that most assessments consisted of self-reported questionnaires. In the future, we would suggest training more BBAT therapists to be able to conduct double-blinded studies.

Conclusion

This study has shown the effectiveness of Basic Body Awareness Therapy in patients with fibromyalgia through the improvement of some symptoms such as pain, movement quality and anxiety at 12 and 24 weeks follow up. No adverse events were reported among the study participants, suggesting that BBAT might be a safe therapy for patients with fibromyalgia. Further studies should include blinding systems and longer intervention periods.

Acknowledgements

We would like to thank all the participants in the trial and the following institutions who also contributed to the study by providing human and technical resources: primary healthcare centre Igualada Nord from Barcelona (Spain), and the postgraduate education of Basic Body Awareness Methodology in Bergen University College (Norway).

Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Declaration of interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this article.

STUDY 3

Experiences from group basic body awareness therapy by patients suffering from fibromyalgia: a qualitative study

Abstract

The aim of this study was to obtain a deeper understanding of how patients with fibromyalgia experienced movement awareness through a basic body awareness therapy group treatment programme. A total of 19 participants with fibromyalgia diagnosis were interviewed individually and in groups. Data collection was done from three sources: 1) interviews from the Basic Body Awareness Rating Scale (BARS) part 2 at baseline, at end of treatment, as well as at 12 and 24 weeks follow-up, 2) focus group discussions that took place at the end of each session, and at the end of treatment, and 3) an in-depth focus group. Giorgi's method was followed for data construction and analysis. The researchers conducted 57 interviews, 10 focus groups, and one in-depth focus group. The findings revealed the following categories: "creating a new relation to self", "change the pattern of body awareness", "living in a group", and "experiencing physical capacity", showing influences among them. Embodied and relationship of group in the therapy process have an impact on the healing process in patients who suffer from fibromyalgia.

Keywords

Body awareness, movement awareness, fibromyalgia, therapeutic group factors, basic body awareness therapy

Introduction

Fibromyalgia is a long-term condition causing widespread pain. It is recognized as one of the major common causes of disability. Daily life activities and movement quality are worsened in people suffering from fibromyalgia and its several symptoms not well controlled by existing treatments (Wolfe et al., 1990). The prevalence of fibromyalgia in the world population is 2.7% (Queiroz, 2013) and higher in women (4.2%) than in men (1.4%). The standard clinical guidelines for fibromyalgia include both pharmacological and non-pharmacological interventions. It has been officially declared as a syndrome by the World Health Organization in 1992 (Wolfe et al., 1995), Fibromyalgia is associated with widespread pain, no restorative sleep, fatigue, cognitive dysfunction, and other somatic symptoms negatively impacting physical and emotional function and reducing quality of life. The classification criteria are generalized pain, defined as pain in at least four of five regions, with symptoms present at a similar level scoring widespread 5, or widespread pain index of 4-6 and symptom severity scale score ≥ 9 (Wolfe et al., 2016).

Most patients with fibromyalgia have difficulties managing activities at home, at work, and during leisure time. This affects quality of life with a subsequent high degree of stress (Mannerkorpi & Gard, 2003). However, the way to cope with these difficulties is different in the fibromyalgia population. Some patients manage their disabilities by adapting to their limitation or by struggling with the problems they encounter in their daily life, others feel despair as they no longer can cope with their symptoms, feeling powerless and at risk of giving up (Mannerkorpi & Gard, 2003; Mannerkorpi, Kroksmark & Ekdahl, 1999).

Evidence-based guidelines suggest that fibromyalgia should be managed with a multidisciplinary approach, including pharmacological, psychological, and physiotherapeutic treatments. In the physiotherapy field, moderate aerobic strengthening exercises and stretching movements are recommended in clinical guidelines (Collado et al., 2011; Macfarlane et al., 2016) and systematic reviews (Cadenas-Sánchez & Ruiz-Ruiz, 2014). According to the latter recommendations of the European League Against

Rheumatism (EULAR), non-pharmacological therapy should be first-line therapy (Macfarlane et al., 2016). However, treatments that focus on pathoanatomical aspects and physiotherapy interventions have been shown to have few or no long-term effects in patients with long-lasting musculoskeletal pain conditions. The treatment interventions have found to be superior to other treatment include elements common to body awareness therapies (Kvale & Ljunggren 2007).

In the last few decades, physiotherapy in mental health and psychosomatics has been an emerging professional field, especially in northern European countries (Gyllensten, 2001; Mattsson, 1998; Roxendal, 1985). Basic body awareness therapy has shown to be effective in people suffering from chronic pain and psychosomatics (Mattsson, 2000; Olsen, Skjaerven, et al. 2016). Basic body awareness therapy is a health-oriented and person-centred approach with a focus on the patient's resources (Antonovsky, 1987; Roxendal, 1985; Skatteboe, 2005; Skjærven, 2002b) from a multi-perspective view based on four perspectives: the biomechanical, physiological, bio-psychosocial, and existential (Dropsy, 1998; Kristoffersen & Gard, 2008; Skjærven, 2002b). These aspects mutually and simultaneously influence each other.

Basic body awareness therapy is a movement awareness training approach in physiotherapy aiming to promote movement quality in daily life through self-exploration and self-experience with a goal of learning new movement habits. .

Basic Body Awareness Therapy implements basic movement principles, such a postural stability, adjustment of energy used in the movements, free breathing, and movement coordination. The movement awareness training includes daily-life movements of lying, sitting, standing, and walking as well as relational movements(Olsen, Skjaerven, et al. 2016)(Skjaerven et al. 2008). Assessment tools such as the Body Awareness Rating Scale (Skatteboe, 2005) or Body Awareness Scale Interview (Roxendal, 1985) have also been developed. Basic body awareness therapy is applied in multiple conditions such as psychosomatic conditions (Mattsson, 1998; Mattsson, 2000; Stade, Sammeritz, Hjortkjær, & Carlsson, 2015), long lasting pain (Gard, 2005; Olsen et al., 2016) and mental health (Gyllensten, Ekdahl, & Hansson, 2009; Hedlund & Gyllensten, 2010).

There is evidence that mental state and stressors in daily life influence several physiological processes in the body with impact on sensory-motor co-ordination and movement awareness (Laisné, Lecomte, & Corbière, 2012; Skjaerven, 2015). Decreased awareness is reflected in dysfunctional movements and compensatory movement strategies (Dropsy, 1975). According to Dropsy, this observation is named as the threefold contact problem in subconscious and disharmonious psychomotor function (Dropsy, 1998; Skjærven, 2003; Skjærven, 2015), relating to 1) the physical body, 2) the inner physiological and psychological life, and 3) the outer environment and relationship to other persons. All of this can be expressed in poor balance, blocked breathing, and dysfunctional movement quality as inadequate compensatory movement (Dropsy, 1998).

Different authors have described the importance of awareness for basic body awareness therapy (Gard, 2005; Gyllensten, Skär, Miller, & Gard, 2010; Skjærven, Kristoffersen, & Gard 2008). Awareness can be defined as an attentive, relaxed, and alert presence, not analogous to concentration (Skjærven et al. 2010). Being aware means continually monitoring internal and external environments (Skjærven et al., 2010). Movement awareness is defined as a precondition of movement quality expressed when the movement comes into contact with the body (Skjaerven, Kristoffersen, & Gard, 2008).

Moreover, the concept of body awareness involves an attentional focus on and awareness of internal body sensations. Body awareness can be defined as the subjective, phenomenological aspect of propioception and interoception that enters conscious awareness. It is modifiable by mental processes including attention, interpretation, appraisal, beliefs, memories, conditioning, attitudes, and affect (Mehling et al., 2011). In physiotherapy practice the concept of body awareness includes the experience dimension of the body (Gyllensten et al., 2010). This can be viewed as the subjective body from the phenomenological perspective: “We exist in our world through our bodies”.

According to Yalom (1985) the ”therapeutic factors” are effective from any perspective in all models of group therapy and it is common to all therapeutic models, including basic mechanisms of change (Skjærven, 2004). Skatteboe (1991) identified

seven therapeutic factors most applicable to clinical work in relation to group therapy: interpersonal learning, trust and confidence, group cohesion, altruism, and motivation.

Some clinical trials demonstrating the self-management of symptoms have been developed in people suffering from fibromyalgia whose function and symptoms, and, consequently, distress have been improved (Mannerkorpi & Gard, 2003; Mattsson, 1998; 2000). Hence, a qualitative analysis was necessary to explore phenomenological experiences of patients with fibromyalgia. Therefore, the aim of this study was to obtain a deeper understanding of how patients with fibromyalgia experienced and described movement awareness through a basic body awareness therapy group treatment programme.

Methods

Design

This study follows a qualitative case study design aiming to explore a deeper understanding and reflection to describe the phenomenon of participants' lives, minds, and realities through collection, organisation, and interpretation of textual material. Giorgi's analysis (Broomé, 2011; Giorgi, 1985) was followed to generate systematically a theoretical understanding of concepts emerging from the data to explain basic body awareness therapy.

A clinical trial was conducted with two controlled and randomized parallel groups. The randomised process was done using the software Epidat v 4.0. A number was assigned to the participants and then the programme generated two groups of numbers, the control and intervention groups. The results of randomisation were communicated by telephone to each of the participants. The study started in April 2015 during 30 weeks and all participants were assessed at baseline, post-test at the end of the 5 weeks treatment period, and 12 weeks and 24 weeks follow-ups were also done. Participants of both groups continued their treatment as usual which included pharmacological therapy only.

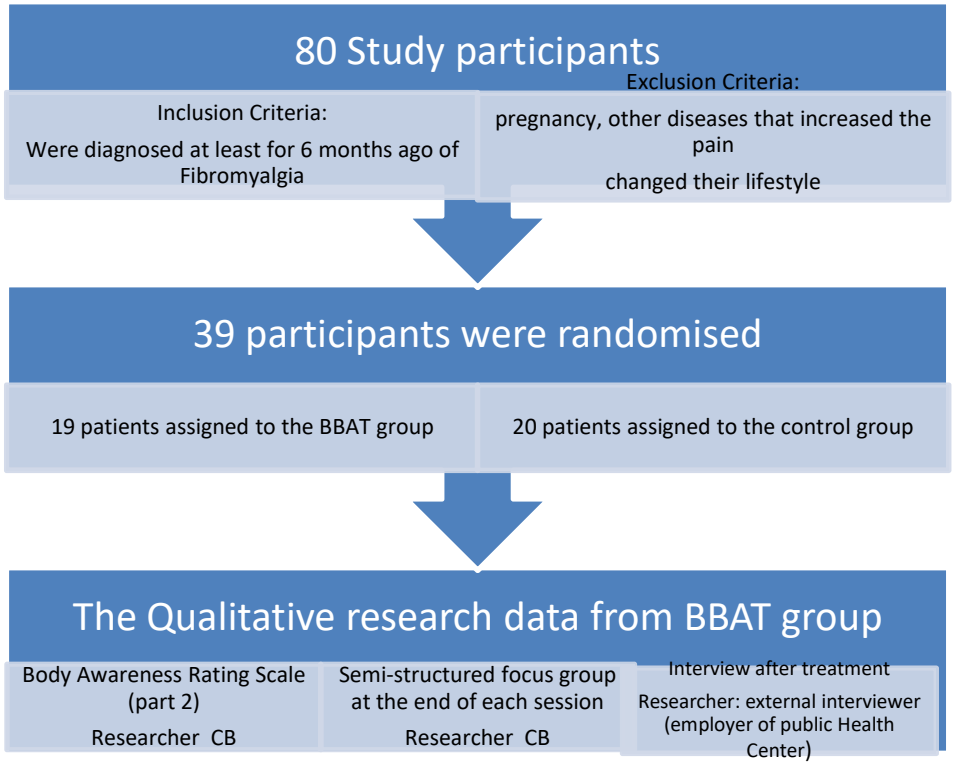


Figure 1. Study design and sampling flow chart

Participants

In total, 19 participants with fibromyalgia diagnosis (1 male and 18 females) belonging to an intervention group of randomized clinical trial were assessed. . The average age was 51.05 ± 10.75 and had been diagnosed with fibromyalgia for 8.16 ± 6.68 years. According to occupational status, six participants were working during the treatment period, five were unemployed, and eight were retired. (see table 1)

Variable	BBAT group N=19
Female sex - n (%)	18 (94.70)
Age average ± SD	51.05 ± 10.75
High school or higher education – n (%)	13 (68.40)
Years of diagnosed fibromyalgia ± SD	8.16 ± 6.68
Civil State	
Married n (%)	13 (68.40)
Single (separated/divorced/widowed) n (%)	6 (31.50)
Occupational Status	
Working people n (%)	6 (31.50)
Unemployed n (%)	5 (26.30)
Retired n (%)	8 (42.10)

Table 1. Baseline characteristics of the BBAT group intervention

According to the research protocol, the study was conducted at a primary healthcare centre. The Ethical Committee of Clinical Research of Bellvitge University Hospital approved the research protocol with the reference number PR183/14. The clinical trial was registered in ClinicalTrials.gov with the number NCT02830295. Participants were eligible if they were 18-65 years old and fulfilled the American College of Rheumatology 1990 diagnostic criteria for FM. The patients had been diagnosed at least for 6 months ago and they could manage to stand in lying, sitting and standing positions without assistance. The exclusion criteria were a) pregnancy or those women who were planning to become pregnant during the study period; b) those who were suffering from other diseases that increased the pain or another specific diagnosis as rheumatic, heart and infectious diseases; c) those who changed their lifestyle and physical activity habits during the study period.

All the patients were recruited through the database of the primary healthcare centre and they were invited to attend an informational meeting. In this meeting all patients willing to participate signed the written informed consent to participate in the trial according to the Helsinki Declaration (World Medical Association, 2013).

The therapist who leaded the intervention was CB who is a senior clinical physiotherapist and graduated in Basic Body Awareness Methodology by Bergen University College (Norway). Evaluation was performed by CB and AE and none were blinded. Data analysis was conducted by DC and LG.

Assessment

Movement quality was measured with the BARS (Skjærven, Gard, Sundal, & Strand, 2015), which consists of two assessment parts: part 1, observation and assessment of movement quality; and part 2, interview with the patient about movement awareness immediately after performing each movement (Skjærven et al., 2015).

Due to the qualitative nature of the study, the second part of the BARS was employed as follows: immediately after performing each movement the patient is given time to reflect upon the question about the movement awareness: "how was this movement for you?" The answers were transcribed by two of the authors' team CB and DC and when no consensus was reached, a third author LG participated in the transcription

The main researcher CB encouraged participants to talk about the experiences of movements during the session and to describe and observe movement changes in their daily life exploring a specific set of movements from daily life and elicited comments concerning the changes that occurred during the week. They were encouraged to talk and interact with each other for half an hour. This technique is built on the notion that group interaction encourages respondents to explore and clarify individual and shared perspectives (Tong, Sainsbury, & Craig, 2007). The BARS interview served to generate new concepts, explanations, and individual experiences that would not come about without the group.

With these regards, focus group was chosen to collect qualitative data at the end of treatment. Due to the participants given similar topic, socio-characteristics and phenomenological topics appear. According to Wong (Wong 2008), the focus group interview is a well-established research method, in which the participants are guided and encouraged by an interviewer to reflect on different aspects of specific questions

designed by the interviewer. A focus group is a technique involving the use of an in-depth group interviews in which participants are selected to discuss a given topic. Participants in this form of research are selected based on the criteria that they have similar socio-characteristics and will be comfortable talking to the interviewer and each other. The optimal number of participants in a focus group may vary, but a group of 6-10 participants is generally suggested to be manageable (Rabiee 2004). According to Krueger (22), the interviewer should be skilful in group discussion, use semi-structured questions and establish a permissive environment that encourages engagement and the exchange of experiences. Focus group discussions also have some limitations. A fundamental disadvantage of focus groups is their susceptibility to bias, because group and individual opinions can be swayed by dominant participants or by the interviewer (Wong 2008).

Moreover, an interview was done after each session to reflect on different aspects of experiences of Basic Body Awareness Therapy. The method for recording data was tape recording interview, and later transcribed to notebook. That last interview was done by independent employed of public health center to avoid bias of influence's interviewer on the answer of patients.

Questions about BBAT treatment	
1	What do you think about the treatment with Body Awareness Therapy?
2	Do you have a goal for your treatment with Body Awareness Therapy?
3	Do you perceive the treatment with Body Awareness Therapy as meaningful?
4	What would you tell a friend who had similar problems to yours about this form of treatment?
5	Do you have anything to add about what good physical therapy treatment should be?
6	Do you feel to be understood in your disease?
7	Do you think that she believe in your improvement?
8	Do you feel that group trust in you? Do you trust in group?
9	Do you feel integrated in the group?
10	Do you think your experiences are important to others?
11	Can you feel here and now in the sessions? Can you forget anything else during the session?
12	Had you felt some catharsis during the sessions? Do you felt your emotions freedom?
Questions about relationship with the PT	
1	Can you tell me about your PT?
2	Can you tell me about whether you think that your PT is warm or cold as a person?
3	Do you think that she is interested or not so interested in you?
4	Is she capable or not so capable in her work, as you see it?
5	Do you trust her?
6	Do you feel accepted or respected?
7	Do you think that she is a person that can help you?
8	What do you think about the cooperation with your PT?
9	Do you think that you are making any progress?
10	Do you think that she thinks that you are making any progress?

Table 2. Open interview guide after BBAT treatment

Intervention

The basic body awareness therapy intervention was provided by a physiotherapist (CB) with 18 years of clinical experience and who had graduated in Basic Body Awareness Methodology by Bergen University College (Norway). The intervention was conducted in a primary healthcare setting during five-week basic body awareness therapy treatment programme taking place twice a week, each one lasting 60 minutes. Participants continued their pharmacological treatment as usual. In the first two sessions, patients received the basic body awareness therapy sessions individually for 60 minutes each. The intervention consisted of 12 movements related to the BARS and Dropsy massage (Roxendal & Winberg, 2002). During the subsequent sessions, the patients received 90 minutes of group sessions. The session included basic body awareness therapy movements (Skjærven et al.,2015), Dropsy massage, and ended with reflections and description about the movement experiences after each of the movements during the session. In the guidance, the therapist focused on balance, free breathing, and awareness during the movements. After the intervention period, participants were invited to include these movements in their daily life.

Focus groups were also conducted, as an open-ended communication between the researcher and the whole group. It was important for the interviewer to exhibit openness to new and unexpected phenomena (Kvale & Brinkmann, 2009). The patients were invited to express themselves without any preconceptions from the interviewer. They were encouraged to restrict their descriptions to their actual clinical experiences and to describe simply what they experienced as successful therapeutic processes promoting movement quality.

Data Collection

In total, 19 informants contributed to data collection. Three data collections were used: 1) the BARS part 2 at baseline, at the end of treatment, as well as at 12 and 24 weeks follow-up; 2) semi-structured focus group discussions took place at the end of each session; and 3) an in-depth focus took place on the last day of group therapy. The data

resulted from the BARS was collected in a notebook while the focus group interviews were recorded using an audiotape and they were transcribed verbatim.

Data collected through BARS was performed individually; the participants were invited to describe their experiences about the movement experiences during the movement body awareness. The questions were “How do you experience the movement”? and “What is your experience doing that movement”? Data were collected at baseline, as well as at three and sixth months follow-up. Data were recorded using a notebook.

Analysis and Interpretation

The focus of interest was the person’s existence and his or her experience during the treatment process. Analysis of qualitative data involves decontextualisation and recontextualisation; decontextualisation allows parts of the subject matter to be lifted out and investigated more closely, together with other elements across the material that address similar issues; recontextualisation will ensure that the patterns still agree with the context from which they were collected (Malterud, 2001).

According to Malterud, Giorgi’s analysis is commonly referred in the literature to analyse qualitative data (Malterud, 2001) and it was created for the development of descriptions and notions reported by participants (Broomé, 2011). It consists of a four-step analysis procedure: Step 1) getting a total impression, Step 2) identifying meaning units with a focus on the phenomenon under study, Step 3) coding the meaning units and grouping them into themes by examination of the original text; identifying the main themes and categories on the basis of the patients’ expressed experiences, and Step 4) synthesising themes and underlying categories, producing a consistent structure of the phenomenon being studied, in addition to summarising their importance (Skjærven et al., 2010).

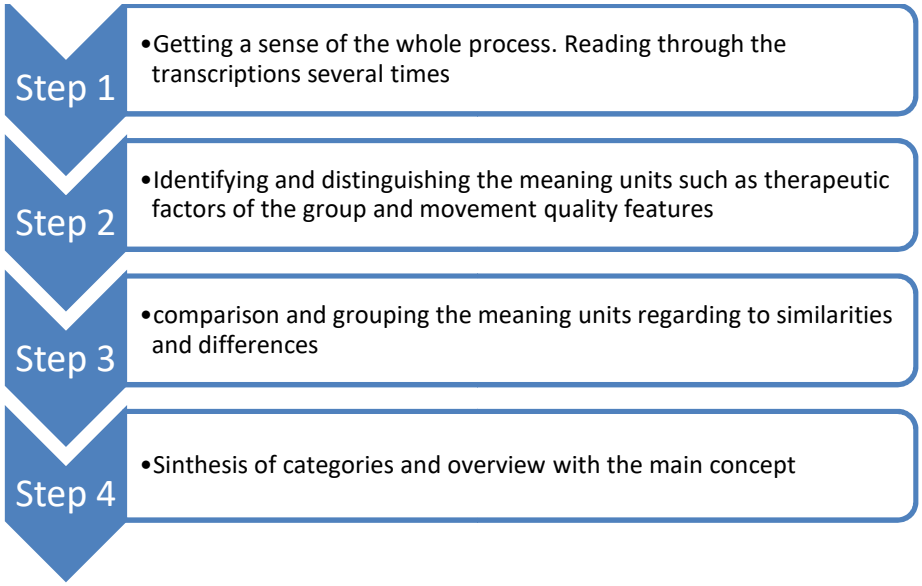


Figure 2. Steps in the analysis used in this study

There were 11 interview transcripts from group interviews and 57 individual interviews and research literature that contributed to the current theory development. The analysis was based on the knowledge provided through body awareness therapy according to the informants' explanations. During the process of identifying meaning units, the text was broken down and labelled into parts. Fourteen meaning units were then grouped into four categories. The authors' preunderstanding of body awareness grounded in literature and experiences of working in rehabilitation have also influenced the analysis as we were interested in the relationship between the body and movement awareness in the context of physiotherapy.

Ethical Considerations

All participants were recruited through the database of the primary healthcare centre and they were invited to attend a meeting. During this meeting, all patients willing to participate signed written informed consent forms. We followed the Helsinki declaration (World Medical Association, 2013).

Following research protocol, the study was conducted at a primary healthcare centre.

The Ethical Committee of Clinical Research of Bellvitge University Hospital approved the research protocol. The study was registered in ClinicalTrials.gov with the number NCT02830295.

Results

Here we present four qualitatively different descriptive categories describing reflexions and experiences of patients suffering from fibromyalgia when received Basic Body Awareness Therapy group. We describe each of the descriptive categories and the variation of themes in detail and quotes from participant's descriptions considered to be relevant.

In this analysis, coded four categories were labelled "Experiencing physical capacity", "Changing the pattern of body awareness", "Experiences of living in a group", and "Creating a new relation to self". The findings described how participants had experienced basic body awareness therapy treatment and how the basic body awareness therapy movements can be applied to daily life.

Excerpts from the data are included to illustrate the key aspects of the categories, citing expressions used by participants with numbers. The letter after the number indicates if the quotation is taken from a BARS (a), open-interview (b) after each session or final interview (c).

Experiencing Physical Capacity

In the first descriptive category, the participants described biomechanical experiences. The participants reflected that the path and the form of movements were freer and wide, they emphasized that the sensation of being in an effortless movement was a different experience from what they were used to. As well, they described how the movements produced less pain, improve the elasticity and centering; the movement were soft and slow and they found it to be too easy or too simple.

> *I can move the arms up more than before I have more mobility* (Lali, 27 years old, a); *I have more flexibility and elasticity in my*

shoulders I feel that I'm stretching (Eva 47 years old, b),

The participants described more resistance and energy. The experience of softly movement gave the capacity of safe energy in their daily life movement, this report plenty experience of empowerment that influence in other categories.

I do more activity; I have less pain, *I can walk with my friends, I have a shot of energy* (Annie 40 years old, a)

Another biomechanical feature appeared was the balance, they described an increased of balance and it allowed to move with less effort and they gain energy too.

Before, I felt a lack of balance when I was walking along the street, even when I was holding onto the baby's pram, but now this has stopped (Lali 27 years old, b)".

The participants described how challenging it was to be attentive and present in the movements. They experienced time to stop and observe in silence their personal space. They didn't used to be attentive to themselves in their daily life.

I listen only to your voice; I disconnect from everything today" (Maria 47 years old, b)

Changing the Pattern of Body and Movement Awareness

In the second descriptive category, Changing the pattern of body and movement awareness, the participants described that some areas of the body, such as legs, were out of the frame of awareness. Movement, such as standing movements and daily tasks in general, helps them to be aware of their legs and also improved their stability. This was described as being aware with increased movement sensations. One aim of treatment was exploring and being curious of new variety of movement and sensations come to the fore.

The basic body awareness therapy treatment helps me to be aware of my legs; they were lost, and now my stability has improved (Joana 47 years old, c)

In addition, the participants explored being present in the here and now; this helped them identify emotions and contact with the body, particularly with respect to

moving.

> *I feel the emotions in the body*; *this therapy helps me to be in contact with my body; now my body doesn't still work properly, but it's good to move it* (Kitty 56 years old, b),

Experiences of Living in a Group

The patients' experiences reflected how awareness was directed towards the external environment and their personal sphere. Descriptions of the richness of group and therapeutic factors came to the surface. Regarding this trial the group experience is more than the sum of each member's group; in relation to this, the sub-themes such as trust, confidence, group cohesion, altruism, motivation and interpersonal learning emerged (see Table 3). The group experiences have been identified according to Yalom (1985).

In this third descriptive category, the patients described, that awareness of movement aspects was useful to be understood by colleagues; that sense allowed them to trust in themselves and the others, also it allowed them to build group cohesion and to increase the altruism and motivation.

> *When you stand up very slowly, my colleagues understand what happens to you*" (Annie 64 years old, a), *In just a few days, we have become a little family unit* (Roxane, 60 years old, a), *I think that my experiences are important to others, and this fact helps me to know that what happens is a part of the process* (Kitty, 56 years old,c)

Creating a New Relationship to Self

Finally, the patients' experiences showed participating in basic body awareness therapy treatment changes the relation patients have with themselves. They described their priority in life centres more on their own life. Furthermore, before basic body awareness therapy treatment, the patients referred that they had to "do" something what they described as being "more important than taking care of themselves"; after treatment, their priority was their health before anything else.

I have more energy. It changes my mind; before, all of the things that I had to do were first and now the first thing is me. I need my time and I dedicate it to me (Amelie, 56 years old,c), *Now I'm aware that I give more affection than I receive* (Carme, 62 years old,c)

Discussion

This study developed a phenomenological understanding of body awareness process. The data regarding participants suffering from fibromyalgia after the basic body awareness therapy treatment revealed an increase of movement awareness and therefore started a process of embodiment. The embodied process generated was understood as a means to be in contact with one's body and in contact with relationship to others. This process included improvements in physical capacity, a changing pattern of body and movement awareness, experiences of living in a group, and creating new relationships with others.

Experiencing Physical Capacity

The analyses of the patients' data in basic body awareness therapy revealed a sense of improved biomechanical and physiological aspects such as path, form, time, elasticity, and centring of movement. In addition, balance, resistance, energy, and mental concentration are improved. Basic body awareness therapy treatment emphasises balance, grounding, and the centre line as important aspects in treatment (Skjærven, 2002b). Stability along the vertical axis is a precondition of movement quality (Skjaerven et al., 2008). Balance gives background stability. Motor stability, postural stability and postural orientation exist at the same time to increase a perceptual experience. Through this stability, the experience of being in equilibrium arises. Studies of physical activity interventions in fibromyalgia show that can reduce fibromyalgia symptoms and improve quality of life (Busch et al. 2011)(Macfarlane et al. 2016)

Changing the Pattern of body Awareness

Body awareness or "embodied identity" is understood as a means to feel alive in one's body and alive in one's relationship to others and to society (Gyllensten et al., 2010). To be in contact with the body in the present moment is essential to having contact with emotions. According to Damasio (2003), emotions are the physical manifestations of the body striving to maintain homeostasis. Emotions, then, are found as physical manifestations of how the body feels, and feelings as the body experiences in a particular state correlates to the experience of a certain state of thoughts. Feelings arise from homeostatic reactions, rather than only from emotions. Additionally, perceptions originate from the body and generate a new associated mental state. In relation to basic body awareness therapy, the change originate in movement; the new bodily movement experiences can be seen as generating a new homeostasis. Because of new movement experiences, new feelings and psychological changes can appear, new ways of thinking can be present, and new existential aspects can arise.

We explain the improvement of pain symptom because it depends upon the brain evaluating a massive amount of information, including data from the danger detection system, but also cognitive data: for example expectations, previous exposure, cultural and social norms, beliefs (Butler & Moseley 2013). Beliefs and thoughts can turn on a pain neurotag and increase pain. Moreover, emotional distress states such as depression or anxiety can increase the amount of pain. Therefore any psychological factor that draws attention away from pain will decrease pain perception(Main et al. 2008).

In our study, the intention of treatment is the rise of perception and awareness of patients. and to connect with body regions that are disconnected. We posit that earlier in the individual's life, the whole body was connected and there was an innate awareness. In this project, we can observe that individuals felt their legs were disconnected and thought the body movement from therapy helps them feel that the legs are reconnected.

The results aroused that patients were more present, the bodily experiences always are experienced in the present moment (Gyllensten et al. 2010). More else, the presence is key to achieve the awareness of unity of body and mind. According to Yalom

(Yalom 1985), presence is the hidden agent for learning.

The literature shows the importance of identifying and expressing emotions (Gard & Gyllensten, 2000). The identification and expression of emotions in treatment situations may lead to good treatment outcomes. Studies of the rehabilitation of patients with long-lasting pain have shown that patients can improve after body awareness enhancing interventions (Gard, 2005; Gustafsson, Ekholm & Broman, 2002; Malmgren-Olsson, 2002)

The results of changes in the emotional or existential perspectives include the choice of new options and actions. In this respect, some patients reflect that they were able to choose themselves before something else, whereas before the treatment, they were their last choice. To explain this, several authors (Bechara & Naqvi, 2004; Calsius, De Bie, Hertogen, & Meesen, 2016; Damasio, 2000) postulated that one of the main roles of emotions is to bring the autonomic processes of our bodies into awareness, providing "somatic markers" that guide our choices and actions.

Experiences of Living in a Group

According to Di Tella (2015), patients who are suffering from fibromyalgia have a high prevalence of psychological distress levels as well as symptoms of depression and anxiety. Moreover, alexithymia is especially present in the subscales of "difficulty in identifying feelings" and "difficulty describing feelings". Due to this, patients have impairments in the regulation of their own affect, in the recognition of the emotions of others, and in representing other people's affective mental states Güney (2015). They may also have high trait anger and poor anger regulation. These improved with the movements of flexing and extending, in addition to arm movement and relational movement. At the end of therapy, participants acknowledged together that they were able to express their understanding and felt understood by others in the group.

One important finding was the relationship between the group and between group and therapist. Earlier self-development research, states that self-organization occurs in a relationship with another self (Schore 2003). The core of the self is nonverbal and unconscious and lies in the pattern of self-regulation, grounded in the

intuitive knowledge that one can regulate the flows and shifts of one's bodily based emotional states (Schore 2003). The qualitative results show that trust and confidence were the most important features of the relationship. According to Gard (2000; 2005), if the therapist and patient interaction is good in terms emotional factors, the treatment effectiveness increases. Additionally, Rosberg (2000) explains that trust is decisive for being able to develop a sense of presence in the movement and being-in-the-world; movement awareness makes it possible to sense the relationship between the body and life. Not only did participants seem trust in the physiotherapist, but they also seemed to trust in themselves and their capacities. In the same way as when we turn "one eye in and one eye out", the relations develop more trust and confidence both outside and inside the relationship.

The greatest motivating force in the group cohesion was contact among them. This contact deepened in the process, even leading to the organisation of a social net to share emotions, feelings, and thoughts. The main group dynamics that arose were acceptance and understanding, which helped the patients to develop a well-balanced state and an increase in the harmony in their life. From this arises a functional balance, power, and freedom to act (Yalom, 1985; Damasio, 2003).

Creating a New Relationship to Self

Regarding the fourth category, the process of embodied empowered the patients, both in relation to the experience of the self and in relation to other people. The experience of a well-developed body awareness was understood as giving more to themselves. They always dedicated to others and after treatment they recognized them and interact with others for identity development, this concept has been also confirmed by other researchers (Rochat & Striano, 1999).

The results confirmed a mind-body connection according to theories described by Merleau-Ponty (1962) increasing our knowledge about the body awareness relating to the body, themselves, and to others. As physiotherapists we need to integrate this understanding into theory and practice (Gyllensten et al., 2010). The principles emerging

in this study should be further explored in an effort to generate a fuller theory of body awareness that in turn can contribute to developments in physiotherapy.

Limitations of this study are inherent to phenomenological methodology. The results in this study are influenced by our preundestanding. Due to the positive preliminary results about the effects of the basic body awareness therapy in fibromyalgia, future research may focus on analysing other experiences of basic body awareness therapy in patients suffering from fibromyalgia such as the experiences of family members to verify the changes in daily life.

Conclusion

A phenomenological understanding was conceptualised from which a core category of awareness emerged: “Creating a new relation to self”. This core category was related to three categories: “Experiencing of physical capacity”, “Change of pattern of body and movement awareness” and “Living in a group”. Working with body awareness in physiotherapy practice should include an understanding of the influence of movement awareness. Embodied and relationship of group in the therapy process have an impact on the healing process in patients who suffer from fibromyalgia.

Acknowledgements

We would like to thank all the participants in the trial, as well as the primary healthcare centre and Bergen University College (Norway), who contributed to the study by providing human and technical resources.

Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Declaration of Interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this article.

STUDY 4

Study 4

Introduction of Basic Body Awareness Therapy (BBAT) in the subject of Mental Health Physiotherapy in the fourth-year bachelor education: a qualitative study

Abstract

Objectives: The aim of this study was directed towards how a group of fourth` year bachelor physiotherapy students, describes their experiences, attitudes and beliefs from participating in a short introduction course of 8 hours in Basic Body Awareness Therapy. Basic Body Awareness Therapy is a movement awareness training approach in physiotherapy aiming to promote movement quality in daily life through self-exploration and self-experience with a goal of learning new movement habits

Design: This study was a qualitative case study. Data were collected through using: 1) focus group at the end of each practice session; 2) qualitative research interview at the end of whole course. Giorgi' analysis was used.

Participants: The participants were 80 physiotherapy students within the subject of mental health physiotherapy, in the fourth year's study course belong to University of Lleida. The study was carried out through two years 40 students each year.

Interventions: The BBAT introduction course consisted of six hours theory and two hours practical implementation with a particular focus on promoting movement quality through a movement awareness learning strategy.

Results: 16 emerging themes are grouped into four categories physical perceptions, body awareness characteristic, self-awareness and Body Awareness professional development.

Conclusions: Albeit, learning process of movement quality didn't become completely; the practice achieved take contact with the body through movement. Contact with physical perceptions as pain and blockages, perceptions as heaviness or relaxation, problems with coordination, elasticity and balance emerged as the body awake. More else, emotions as cry, calm, peace or nervous and body awareness as "body turned", "didn't feel the hands" and "found parts of body" appear. Therefore, there is an indication for the future course longer clinical practice course is needed to arise aware of

movement quality.

Keywords

Qualitative research, physiotherapy in mental health, basic body awareness therapy, learning process, movement quality

Introduction

This study is directed towards the implementation of a short introduction course in Basic Body Awareness Therapy (BBAT) in the context of undergraduate physiotherapy study program, fourth year, within the subject on mental health physiotherapy.

The history of physiotherapy in Spain officially dates back to 1981 when it was first implemented in university education[1]. Since then physiotherapy has developed its own identity through research and the high quality of education. Mental health has emerged as a new area of specialization for physiotherapists, not only in Spain but worldwide[2]. Physiotherapists who take into account mental health usually meet patients with psychiatric co-morbidities secondary to other chronic diseases. The attitudes of student' physiotherapists concerning mental health and psychiatry have been the subject of study[147]. Probst and Peuskens found that the attitudes of Flemish physiotherapy students towards psychiatry were moderately positive compared to a control group. However, they recommended obtaining additional information regarding specific physiotherapy strategies or techniques to develop more positive attitudes towards mental disorders through high-quality courses and personal patient contact or practice.

In the physiotherapy context, body awareness is defined as a treatment directed towards awareness of how the body is used in terms of body function, behaviour and interaction with the self and others. Body awareness therapies aim to normalize posture, balance, breathing, and muscular tension, which are experienced and visible in movement behaviour[36,35]. Norwegian Psychomotor Physiotherapy (NPMP) and Basic Body Awareness Therapy (BBAT) are two examples of body awareness therapies that have been developed. According to Dragesund, a body-oriented psychotherapeutic

approach is present in both therapies as the concept considers that posture, balance, breathing and muscle tension are very closely related to emotional states.

According to Greenfield and Jensen[148] phenomenology is an important approach for human caring professions as it underscores the importance of the connection between caring and exploring the lived experiences of patients with disabilities. Greenfield and Jensen[148] state that language is paramount because the use of language and metaphor over time can help the caregiver determine changes in a person´s recovery experiences and self-identity. The therapist should just be willing to listen to the person relate experiences in his or her own voice and at his or her own pace to allow his or her own life-world to reveal itself.

Furthermore, the tools of phenomenology offer strategies for developing students´ narrative reasoning skills in professional education[148]. In a phenomenological approach, this reasoning strategy is consistent with the therapist´s role of listening to the person and fully understanding the person´s lived experience. Greenfield and Jensen[148] state that reflective inquiry is an important meta-cognitive skill that has to begin with a focus on the self and needs nurturing and development in professional education.

Basic Body Awareness Therapy (BBAT), a health oriented, multi-perspective and person-centred approach with a focus on the patient's resources[5,21,26,117], is a movement awareness training approach in physiotherapy, aiming to promote movement quality in daily life through self-exploration and self-experience enabling the learning of new movement habits. Understanding movement quality as the art of consciously being, doing and relating to oneself and others will result in more functional daily life, relationships and actions[24]. The features of movement quality as a phenomenon in the physiotherapeutic context are classified into four perspectives- biomechanical, physiological, bio-psycho-social and existential[23,53] which mutually and simultaneously influence and are influenced by each other. In relation to the biomechanical perspective, movement quality includes the analysis of postural stability and the path and form of movement. From the physiological perspective, flow, elasticity, rhythm, free breathing and centring are considered. The psycho-socio-cultural perspective includes the concepts of awareness, as well as emotional, cognitive and intentional aspects. Finally, the

existential perspective represents self-awareness, human presence and unity during movement[23]. To gain higher functional movement quality, the physiotherapist focuses the guidance on postural balance, free breathing and awareness in order to integrate them in movement[25].

BBAT consists of a broad scope of movements, lying, sitting, standing, walking and relational movements and use of the voice. The movements are practised in therapy with a focus on particular movement aspects, such as rhythm, form, elasticity, flow, intention and voice[23,26]. Assessment tools such as the Body Awareness Rating Scale and Body Awareness Scale Interview[5] have also been developed.

Movement quality is a central concept in Basic Body Awareness Therapy. The awareness learning cycle is the capacity of reflect and conceptualize; in this way, finding words, talking about his/her experience, it's important to give time to find the words to express in order to learn how to move more efficiently[24]. The movement awareness learning cycle is a strategy for promoting movement quality. It consists in a few steps: the first step is to gain contact with the body. The patient needs guidance to come into contact with how she/he is moving. The second is to explore how the process of exploring and searching that becomes the experience becomes a part of consciousness. Then the person has to integrate the movement. After that, the movement creates meaning in her/his daily life and the person can see the connection between the therapeutic situation and daily life, it gives a bodily understanding of training. And in this way, the patient becomes master of a new and improved way to move.

In addition to the movement awareness learning cycle, there are others strategies for promoting movement quality include being in movement. Repeating and focusing on the exercises help the patient to become increasingly aware. What is more, guidance versus correction is a main point: the therapist acts as a guide, coaching and guiding movements towards health and full function. The use of words is also a concept requiring attention; particularly employing words of encouragement and metaphors, but without saying too many words that might disturb the process of learning. Finally, references for internal and external movement are important in promoting movement quality; moving is an interplay between internal and external references and both are

necessary for the movement to be functional and the training to be effective[25].

Because promotion of movement quality through a body and movement awareness learning course is for the first time introduced recently in Spain physiotherapy, it was of interest to study the students' description of experiences when being exposed to the course, to study how their experiences from participating in a short-time course were described. Furthermore it was of interest to study because BBAT course has a practice, theory and structure that have been accepted within the profession of mental health physiotherapy in the Scandinavian countries for about 30 years. More else BBAT is implementing a structured physiotherapy program representing daily life movements that it provides useful therapy for clinical settings as chronic pain, mental diseases, psychosomatics disease and promotion and preventive health care.

The aim of this study was to study the experiences attitudes and beliefs of students regarding BBAT in an eight-hour introductory course to physiotherapy in relation to mental health within a bachelor's programme.

Method

Design

Understanding the phenomenon of experiences and beliefs from the physiotherapy students' point of view demands a research design and method to reveal descriptions of students. Regarding to this a qualitative case study design was chosen[134]. Giorgi's method of analysis[126,127] was followed to generate systematically a theoretical understanding of concepts emerging from the data and explain experiences of learning BBAT.

The analysis of qualitative data involves decontextualization and recontextualization: decontextualization allows parts of the subject matter to be lifted out and investigated more closely, together with other elements across the material that provide information on similar issues; recontextualization ensures that the patterns still agree with the context from which they were collected[134].

Focus group was chosen to collect qualitative data due to the participants given

similar topic, socio-characteristics and phenomenological topics appear. According to Wong[129], the focus group interview is a well-established research method, in which the participants are guided and encouraged by an interviewer to reflect on different aspects of specific questions designed by the interviewer. A focus group is a technique involving the use of an in-depth group interviews in which participants are selected to discuss a given topic. Participants in this form of research are selected based on the criteria that they have similar socio-characteristics and will be comfortable talking to the interviewer and each other. The optimal number of participants in a focus group may vary, but a group of 6-10 participants is generally suggested to be manageable[130]. According to Krueger[131], the interviewer should be skilful in group discussion, use semi-structured questions and establish a permissive environment that encourages engagement and the exchange of experiences. Focus group discussions also have some limitations. A fundamental disadvantage of focus groups is their susceptibility to bias, because group and individual opinions can be swayed by dominant participants or by the interviewer[129].

More else, a qualitative research interview was used on the last day of course to reflect on different aspects of expectations and beliefs of body awareness introduction course. The method for recording data was writing interview, that decision was took due to the lack of time of course, in this way the student could reflect on relaxed.

Participants

The study was carried out among students on a bachelor's programme in physiotherapy at the University of Lleida over a period of two years. In total, 80 fourth-year students participated in the study, 40 students in each year. Each group of 40 students was further subdivided into four subgroups of 10 students. The eight-hour BBAT introduction course was presented group by group. Attendance on the BBAT-course was obligatory.

Basic Body Awareness Therapy introductory course

In the fourth year of the physiotherapy bachelor's programme, a course introducing the BBAT physiotherapeutic approach was especially developed within the subject of Physiotherapy in Mental Health. The course consisted of six hours of theory and two hours of practical implementation, in total eight hours taken by a physiotherapist (CB) who had gained clinical competence in BBAT at the Basic Body Awareness Methodology (BBAM) study program from Bergen University College (Norway).

The introduction to BBAT consisted of the presentation of theoretical concepts, its philosophical basis and historical roots. In addition, it introduced Skjaerven's Movement Quality Model (MQM) and evaluation tools, such as the Basic Awareness Rating Scale (BARS)[33], as well as therapeutic factors when implementing BBAT in individual and group therapeutic settings.

The practical part of the course included two movement sessions, each lasting 60 minutes. The first session included standing, sitting and lying operationalizing movement quality from biomechanical and physiological perspectives[50]. The second session included standing and lying operationalizing movement quality from psycho-socio-cultural and existential perspectives according to Skjaerven's MQM[23]. Both movement sessions placed an emphasis on being present and aware of how the movements were done implementing a strategy for the participants to experience the movements themselves.

The whole course was conducted in a training room with open space, mats and chairs for the practice sessions on one side and table and slide projector on the other for theory presentation. The students were asked to wear clothes allowing them to move freely in the practice sessions.

Data collection

The focus of interest was the views about BBAT, expectations, beliefs and experience during the educational course. Two means of data collection were used: 1) focus groups at the end of each practice session; 2) a qualitative research interview, completed by all 80 students on the last day of the course.

Focus groups were conducted as a means of open-ended communication between the researcher and the whole group. The stance of the interviewer showed openness to new and unexpected phenomena[133]. The students were invited to express themselves without any preconceptions from the interviewer. The reflexivity about body awareness of interviewer is essential on the process. They were encouraged to describe their experiences during the practical session. What's more the respective social or professional roles always shape the interview process and that the act of interviewing is invasive. For this reason, reflexivity on the part of the researcher is essential[149]. In total, 16 focus groups were conducted immediately after each two practice session. The students were given time to reflect on questions related to movement awareness: "How was that movement session for you?" and "What was your experience after a period of being in the movement?"

At first of reflection time couple of students shared their reflections between them, later they shared on group. In total, each focus group session lasted around 30 minutes and was audio recorded and later transcribed for analysis. In the case of dissent, when no consensus was reached between the two transcribers, a third author participated in the transcription.

Second, a qualitative research interview was gathered last day of whole course to collect the experiences, beliefs and expectations about course. It consisted of six open questions about course, expectations beliefs before the course, experiences during the BBAT sessions, future of physiotherapy in mental health in our country. The questions were "What do you think about BBAT?", "What's your experience doing BBAT?", "What were your expectations about BBAT?", "Do you think BBAT can be useful?", "Do you think physiotherapy in mental health has professional projection?", "What did you think about body awareness?". The interviews were given out the day before to last

day and they could fill in during 1 week.

Data analysis

According to Malterud, Giorgi's analytic method is commonly employed in the literature to analyse qualitative data[134]. This method was followed in the development of descriptions reported by participants [127]. It consists of a four-step procedure: 1) getting a total impression, 2) identifying meaning units with a focus on the phenomenon under study, 3) coding the meaning units and grouping them into themes by examining the original text and identifying the main themes and categories on the basis of the participants' expressed experiences and 4) synthesizing themes and underlying categories, producing a consistent structure of the phenomenon being studied, in addition to summarizing their importance[25].

The analytic stage started with Step 1) was to read and re-read the transcription of audiotape data of focus group and qualitative research interviews, initial studying of both dataset as a whole to gain an overall sense. Step 2) dividing the interview data into parts, identifying meaning units. The content of the meaning units was in relation to pain, balance and body perceptions. Step 3) was to express the structure of the phenomenon by combining meaning of data. During the organization of meaning units were transforming them to themes. Step 4) was made to synthesize and analyze the themes to develop into categories. Sixteen themes were then grouped into four categories according to the same nature of themes as "Experiencing physical perceptions", "Body awareness characteristic", "Self-Awareness", "BBAT professional development".

Ethical Considerations

According to Helsinki Declaration[100], the students participation in that study was voluntary and students could choose not take part in the interview or share their reflections. All students willing to participate on the presented design signed written informed consent forms.

Results

The data analysis of this study will be presented by categories are presented one by one, by quotes in boxes (Box 1-4). The themes were revealed from the descriptions made by the physiotherapy and how they described their experiences of participating in BBAT introduction course of 8 hours. The main findings are grouped in four categories as physical perceptions, body awareness characteristic, self-awareness and BBAT professional development. The movement quality experiences represent the characteristics of movement quality that the students expressed in the box 1 – 3. The characteristics represent aspects expressed in movement. The expectations of students' physiotherapy of BBAT were further described in Box 4.

Category 1 Experiencing physical perceptions

With regards to physical perceptions, students initially reflected on themes related to pain, balance, body perceptions, coordination, elasticity and path and form. Experiencing physical perceptions theme is according to biomechanical and physiological perspectives and it represents a spatial and time aspect of human movement.

Table 1. Category Experiences of physical perceptions

Box 1. Experiences of physical perceptions
1.1 Pain: *pain in knees pain due to injury; pain in my neck, low back pain; I felt my left side blocked; I felt pain in my bunions*.
1.2 Body perceptions: *Good sensations; I was relaxed; I felt heat in my hands and this made me feel nervous; when we did the M sound I felt my voice go up and down in level; I felt a growing sensation*; *I felt heaviness in my body; I'm aware of blockages in my body; when I opened my eyes I saw more light in the room; The standing movements made me feel nervous; When I was aware about breathing I relaxed so much.*

1.3 Balance: *I felt unstable when we did sideways movement; I felt dizzy*.
1.4 Coordination*: My left side didn't coordinate with my right side.*
1.5 Elasticity: *I stretched my arm more than my leg; I felt that my body stretched so much; I felt stiffness; the movement was flowing and tensions were free*.
1.6 Path and form: *I felt the movements freely; I felt the movements to be bigger than they really were.*

Category 2 Body awareness characteristic

The category of body awareness characteristic explains the experiencing of body awareness in relation to being present in the body, emotional factors and concentration.

Table 2. Body awareness characteristic

Box 2. Body awareness characteristic
2.1 Emotions in the body: *I can understand my emotions better, suddenly I want to cry; When someone observe me, I'm uncomfortable and nervous; I was calm; I felt peace, disconnection; I released emotions and feelings.*
2.2 Embodied presence: *I connected with myself; I felt overwhelmed and nervous when I was in contact with the ground; I didn't feel the hands; I felt my body turned; I found parts of my body that I didn't move.*
2.3 Concentration: *It's difficult for me to concentrate on the movements; I don't feel like the patient, we don't have a role as the patient; I laugh because of my partners in the practice; it's difficult for me to be quiet; when you viewer it at beginning it's easy; at first you don't know what to do.*

Category 3 Self-Awareness

The students reflected the awareness about themselves. Awareness appeared in relation to present person, unity in the movement. Time was experienced in different ways; some of them experienced no time during the session and others experienced eternal time.

Table 3. Category Self-Awareness

Box 3. Self-Awareness
3.1. Awareness: *Now I am aware of my muscular tension; In the standing movement I felt my mind empty, I moved like a robot, I didn't think about the movement; my mind wasn't aware of the movement but I moved, the relaxation moment was so pleasant; I am more aware of my body.*
3.2. Awareness of time: *I experienced that the time was stopped, as if I wasn't here; For me the experience was eternal in time.*
3.3. Relation to self: *I experienced disconnection from the world and connection with myself; I was more attentive to others than to me; Basic Body Awareness Therapy allowed me to know myself better; Basic Body Awareness Therapy can help you connect with yourself and it allows you to know your body deeper*.

Category 4. Body Awareness as professional development

The results show that some concepts in the introduction of BBAT were related to students' initial interpretation of Basic Body awareness Therapy.

Table 4. Category Body Awareness professional development

Box 4. Body Awareness professional development
4.1.Preconception of body awareness therapies (Bas): *I think that body awareness therapies only gain relaxation; I believe that it was undervalued and it is useful; I believed that Body Awareness therapy had a relation with neurology and it was more communicative; I didn't understand how it works, I didn't believe; I believed that Body Awareness therapy were field far from physiotherapy, but now I've changed my mind; Body Awareness therapy were impressive although they aren't explored;; I didn't think that Basic Body Awareness Therapy could be such a global therapy, I'm surprised about it; I didn't think that Basic Body Awareness Therapy could be so relaxing; I thought that these kinds of therapies didn't work.*
4.2.First sight: *I didn't expect this; it's similar to another therapies of body awareness; Basic Body Awareness Therapy is so new I'd never heard about it; I expected that Basic Body Awareness Therapy would be more about emotions; Some parts of the sessions didn't make sense to me; Basic Body Awareness Therapy is like yoga; I don't believe in this therapy, it's necessary concentrate so hard.*
4.3.Usefulness: T*his work can help us to connect with the patient; I've learned another way to treat patients; Basic Body Awareness Therapy is useful for anxiety and stress; I think it could be useful as a complementary therapy in association with others; it could be useful for body and mental relaxation; Basic Body Awareness Therapy gives body awareness and life style awareness; I think it is useful for the management of emotions, thoughts, beliefs, anxiety, panic; I don't believe in it; It's good to improve patient motivation; I think it enhances other previous treatments; I think it is a powerful tool that helps reflection; I think it improves self-esteem, sleep and body awareness.*
4.4 About the future: *I think physiotherapy in mental health doesn't have career opportunities in our country; there is so much clinical evidence exists and this is*

useful to open doors to physiotherapy; a lot of experience is necessary; I think Basic Body Awareness Therapy can have a future in the field of chronic pain, somatic pain and every pathology related to the mind; I think it's necessary to promote it more in the population; For most pathologies related to lack of movement and life style BBAT movements can be useful; I need more information about mental health; Basic Body Awareness Therapy can have a great future if it can be integrated as a specialization of physiotherapy, but it has to be defined better; BBAT has a future due to demonstrating improvements and the experience has been good.

Discussion

The main focus in this study was on studying and obtaining a deeper understanding of how physiotherapy students could gain from participating in a short introduction course of Basic Body Awareness Therapy, approaching the course with 6 hours theory and 2 hours movement awareness practice. The categories Experiencing physical perceptions, Body awareness characteristic, Self-awareness and body awareness professional development were identified. The qualitative design, using 16 focus groups and individual written interviews, was found to be adequate. The important contributions to research concerning the learning process of body awareness include an increase in knowledge, the clinical reasoning process and reflection on practice and skills acquisition. Moreover, the phenomenological experiences of students reflect the learning process of movement quality; the practice achieved take contact with the body through movement; students explored how the movements were became in experience and all experience generated part of consciousness. However, the learning comes for being in movement; for being in movement is necessary time and then becoming increasingly aware. Time to find the words to express and to learn how to move more efficiently is essential. Furthermore, in some students the capacity of reflect and conceptualize appeared. More else, repeating and focusing on the movement become increasingly

aware. Longer practice course is needed to arise aware of movement quality

Experiencing physical perceptions

The analyses of the students' experiences of the introduction to BBAT practice of two hours revealed glimpses of changes in biomechanical and physiological aspects, such as pain, the perceptions of balance, coordination, elasticity and path and form. The BBAT practice emphasizes balance, grounding and the vertical axis as important aspects of movement quality[27]. What is more, stability along the vertical axis is a precondition for movement quality[23]. Balance gives background stability. Motor stability, postural stability and postural orientation also simultaneously increase the perceptual experience; in this way, the experience of being in equilibrium arises. The results concerning physical perceptions show changes among physiotherapy students in relation to the MQM[23]. The students' experiences were in different ways due to their brief contact with BBAT.

One of the most important hypothesis of BBAT is the person's lack of contact with the physical body, the physiological and mental processes and with the external environment including relationships with other people[50]. Due to the main aim is to connect with body regions that are disconnected. We posit that earlier in the individual's life, the whole body was connected and there was an innate awareness. Suddenly pain and blockages, perceptions as heaviness or relaxation, problems with coordination, elasticity and balance emerged as the body awake. Our sensory system experiences aspects that constitute the inner and outer environment in which we live[150].

Body awareness characteristics

The experience of body awareness is related to being present in the body: if one's awareness is directed outwards, one cannot be aware of what one is experiencing; awareness is a precondition for coming into contact with the body[24]p>According to Gyllensten[36], the "embodied identity" is understood as a means of feeling alive in one's body and alive in one's relation to others and to society. Regards to the threefold contact

problem hypothesis, the results showed the contact with body parts were perceived by them in different ways as “body turned”, “didn’t feel the hands” or “found parts of body”. In that study, we can observe that students could recognize parts of their physical body were disconnected

Furthermore, emotional factor appears due to the feelings expressed through the movement. According to Damasio[122], emotions are the physical manifestations of the body striving to maintain homeostasis. Emotions, then, are physical manifestations of how the body feels and in turn, the feelings the body experiences in a particular state correlate to the experience of a certain state of thoughts. Feelings arise from homeostatic reactions, rather than only from emotions. In addition, perceptions originate from the body and generate a new associated mental state. In relation to basic body awareness therapy, the changes originate in movement; the new bodily movement experiences can be seen as generating a new homeostasis. Because of new movement experiences, new feelings and psychological perceptions can appear, new ways of thinking can develop, and new existential aspects can arise. Thus, the lack of contact with mental and emotional processes was presented when they referred a wish to cry, calm, peace or nervousness.

Finally, concentration was expressed as the experience of “I am” in the movements; the ability to “be in” or embody oneself is important. One of the keys in connecting body awareness and emotions is the fact that bodily experiences are always here and now[23,137]. The students expressed difficulty taking the patients’ role. Their attention was focused more on their colleagues than the practice. This expresses their difficulty to connect and their distortion in awareness.

Self-awareness

In terms of self-awareness, some experiences appeared as body awareness, others as awareness of time and yet others the relation to the self.

Awareness can be defined as an attentive, relaxed, and alert presence, not analogous to concentration. Being aware means continually monitoring the internal and external environments; it is possible to be aware of stimuli without making them the

centre of attention. Attention is a process that includes focusing on conscious awareness[25]. Regarding this, the students expressed being aware of tension, the way in which they moved and time.

Time is the carrier of both the external rhythm and the internal rhythm in the human being[23]. Internal circulation and breathing are internal movements that affect movement quality. In BBAT, breathing has been described as a fundamental factor to be integrated in movement training, giving a flowing, elastic and rhythmical movement quality.

Body Awareness professional development

Four themes appeared in the category Body Awareness professional development. The first theme was related to prior knowledge of body awareness therapies. In Spain there is no tradition of such kinds of therapy. The prior beliefs were about relaxation, neurology. The students' concerned and reflections expressed scepticism and a lack of confidence, for example "I believe that it was undervalued" and "I thought that these kinds of therapies didn't work". However, although some expressed a lack of confidence in the therapy, there were also positive experiences as impressive or surprise.

In terms of the usefulness of the therapy, opinions varied; some students understood the concepts of connecting with the body and changes in life style, whereas some students did not see broad usefulness for its applications. BBAT was for some of them as a complementary therapy and relaxation technique.

Health professionals tend to show negative attitudes towards people with mental disorders, even more so than the general population[2]. Stigma is defined as a sign of disgrace or discredit, which sets a person apart from others[151]. Regarding stigma, the physiotherapy students did not present negative attitudes, but did express surprise concerning the possibility of treating mental disease through physiotherapy. However, some negative attitudes were expressed in relation to body awareness therapies. Concerning the future, they were in agreement with the implementation of BBAT as a new field of physiotherapy, but they were of the opinion that physiotherapy in mental health requires more clinical experience, training and promotion among the population.

The main limitation of the study was the short duration of introductory course which comprised only six hours of theory and two of practice. The process of learning BBAT includes not only developing understanding of theoretical concepts, but also inherently its practical implementation. The learning process includes teaching movements, situations and approaches, all of which should be designed to involve the student personally[25].

Conclusion

The results of this study revealed that physiotherapy students understand their own movement quality in variety ways. A phenomenological understanding was conceptualised from categories emerged: “Experiencing physical perceptions”, “Body awareness characteristic”, “Self-awareness” and “Body Awareness professional development”.

Despite the learning process of movement quality did not become completely; the practice achieved take contact with the body through movement. In that study, we can observe that students could recognize that parts of their physical body were disconnected. Contact with physical body perceptions as pain, blockages, physiological processes as heaviness or relaxation, coordination, elasticity and balance emerged as the body awake. Moreover, the lack of contact with mental and emotional processes were presented when they referred cry, calm, peace or nervous. At last difficulty to connect with external environment were expressed in taking the patients’ role. Therefore, there is an indication for the future course longer clinical practice course is needed to arise aware of movement quality.

DISCUSSION

DISCUSSION

This thesis has analysed the effectiveness of BBAT as an adjunct treatment for patients with fibromyalgia. In relation to the outcomes revealed and shown in each of the studies, the discussion is developed accordingly.

Systematic Review

The systematic review about body awareness therapies as a treatment for patients with fibromyalgia showed a considerable number of studies without strong methodological evidence. Furthermore, not all therapies achieve benefits in all the areas of fibromyalgia. The therapies that produced better benefits or outcomes are affective self-awareness, t'ai chi, qigong, the Rességuier method and yoga. Their common feature is a holistic view of the person in all perspectives, representing health-oriented and person centred approaches. The therapeutic approach involves training in awareness of how to keep or restore health concerning bodily and mental processes. These therapies involve the whole person, including all movement perspectives - physical, psychological, physiological and existential perspectives[111]- and focus on breathing, postural balance and awareness[22,33]. Moreover, the therapies centred on individual resources in the patient, such as the Rességuier method, achieved positive outcomes.

Study 2: Basic Body Awareness Therapy in patients suffering from fibromyalgia: a randomised clinical trial

During the randomized clinical trial, most patients referred to a pain increase around the second week treatment. According to Coppieters[112], the patients with fibromyalgia experience a detrimental effect on endogenous pain inhibition after a session of relaxation. Recently, a systematic review regarding the effects of relaxation therapy on pain also showed limited evidence supporting the use of muscle relaxation.[113] However, in our study the level of pain described by the patients improved gradually. That fact points to the theory of central sensitisation explaining an increase in symptom severity post-treatment in response to-low-to moderate exercise therapy[152]. Alternatively, the factors known to influence central sensitisation could be tackled, including the stress response system, cognition, emotions and tissue-specific factors, among others[152].

Body awareness or 'embodied identity' is understood as a means to feel alive in one's body and alive in one's relationship to others and society[36]. To be in contact with the body in the present moment is essential to having contact with emotions. According to Damasio[122], emotions are the physical manifestations of the body striving to maintain homeostasis. Emotions, then, are found as physical manifestations of how the body feels, and feelings as the body experiences in a particular state correlate to the experience of a certain state of thoughts. Feelings arise from homeostatic reactions, rather than only from emotions. Additionally, perceptions originate from the body and

generate a new associated mental state. In relation to BBAT, the change is originated in movement; the new bodily movement experiences can be seen as generating a new homeostasis. Because of new movement experiences, new feelings and psychological changes can appear, new ways of thinking can be present, and new existential aspects can arise.

According to the Movement Quality Model of Skjaerven, the movement in fibromyalgia is mostly dysfunctional[23]; the biomechanical aspects in the vertical axis mostly lack balance, stability, firmness, and freedom. In addition, other aspects of the person, such as physiological, bio-psycho-social and existential aspects, showed a requirement to improve[23]. One of the important hypotheses of BBAT is the lack of contact with the physical body, the physiological and mental processes and the external environment, including relationships with other people[50].

Regarding the physical body, a lack of contact with the body regions was observed. Most patients expressed that their legs were disconnected and thought the body movement helped them feel reconnected to their legs. In relation to BBAT, the main aim is to connect with the body regions that are disconnected. We posit that earlier in the individual's life, the whole body was connected and there was an innate awareness.

Therefore, the three basic co-ordination movements connect with the psychological perspective[26], those movements are intimately related to the emotional life through the close connection with breathing[26,115,116]. Three basic co-ordinations in the trunk are regarded as the core of all human movement. They have a close connection to

the breathing co-ordination and the psychological functions through the origin of the co-ordinations located in the centre of the trunk, at the level of the diaphragm[22]. This fact may explain the improvement in the anxiety score on the STAI and HAD scales.

BBAT includes a structure to integrate movements in daily life[117], not only during the therapy session. The concrete and structured strategy, providing training to integrate what is learned in the therapy session, directly into daily life, guided by the physiotherapist, may explain the improvement in the score for HAD and STAI anxiety at 12 and 24 weeks intra-group. According to Di Tella[118], the patients suffering from fibromyalgia have a high prevalence of psychological distress levels of depressive and anxiety symptoms.

Study 3: Experiences from group basic body awareness therapy by patients suffering from fibromyalgia: a qualitative study

In this study we analysed the qualitative data resulted from the randomized clinical trial. The patients expressed their feelings and experiences of BBAT treatment. Furthermore, alexithymia is especially present in the subscales 'Difficulty in identifying feelings' and 'Difficulty describing feelings'. Through BBAT patients come in contact with their psychological life and learn to handle difficult situations[27]. Because of this, patients have impairments in the regulation of their own affect, in the recognition of the emotions of others, as well as in representing other people's affective mental states[119]. In this regard, researchers, such as Okur Güney[119] have shared this finding and discussed the idea that the patient had a more restricted awareness and reflection on his own and

others emotions, as well as propensity to anger and poor anger regulation. At the end of therapy, participants acknowledged that they were able to express their understanding and felt understood by others in the group. Though BBAT, patients learn to handle symptoms of fibromyalgia, receiving concrete strategies to use in daily life that are simple but strong means to cope with fibromyalgia.

The results of changes in the emotional or existential perspectives include the choice of new options and actions. In this respect, some patients reflected that they were able to choose themselves before something else, whereas before the treatment, they were their last choice. To explain this, several authors[141–143] have postulated that one of the main roles of emotions is to bring the autonomic processes of our bodies into awareness, providing 'somatic markers' that guide our choices and actions.

Regarding the relationship to others, one important finding was the relationship between the patients and the therapist. To promote movement quality in BBAT, the physical therapist's attitudes of trust and acceptance towards the patient were important throughout therapy. The physical therapist had to be open, unbiased, and non-judgmental to build a relationship and communicate with the patient. A focus on movement resources was a means of involving and motivating the patient[24]. Moreover, gaining closer contact with the body was considered to be essential for developing movement quality and provided a basis for exploring new ways of moving. Encouraging exploration was found to be important for stimulating the patient's curiosity and involvement in learning.

The qualitative results show that trust and confidence were the most important

features of the relationship. According to Gard[16,138], if the therapist patient interaction is good in terms of emotional factors, the treatment effectiveness increases. Additionally, Rosberg[145] explains that trust is decisive for developing a sense of presence in the movement and being-in-the-world; movement awareness makes it possible to sense the relationship between the body and life. Not only did participants seem to trust in the physiotherapist, they also seemed to trust in themselves and their capacities. In the same way as when we turn 'one eye in and one eye out', the relations develop more trust and confidence both inside and outside the relationship.

The greatest motivating force in the group cohesion was contact between patients. This contact deepened in the process, even leading to the organisation of a social network to share emotions, feelings, and thoughts. The main group dynamics that arose were acceptance and understanding, which helped the patients to develop a well-balanced state and an increase in the harmony in their life. From this arises functional balance, power, and freedom to act[37,122].

Study 4: Introduction of Basic Body Awareness Therapy (BBAT) in the subject of Mental Health Physiotherapy in the fourth-year bachelor education: a qualitative study

Future physiotherapists' experience of a BBAT introductory course of eight hours on movement quality showed some interesting points. The phenomenological experiences of students reflect the learning process of movement quality; the practice achieved take contact with the body through movement; they explored how the

movement was that became into experience and all experience generated part of consciousness. However, the learning comes for being in movement; for being in movement is necessary time and repetitions; then becoming increasingly aware. Time to find the words to express and to learn how to move more efficiently is essential. Furthermore, in some students the capacity to reflect and conceptualise appeared. More else, repeating and focusing on the movement become increasingly aware. For the future course, if would arise aware of movement quality longer practice is needed.

LIMITATIONS

This thesis shows some limitations which are discussed according to each of the studies conducted:

- *Systematic review*

  Regarding the systematic review, the potential for selection bias is the main limitation. Screening references of identified trials may have positive results, because trials with positive results are more likely to be published than trials with negative outcomes. On the other hand, none of the included studies were double-blind, and the researchers may not have always been able to be blind to the participants in the intervention. Moreover, most of the selected research compares the experimental intervention with a control/comparison group, which uses the standard care, which could differ among studies. In addition, the level of education or clinical experience of the therapists who ran the body awareness

therapy interventions is unknown, which might be a bias according to the clinical outcomes. Finally, all studies included follow-up in the short or medium term, so the long-term effect of body awareness therapies remains unclear.

- Clinical trial

  A limitation of the clinical trial was the short period of the study, due to the patients' described major improvement in the last session. Blinding was another major limitation of this study; the outcome assessor was not blinded to the patient group. Consequently, there could be large bias in favour of the experimental treatment. However, it should be considered that most assessments consisted of self-reported questionnaires.

- Qualitative studies

  In qualitative studies the phenomenological methodology contained inherent limitations, as influenced by our preunderstanding. Moreover, the qualitative studies' research limitation was the short duration of the course.

FUTURE RESEARCH RECOMMENDATIONS

The findings of this doctoral thesis suggest new ways for the treatment of people suffering from fibromyalgia, providing a good body of clinical research knowledge for physiotherapists and future researches.

Professional Implications:

- Physiotherapists should change the treatment focus in fibromyalgia and add holistic perspectives in the therapeutic interventions, including

strategies for the special psychological conditions for example through group therapeutic factors.

- The Physiotherapy Bachelor should include specific training in mental health physiotherapy due to benefits showed as for example including BBAT as a physiotherapeutic intervention.
- The therapeutic intervention in people suffering from fibromyalgia should include a multidisciplinary approach, it's necessary to improve the collaboration between different professionals through team work.

Policy implications:

- Clinical guidelines should include body awareness therapies as non-pharmacological interventions.
- Health systems should include body awareness therapies in the care services as BBAT, yoga, Tai' Chi, etc.

Future research:

- It's recommended to improve the evidence of research, adding longer treatments, increasing the participants and carring out double-blinded studies for future research of BBAT.
- Due to the positive preliminary results on the effects of the BBAT in fibromyalgia, future research could focus on analysing qualitative data, such as the views, experiences and reflections of patients when they received BBAT, as well as, the integration of BBAT in their daily life across time. Also, future studies might collect the experiences of family

members to verify the changes in daily life.

- Future research in mental health could validate scales such as Attitude Towards Psychiatry or Body Awareness Scale Interview especially in other cultures and languages such as the Spanish one.

CONCLUSIONS

CONCLUSIONS

1. This thesis has shown that BBAT is an effective adjunct treatment to the usual care in people suffering from fibromyalgia.
2. Regarding the systematic review, Body Awareness Therapies may be an effective intervention for people suffering from fibromyalgia. However further research on body awareness therapies and on long-term outcomes may contribute to the available evidence.
3. Body Awareness Therapies that may improve a wide range of symptoms are t'ai chi, qigong, yoga, affective self-awareness and the Rességuier method. The beneficial outcomes for fibromyalgia achieved were in relation to pain, pain threshold, number of tender points, sleep quality, fatigue, anxiety, depression and quality of life.
4. There was a significant difference in the level of pain in the post-test scores of the visual analogue scale between groups.
5. Significant differences in movement quality were found in the post-test scores of BARS between groups.
6. Significant differences in the anxiety level of STAI anxiety and state were found in the 12 and 24 weeks follow up intra-group.
7. Further studies of BBAT in patients suffering from fibromyalgia should include blinding systems and longer intervention periods.
8. The phenomenological understanding of how patients with fibromyalgia experienced BBAT was emerged within core category of 'Creating a new relation to self' and categories such as 'Experiencing physical capacity', 'Change of pattern of body and

movement awareness' and 'Living in a group'.

9. Group factors in the therapy process and the relationship between the group and physiotherapist have an impact on the healing process in patients suffering from fibromyalgia.
10. The phenomenological understanding of how physiotherapy students of a BBAT introductory course could identified as categories 'Experiencing physical perceptions', 'Body awareness characteristic' and 'self-awareness'.
11. Longer clinical practice course is needed to arise aware of movement quality within physiotherapy bachelor.

REFERENCES

1. Raposo Vidal I, Fernández Cervantes R, Martinez Rodriguez A, Sáez Gómez JM, Chouza Insua M, Barcia Seoane M. La Fisioterapia en España durante los siglos XIX y XX hasta la integración en escuelas universitarias de Fisioterapia. *Fisioterapia*. 2001;23(4):206–217.
2. Horsfall J, Cleary M, Hunt G. Stigma in mental health: clients and professionals. *Issues Ment Health Nurs*. 2010;31(7):450–455.
3. Probst M, Skjaerven L, Parker A, Gyllensten A, IJntema R, Catalan-Matamoros D. Do you support this definition of physiotherapy in mental health? *Fisioterapia*. 2016;36:49.
4. Bunkan BH. *Undersökelse og behandling ved muskelspenninger*. Universite. oslo; 1979.
5. Roxendal G. Body Awareness Therapy and the Body Awareness Scale, treatment and evaluation in psychiatric physiotherapy. Doctoral Thesis 1985.
6. Mattsson M. Body Awareness applications in physiotherapy. Department of Medicine Psychiatry and Family, ed. Doctoral Thesis 1998.
7. Gyllensten AL. Basic Body Awareness Therapy: assessment, treatment and interaction. Doctoral Thesis 2001.
8. Skatteboe Ulla Britt. A vaeare i sampill. En kroppso rientert gruppeterapi for pasienter med kroniske neuroser of personlighetsforstyrreber. Hovedfagsoppgave. 1990.

9. Skjærven LH. “Å være seg selv – mer fullt og helt”. En tilnærming til feneomenet Bevegelseskvalitet. 1999.
10. Probst M. Body experience in eating disorders. Doctoral Thesis 1997.
11. Probst M, Vandereycken W, Van Coppenolle H, Vanderlinden J. The body attitude Test for patients with an eating disorder: phychometric characteristics of a new questionnaire. *Eat Disord*. 1995;3(2):133–144.
12. Probst M. Physiotherapy in eating disorders: Changes in body avoidance and body checking behavior over six months. *Physiotherapy*. 2015;101(1):1238–1239.
13. Probst M, Majewski M, Albertsen M, et al. Physiotherapy for patients with anorexia nervosa. *Adv Eat Disord Theory, Res Pract*. 2013;1(3):224–238.
14. Asociación Cantabra Pro Salud Mental (ASCASAM). *Plan de Salud 2013-2018. Estrategia de salud mental 1.*; 2018.
15. Catalan-matamoros D. Fisioterapia en salud mental. efectividad de una intervención fisioterapéutica en trastornos alimentarios. Doctoral Thesis 2007.
16. Gard G. Body awareness therapy for patients with fibromyalgia and chronic pain. *Disabil Rehabil*. 2005;27(12):725–8. doi:10.1080/09638280400009071.
17. Malmgren-Olsson E-B. Health Problems and treatment Effects in Patients with Non-specific Musculoskeletal Disorders - A comparison between Body Awareness Therapy, Feldenkrais and Individual Physiotherapy. Doctoral Thesis 2002.
18. Mehling WE, Wrubel J, Daubenmier JJ, et al. Body Awareness: a

phenomenological inquiry into the common ground of mind-body therapies. *Philos Ethics Humanit Med*. 2011;6(1):6. doi:10.1186/1747-5341-6-6.

19. Daubenmier J. The relationship of Yoga, body awareness, and body responsiveness to self-objectification and disordered eating. *Psychol Women Q*. 2005;29:207–219.
20. Gyllensten AL, Ekdahl C, Hansson L. Advances in Physiotherapy Long-term effectiveness of Basic Body Awareness Therapy in psychiatric outpatient care . A randomized controlled study Long-term effectiveness of Basic Body Awareness Therapy in psychiatric outpatient care . A randomized controll. *Adv Physiother*. 2009;11(1):2–12. doi:10.1080/14038190802242061.
21. Antonovsky A. Unraveling the mystery of health: how people manage stress and stay well. In: Jossey-Bass, ed. San Francisco; 1987.
22. Skjærven LH. *Quality of Movement - the art and health [Book]*. - University College ed., Bergen (Norway) 2002.
23. Skjaerven LH, Kristoffersen K, Gard G. An eye for movement quality : A phenomenological study of movement quality reflecting a group of physiotherapists ' understanding of the phenomenon. *Physiother Theory Pract*. 2008;24(1):13–27. doi:10.1080/01460860701378042.
24. Skjærven LH. *Basic Body Awareness Therapy. A guide to understanding, therapy and growth.* Bergen University College ed., Bergen (Norway) 2003.
25. Skjærven LH, Kristoffersen K, Gard G. How can movement quality be Promoted in Clinical Practice ? A Phenomenological Study of Physical Therapist Experts.

Phys Ther. 2010;90(10):1479–1492.

26. Skatteboe Ulla Britt. *Basic Body Awareness Therapy and Movement Harmony: Development of the assessment of Quality Movement*. Oslo : Oslo University College, Faculty of Health Sciences; 2005.

27. Skjærven LH. *Basic Body Awareness Therapy. Exercises, verbal guidance, observation and assessment of Quality of Movement*. Bergen University College ed., Bergen (Norway)2002.

28. Mattsson M. Physiotherapy as Empowerment – Treating Women with Chronic Pelvic Pain. *Adv Physiother*. 2000;2(3):125–143. doi:10.1080/14038190050175808.

29. Stade K, Skammeritz S, Hjortkjær C, Carlsson J. "After all the traumas my body has been through, I feel good that it is still working." - Basic Body Awareness Therapy for traumatised refugees. *Torture*. 2015;25(1):33–50. Available at: http://www.ncbi.nlm.nih.gov/pubmed/26021346.

30. Olsen AL, Skjaerven LH, Olsen AL, Skjaerven LH. Patients suffering from rheumatic disease describing own experiences from participating in Basic Body Awareness Group Therapy : A qualitative pilot study Patients suffering from rheumatic disease describing own experiences from. *Physiother Theory Pract*. 2016;32(2):98–106. doi:10.3109/09593985.2015.1115568.

31. Olsen AL, Strand LI, Skjaerven LH, et al. Patient education and basic body awareness therapy in hip osteoarthritis – a qualitative study of patients ' movement learning experiences. *Disabil Rehabil*. 2016;5:1–8.

doi:10.1080/09638288.2016.1209578.

32. Hedlund L, Gyllensten AL. The experiences of basic body awareness therapy in patients with schizophrenia. *J Bodyw Mov Ther*. 2010;14(3):245–254. doi:10.1016/j.jbmt.2009.03.002.

33. Skjaerven LH, Gard G, Sundal MA, Strand LI. Reliability and validity of the Body Awareness Rating Scale (BARS), an observational assessment tool of movement quality. *Eur J Physiother*. 2015;(5063):1–10. doi:10.3109/21679169.2014.992470.

34. Montgomery S, Asberg M, Träskman L, Montgomery D. Cross cultural studies on the use of CPRS in English or Swedish depressed patients. *Acta Psychiatr Scand*. 1978;271:33–37.

35. Lundvik-Gyllensten A. Advances in Physiotherapy Interaction Between Patient and Physiotherapist in Psychiatric Care – the Physiotherapist ' s Perspective. 2000;(768320842). doi:10.1080/140381900750063427.

36. Gyllensten, A.L. et al. Embodied identity--a deeper understanding of body awareness. *Physiother Theory Pr*. 2010;26(7):439–446.

37. Yalom I. *The theory and practice of group psychotherapy*. 5 ed. (Booksitle NYB, ed.).; 1985.

38. Skjærven LH. *Being in dialogue. Basic Body Awareness in group therapy Level III*.; University college Bergen (Norway)2004.

39. Wolfe F, Smythe HA, Yunus MB, et al. The American College of Rheumatology 1990 Criteria for the Classification of Fibromyalgia. Report of the Multicenter

Criteria Committee. *Arthritis Rheum*. 1990;33(2):160–72. Available at: http://www.ncbi.nlm.nih.gov/pubmed/2306288. Accessed January 23, 2014.

40. Queiroz L. Worldwide epidemiology of fibromyalgia. *Curr Pain Headache Rep*. 2013;17(8):356.

41. Wolfe F, Aarflot T, Bruusgaard D, et al. Fibromyalgia and disability. Report of the Moss International Working Group on medico-legal aspects of chronic widespread musculoskeletal pain complaints and fibromyalgia. *Scand J Rheumatol*. 1995;24(2):112–8.

42. Wolfe F, Clauw DJ, Fitzcharles M-A, et al. 2016 Revisions to the 2010/2011 fibromyalgia diagnostic criteria. *Semin Arthritis Rheum*. 2016;46(3):319–329.

43. Macfarlane GJ, Kronisch C, Dean LE, et al. European League Against Rheumatism revised recommendations for the management of fi bromyalgia. *Ann Rheum Dis*. 2016:1–11. doi:10.1136/annrheumdis-2016-209724.

44. Collado A, Cuevas MD, Estrada M-D, Flórez M, Giner V, Marín J. 2011.*Fibromialgia*. Ministry of Health Government Spain

45. Cadenas-Sánchez C, Ruiz-Ruiz J. [Effect of a physical activity programme in patients with fibromyalgia: A sistematic review.]. *Med Clin (Barc)*. 2014;143(12):548–53. doi:10.1016/j.medcli.2013.12.010.

46. Courtois I, Cools F, Calsius J. Effectiveness of body awareness interventions in fibromyalgia and chronic fatigue syndrome: A systematic review and meta-analysis. *J Bodyw Mov Ther*. 2015;19(1):35–56. doi:10.1016/j.jbmt.2014.04.003.

47. Mannerkorpi K, Gard G. Physiotherapy group treatment for patients with

fibromyalgia--an embodied learning process. *Disabil Rehabil*. 2003;25(24):1372–80. doi:10.1080/0963828031000161636 7.

48. Mannerkorpi K, Kroksmark T, Ekdahl C. How patients with fibromyalgia experience their symptoms in everyday life. *Physiother Res Int*. 1999;4(2):110–22.

49. Laisné F, Lecomte C, Corbière M. Biopsychosocial predictors of prognosis in musculoskeletal disorders: a systematic review of the literature. *Disabil Rehabil*. 2012;34(22):1912–1941. doi:10.3109/09638288.2012.729362.

50. Skjærven LH. *Body Awareness Rating Scale (BARS)- Movement Quality and Experience*. University college Bergen (Norway); 2015.

51. Dropsy J. *Living in your body-Bodily expression and human contact*. Epi SA. (Aldus L, ed.). Paris; 1975.

52. Skatteboe UB. *Basal kroppskjennskap og bevegelsesharmoni. Videreutvikling av undersøkelsesmetoden Body Awareness Rating Scale, BARS-Bevegelsesharmoni (Body awareness therapy and movement harmony. Further development of the assessment scale Body Awareness Rating Scale).* Oslo : Oslo University College, Faculty of Health Sciences; 2000.

53. Dropsy J. Human expresion: the coordination of mind and body Quality of movement- the art and health. In: Skjaerven LH, ed. *Lectures on Philosophy, Theory and Practical Implications to Basic Body Awareness Therapy.* University college Bergen (Norway); 1998:8–20.

54. Alegre C, Garcia Campayo J, Tomás Florez M, Gómez Arguelles J.M, Blanco

Tarrio E, Gobbo Montoya M, Pérez Martin A, Martinez Salio A, Vidal Fuentes J, Altarriba Alberch E Documento de Consenso interdisciplinar para el tratamiento de la fibromialgia. *Actas Esp Psiquiatr*. 2010;38(2):108–120.

55. Mannerkorpi K, Arndorw M. Efficacy and feasibility of a combination of body awareness therapy and qigong in patients with fibromyalgia: a pilot study. *J Rehabil Med*. 2004;36(6):279–281. doi:10.1080/16501970410031912.

56. Malmgren-Olsson, E.-B., Armelius, B-Å, Armelius KA. A Comparative outcome study of Body Awareness Therapy, Feldenkrais and conventional physiotherapy for patients with nonspecific musculoskeletal disorders: changes in psychological symptoms, pain and self-image. *Physiother Theory Pract*. 2001;17:77–95.

57. Langhorst J, Klose P, Dobos GJ, Bernardy K, Häuser W. Efficacy and safety of meditative movement therapies in fibromyalgia syndrome: a systematic review and meta-analysis of randomized controlled trials. *Rheumatol Int*. 2013;33(1):193–207. doi:10.1007/s00296-012-2360-1.

58. WCPT, ed. WCPT guideline for the development of a system of legislation/regulation/ recognition of physical therapists. In: London, United Kingdom; 2011.

59. Zeng Y, Luo T, Xie H, Huang M, Cheng ASK. Health benefits of qigong or tai chi for cancer patients: a systematic review and meta-analyses. *Complement Ther Med*. 2014;22(1):173–86. doi:10.1016/j.ctim.2013.11.010.

60. Morgan N, Irwin MR, Chung M, Wang C. The effects of mind-body therapies on the immune system: meta-analysis. *PLoS One*. 2014;9(7):e100903.

doi:10.1371/journal.pone.0100903.

61. Jahnke R, Larkey L, Rogers C, Etnier J, Lin F. A Comprehensive Review of Health Benefits of Qigong and Tai Chi. *NIH Public Access*. 2010;24(6):1–37. doi:10.4278/ajhp.081013-LIT-248.A.

62. Little P, Stuart B, Stokes M, et al. Alexander technique and Supervised Physiotherapy Exercises in back pain (ASPEN): a four-group randomised feasibility trial. *Effic Mech Eval*. 2014;1(2):1–82. doi:10.3310/eme01020.

63. Carbonell-Baeza A, Aparicio VA, Martins-Pereira CM, et al. Efficacy of Biodanza for Treating Women with fibromyalgia. *J Altern Complement Med*. 2010;16(11):1191–1200.

64. Urrútia G, Bonfill X. [PRISMA declaration: a proposal to improve the publication of systematic reviews and meta-analyses]. *Med Clin (Barc)*. 2010;135(11):507–11. doi:10.1016/j.medcli.2010.01.015.

65. Wolfe F, Smythe HA, Yunus MB, et al. The American College of Rheumatology 1990 Criteria for the Classification of Fibromyalgia. Report of the Multicenter Criteria Committee. *Arthritis Rheum*. 1990;33(2):160–72.

66. Clark HD, Wells GA, Huët C, et al. Assessing the quality of randomized trials: Reliability of the Jadad scale. *Control Clin Trials*. 1999;20:448–452. doi:10.1016/S0197-2456(99)00026-4.

67. Astin J, Berman B, Bausell B, Lee W, Hochberg M, Forys K. The efficacy of Mindfulness Meditation plus Qigong movement therapy in the treatment of fibromyalgia: a randomized controlled trial. *J Rheumatol*. 2003;30(10):2257–62.

68. Baptista A, Villela A, Jones A, Natour J. Effectiveness of dance in patients with fibromyalgia: a randomized, single-blind, controlled trial. *Exp Rheumatol*. 2012;30(74):18–23.

69. Parra-Delgado M, Latorre-Postigo JM. Effectiveness of Mindfulness-Based Cognitive Therapy in the Treatment of Fibromyalgia: A Randomised Trial. *Cognit Ther Res*. 2013;37(5):1015–1026. doi:10.1007/s10608-013-9538-z.

70. Hsu MC, Schubiner H, Lumley MA, Stracks JS, Clauw DJ, Williams DA. Sustained pain reduction through affective self-awareness in fibromyalgia: a randomized controlled trial. *J Gen Intern Med*. 2010;25(10):1064–70. doi:10.1007/s11606-010-1418-6.

71. Liu W, Zahner L, Cornell M, et al. Benefit of Qigong exercise in patients with fibromyalgia: a pilot study. *Int J Neurosci*. 2012;122(11):657–64. doi:10.3109/00207454.2012.707713.

72. Jones KD, Sherman CA, Mist SD, Carson JW, Bennett RM, Li F. A randomized controlled trial of 8-form Tai chi improves symptoms and functional mobility in fibromyalgia patients. *clin Rheumatol*. 2012;31:1205–1214. doi:10.1007/s10067-012-1996-2.

73. Jones KD, Burckhardt CS, Clark SR, Bennett RM, Potempa KM. A Randomized Controlled Trial of Muscle Strengthening versus Flexibility Training in Fibromyalgia. *J Rheumatol*. 2002;29(5):1041–1048.

74. Bongi SM, Felice C Di, Rosso A Del, et al. The efficacy of the Rességuier method in the treatment of fibromyalgia syndrome : a randomised controlled trial. *Clin*

Exp Rheumatol. 2010;28(63):56–50.

75. Bongi SM, Rosso A Del, Felice C Di, et al. Original articles Rességuier method and Qi Gong sequentially integrated in patients with fi bromyalgia syndrome. *Clin Exp Rheumatol*. 2012;30(00).

76. Carson JW, Carson KM, Jones KD, Bennett RM, Wright CL, Mist SD. A pilot randomized controlled trial of the Yoga of Awareness program in the management of fibromyalgia. *Pain*. 2010;151(2):530–9. doi:10.1016/j.pain.2010.08.020.

77. Wang C, Schmid CH, Rones R, et al. A randomized trial of tai chi for fibromyalgia. *N Engl J Med*. 2010;363(8):743–54. doi:10.1056/NEJMoa0912611.

78. Toussaint LL, Whipple MO, Abboud LL, Vincent A, Wahner-Roedler DL. A mind-body technique for symptoms related to fibromyalgia and chronic fatigue. *Explore (NY)*. 2012;8(2):92–8. doi:10.1016/j.explore.2011.12.003.

79. Kendall SA, Brolin-magnusson K, So B, Henriksson KG. A Pilot Study of Body Awareness Programs in the Treatment of Fibromyalgia Syndrome. *Arthritis Care Res (Hoboken)*. 2000:304–311.

80. Fontaine KR, Conn L, Clauw DJ. Effects of lifestyle physical activity on perceived symptoms and physical function in adults with fibromyalgia : results of a randomized trial. *Arthritis Res Ther*. 2010;12:1–9.

81. Hävermark A, Langius-eklo A. Long-term follow up of a physical therapy programme for patients with fibromyalgia syndrome. *Scand J Caring Sci*. 2006;20:315–322.

82. Horwitz BE, Kowalski J, Theorell T, Anderberg UM. Dance/movement therapy in

fibromyalgia patients: Changes in self-figure drawings and their relation to verbal self-rating scales. *Arts Psychother*. 2006;33(1):11–25. doi:10.1016/j.aip.2005.05.004.

83. Lopez-Rodriguez M, Fernández-Martínez M, Matarán-Peñarrocha GA, Rodríguez-Ferrer ME, Granados Gámez G AFE. Effectiveness of aquatic biodance on sleep quality, anxiety and other symptoms in patients with fibromyalgia. *Med Clin Barcelona*. 2013;7(11):471–478.

84. López-Rodríguez MDM, Castro-Sánchez AM, Fernández-Martínez M, Matarán-Peñarrocha G a, Rodríguez-Ferrer ME. [Comparison between aquatic-biodanza and stretching for improving quality of life and pain in patients with fibromyalgia]. *Aten Primaria*. 2012;44(11):641–9. doi:10.1016/j.aprim.2012.03.002.

85. Taggart, Helen M, Christine L. Effects of T ' ai Chi Exercise on Fibromyalgia Symptoms and Health-Related Quality of Life. *Orthop Nurs*. 2003;22(5):353–360.

86. Ismael Martins MR, Carnaval Gritti C, Dos Santos Junior R, et al. Randomized controlled trial of a therapeutic intervention group in patients with fibromyalgia syndrome. *Rev Bras Reum*. 2014;54(3):179–184.

87. Creamer P, Singh BB, Hochberg MC, Berman BM. Sustained Improvement Produced by Nonpharmacologic Intervention in Fibromyalgia : Results of a Pilot Study. *Arthritis Care Res (Hoboken)*. 2000:198–204.

88. Costa C, Pinto A, Pereira A, Marques M, Macedo A, Silva J. Psychometric

properties of the Revised Fibromyalgia Impact Questionnaire (FIQR) – a contribution to the Portuguese validation of the scale. *Acta Reum Port*. 2016;41:240–250.

89. Wang C, McAlindon T, Fielding R a, et al. A novel comparative effectiveness study of Tai Chi versus aerobic exercise for fibromyalgia: study protocol for a randomized controlled trial. *Trials*. 2015;16:34. doi:10.1186/s13063-015-0548-x.

90. Husserl E. *Phenomenological Psychology. The Hague, the Netherlands: Nijhoff; 1977*. Nijhoff, ed. the Netherlands; 1977.

91. Sartre J. *Being and Nothingness.* Methuen, ed. London, United Kingdom; 1969.

92. Merleau-Ponty M. *Phenomenology of Perception*. New York: Humanities Press; 1962.

93. Munguía D, Legaz A, Alegre C. *Guide for the clinic practice about fibromyalgia syndrom for health professionals*. Elsevier E, ed.; 2007.

94. Cadenas-Sánchez C, Ruiz-Ruiz J. [Effect of a physical activity programme in patients with fibromyalgia: A sistematic review.]. *Med Clin (Barc)*. 2014; 143(12):548–53. doi:10.1016/j.medcli.2013.12.010.

95. Carville SF, Bliddal H, Blotman F, et al. EULAR evidence-based recommendations for the management of fibromyalgia syndrome. *Ann Rheum Dis*. 2008:536–541. doi:10.1136/ard.2007.071522.

96. Able S, Robinson RL, Kroenke K, et al. Variations in the management of fibromyalgia by physician specialty: rheumatology versus primary care. *Pragmatic Obs Res*. 2016;7:11–20. doi:10.2147/POR.S79441.

97. Butler D, Moseley G. *Explain Pain*. 2nd Ed. Adelaide, ed. Australia: Noigroup Publications; 2013.

98. Moseley G, Arntz A. The context of a noxious stimulus affects the pain it evokes. *Pain*. 2007;133:64–71.

99. Catalan-matamoros D, Skjaerven L, Labajos-manzanares MT, Martı A, Sa EA pilot study on the effect of Basic Body Awareness Therapy in patients with eating disorders : a randomized controlled trial. *Clin Rehabil*. 2011;25(7):617–626. doi:10.1177/0269215510394223.

100. Association WM. World Medical Association Declaration of Helsinki. Ethical principles for medical research involving human subjects. *J Am Med Assoc*. 2013;310(20):2191–2194. doi:10.1001/jama.2013.281053.

101. Aicher B, Peil H, Peil B, Diener H. Pain measurement: Visual Analogue Scale (VAS) and Verbal Rating Scale (VRS) in clinical trials with OTC analgesics in headache. *Cephalalgia*. 2012;32(3):185–97.

102. Crawford B, Piault E, Lai C, Bennett R. Assessing fibromyalgia-related fatigue: content validity and psychometric performance of the Fatigue Visual Analog Scale in adult patients with fibromyalgia. *Clin Exp Rheumatol*. 2011;29(69):34–43.

103. Ericsson A, Mannerkorpi K. Assessment of fatigue in patients with fibromyalgia and chronic widespread pain. Reliability and validity of the Swedish version of the MFI-20. *Disabil Rehabil*. 2007;29(22):1665–70.

104. Phan T, Carter O, Adams C, et al. Discriminant validity of the Hospital Anxiety

and Depression Scale, Beck Depression Inventory (II) and Beck Anxiety Inventory to confirmed clinical diagnosis of depression and anxiety in patients with chronic obstructive pulmonary disease. *Chron Respir Dis*. 2016;13(3):220–228. doi:10.1177/1479972316634604.

105. Vallejo M, Rivera J, Esteve-Vives J. Use of the Hospital Anxiety and Depression Scale (HADS) to evaluate anxiety and depression in fibromyalgia patients. *Rev Psiquiatr Salud Ment*. 2012;5(2):107–114.

106. Guillén-Riquelme A, Buela-Casal G. Metaanálisis de comparación de grupos y metaanálisis de generalización de la fiabilidad del cuestionario State-Trait Anxiety Inventory (STAI). *Rev Esp Salud Pública*. 2014;88:101–112.

107. Vilagut G, Ferrer M, Rajmil L, et al. El Cuestionario de Salud SF-36 español: una década de experiencia y nuevos desarrollos. *Gac Sanit*. 2005;19(2):135–150. doi:10.1157/13074369.

108. Skjærven L. *Basic Body Awareness Therapy - Promoting Movement Quality and Health for Daily Life*. (Films D and T, ed.). Bergen University College, Norway; 2013.

109. Jones KD, King L a, Mist SD, Bennett RM, Horak FB. Postural control deficits in people with fibromyalgia: a pilot study. *Arthritis Res Ther*. 2011;13(4):R127. doi:10.1186/ar3432.

110. Russek L, Fulk G. Pilot study assessing balance in women with fibromyalgia syndrome. *Physiother Theory Pr*. 2009;Nov;25(8):555–565.

111. Skjærven. An eye for movement quality: A phenomenological study of movement

quality reflecting a group of physiotherapists' understanding of the phenomenon. *Physiother Theory Pract*. 2008;24(1):13–27.

112. Coppieters I, Cagnie B, Nijs J, et al. Effects of Stress and Relaxation on Central Pain Modulation in Chronic Whiplash and Fibromyalgia Patients Compared to Healthy Controls. *Pain Physician*. 2016;19:119–130.

113. Meeus M, Nijs J, Vanderheide T, Baert I, Descheemaeker F, Struyf F. The effect of relaxation therapy on autonomic functioning, symptoms and daily functioning, in patients with chronic fatigue syndrome or fibromyalgia: A systematic review. *Clin Rehabil*. 2015;29(3):221–33.

114. Nijs J, Mannerkorpi K, Descheemaeker F, Van Houdenhove B. Primary care physical therapy in people with fibromyalgia: opportunities and boundaries within a monodisciplinary setting. *Phys Ther*. 2010;90(12):1815–22. doi:10.2522/ptj.20100046.

115. Ekerholt K, Bergland A. Breathing: a sign of life and a unique area for reflection and action. *Phys Ther*. 2008;88(7):832–40. doi:10.2522/ptj.20070316.

116. Skjærven, L.H., Gard G, Kristoffersen K. Greek Sculpture as a Tool in Understanding the Phenomenon of Movement Quality. *J Bodyw Mov Ther*. 2004;8(3):227–236.

117. Skjærven LH, Sundal M. Basic Body Awareness Therapy - Movement Awareness, Everyday movement and Health Promotion in Physiotherapy. *Fysioterapeuten*. 2016;4:42–44.

118. Di Tella M, Castelli L, Colonna F, et al. Theory of mind and emotional

functioning in fibromyalgia syndrome: an investigation of the relationship between social cognition and executive function. *PLoS One*. 2015;10(1):e0116542. doi:10.1371/journal.pone.0116542.

119. Okur Güney Z, Sattel H, Cardone D, Merla A. Assessing embodied interpersonal emotion regulation in somatic symptom disorders: a case study. *Front Psychol*. 2015;6(February):68. doi:10.3389/fpsyg.2015.00068.

120. Sze JA, Gyurak A, Yuan JW, Levenson RW. Coherence Between Emotional Experience and Physiology: Does Body Awareness Training Have an Impact? *NIH Public Access*. 2014;10(6):803–814. doi:10.1037/a0020146.Coherence.

121. Mantovani A, Prado C, Regueiro R, et al. Complementary Therapies in Clinical Practice Immediate effect of basic body awareness therapy on heart rate variability. *Complement Ther Clin Pract*. 2016;22:8–11. doi:10.1016/j.ctcp.2015.10.003.

122. Damasio A. *Looking for Spinoza: Joy, Sorrow, and the Feeling Brain*. (Crítica E, ed.).; 2003.

123. Kvale A, Ljunggren AE. *Encyclopedia of pain*.; 2007.

124. Hedlund L, Gyllensten AL. The experiences of basic body awareness therapy in patients with schizophrenia. *J Bodyw Mov Ther*. 2010;14(3):245–54. doi:10.1016/j.jbmt.2009.03.002.

125. Mehling WE, Wrubel J, Daubenmier JJ, et al. Body Awareness: a phenomenological inquiry into the common ground of mind-body therapies. *Philos Ethics Humanit Med*. 2011;6(1):6. doi:10.1186/1747-5341-6-6.

126. Giorgi A. *Sketch of a psychological phenomenological method. Phenomenology and psychological research*. (Giorgi IA, ed.). Pittsburgh: Duquesne University Press; 1985.

127. Broomé RE. Descriptive phenomenological psychological method: an example of a methodology section from doctoral dissertation. 2011.

128. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *Int J Qual Heal Care*. 2007;19(6):349–357.

129. Wong L. Focus group discussion : a tool for health and medical research. *Singapore Med J*. 2008;49(3):256–261.

130. Rabiee F. Focus-group interview and data analysis. *Proc Nutr Soc*. 2004;63(4):655–660.

131. Krueger R, Casey M. *Krueger R, Casey MA: Focus groups: A practical guide for applied research. Thousan Oaks, CA: Sage;, 3 2000. 52.* Thousan Oaks, CA: Sage; 2000.

132. Roxendal G, Winberg A. *Levande människa. Basal droppskännedom för rörelse och vila*. (Kultur NO, ed.).; 2002.

133. Kvale S, Brinkmann S. *InterViews: Learning the Craft of Qualitative Research Interviewing.* 2nd editio. (Thousand Oaks, ed.). Sage Publications Inc; 2009.

134. Malterud K. Qualitative research : standards , challenges , and guidelines. *Lancet Qual Res Ser*. 2001;358:483–488.

135. Busch AJ, Webber SC, Brachaniec M, et al. Exercise therapy for fibromyalgia.

Curr Pain Headache Rep. 2011;15(5):358–67. doi:10.1007/s11916-011-0214-2.

136. Main CJ, Sullivan MJ, Watson PJ. *Pain Management*. second. (Elsevier CL, ed.).; 2008.

137. Gyllensten L, Skär L, Miller M, Gard G. Embodied identity — A deeper understanding of body awareness Embodied identity — A deeper understanding of body awareness. *Physiother Theory Pr*. 2010;26(7):439–446. doi:10.3109/09593980903422956.

138. Gard G, Gyllensten AL. The importance of emotions in physiotherapeutic practice. *Phys Ther Rev*. 2000;5:155–160.

139. Gustafsson M, Ekholm J, Broman L. Effects of a multiprofessional rehabilitation programme for patients with fibromyalgia syndrome. *J Rehabilit Med*. 2002;34(26):119–127.

140. Malmgren-Olsson E-B. Health Problems and Treatment Effects in Patients with Non-specific Musculoskeletal Disorders A comparison between Body Awareness Therapy, Feldenkrais and Individual Physiotherapy. Doctoral Thesis 2002.

141. Damasio A. *The Feeling of What Happens: Body and Emotion in the Making of Consciousness*. (Edición HB& C, ed.). New York; 2000.

142. Bechara A, Naqvi N. Listening to your heart: interoceptive awareness as a gateway to feeling. *Nat Neurosci*. 2004;7(2):102–103. doi:10.1038/nn0204-102.

143. Calsius J, de Bie J, Hertogen R, Meesen R. Touching the lived body in patient swith medically unexplained symptoms. How an integration of hands-on bodywork and body awareness in psychotherapy may help people with

Alexithymia. *Front Psychol*. 2016;29(7):253. doi:10.3389/fpsyg.2016.00253.

144. Schore A. *Affect Dysregulation and disorders of the self*. (WW Northon & Company, ed.). New York, London; 2003.

145. Rosberg S. Body, being and meaning, in a physiotherapeutic perspective. Doctoral Thesis 2000.

146. Rochat P, Striano T. Emerging self-exploration by 2-month-old infants. *Dev Sci*. 1999;2(2):206–218.

147. Probst M, Peuskens J. Attitudes of Flemish physiotherapy students towards mental health and psychiatry. *Physiotherapy*. 2010;96(1):44–51. doi:10.1016/j.physio.2009.08.006.

148. Greenfield BH, Jensen GM. Understanding the Lived Experiences of Patients: Application of a Phenomenological Approach to Ethics. 2010;90(8):1185–1198.

149. DiCicco-Bloom B, Crabtree BF. The qualitative research interview. *Med Educ*. 2006;40(4):314–321. doi:10.1111/j.1365-2929.2006.02418.x.

150. Eisner E. *The enlightened eye. Qualitative inquiry and the enhancement of educational practice. New York, Macmillan Publishing Company*. (New York MPC, ed.). New York; 1991.

151. Byrne P. Stigma of mental illness and ways of diminishing it. *Adv Psychiatr Treat*. 2000;6(1):65–72. doi:10.1192/apt.6.1.65.

152. Nijs J, Van Houdenhove B, Oostendorp R a B. Recognition of central sensitization in patients with musculoskeletal pain: Application of pain neurophysiology in manual therapy practice. *Man Ther*. 2010;15(2):135–41.