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EFECTIVENESS OF GRPMI WITH FIBROMYALGIA PATIENTS

BY
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AALBORG UNIVERSITY
DENMARK

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by

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Dissertation submitted for the degree of Doctor of Philosophy

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CV

Esperanza Torres Serna (1963) was born in Padilla de Arriba (Burgos, Spain), and lives in Vitoria-Gasteiz (Alava, Spain).

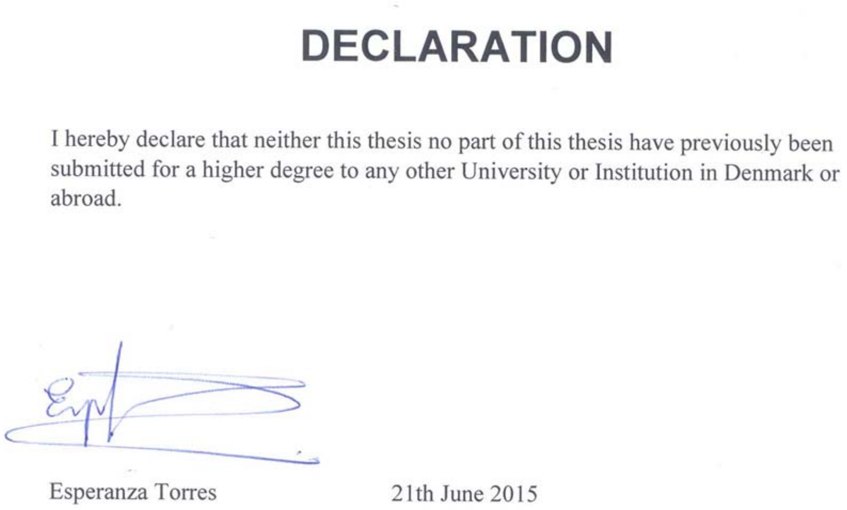
Her educational training includes a Psychology Degree, and a Post Graduate Certificate of Education for teaching in Elementary School. She completed her postgraduate studies in Music-therapy, and Family Therapy. Later she specialised in BMGIM therapy and in 2014 obtained her Teacher Training Diploma. In 2010, she received a PhD Mobility Fellowship from Aalborg University.

She began her work experience as a teacher, specializing in children with special needs for twenty years in several elementary state schools. Later, she worked as a private psychotherapist, both with children and adults, focusing on emotional disorders, problems in relationships and communication within the family. Since 2008 her work has mainly focused on BMGIM therapy and its adaptations.

In addition to her teaching activities she has been a key member of staff at the *Música Arte y Proceso* Institut (IMAP) where she is in charge of coordinating the Music-therapy Master programme including the planning and follow-up of the curricula. She supervises master thesis of the students registered in the Music therapy Programme of Aalborg University.

Currently, she is Director and Primary Trainer of the BMGIM training programme at IMAP in Vitoria- Gasteiz (Spain).

She has until now presented her clinical and research work with GIM at national and international conferences and has published articles in books on music-therapy and GIM.



DECLARATION

I hereby declare that neither this thesis no part of this thesis have previously been submitted for a higher degree to any other University or Institution in Denmark or abroad.

Esperanza Torres 21th June 2015

ENGLISH SUMMARY

Fibromyalgia (FM), recognized by the WHO since 1992, affects about 2-4% of the world population. Patients, mostly women, experience chronic widespread pain, fatigue, stiffness, sleep disturbances and a variety of psychological disorders, especially depression and anxiety. The intervention usually includes pharmacological treatments, exercise and psychological therapy.

Group Music and Imagery therapy (GrpMI) works in a holistic way, focusing on the person as a whole, using music as well as spontaneous imagery and the group as therapeutic agents.

The general aim of this study is to assess the effectiveness of GrpMI in women with FM, specifically, in the perception of psychological wellbeing, impact on functional capacity and health, pain perception, anxiety, depression and anger.

The study used a randomized controlled trial, with a pretest-posttest control group design, and a three months follow-up. The final sample included 56 women (33 experimental and 26 control), with a mean age of 51.3, assessed with six measurement instruments. Intergroup and intragroup analyses were performed and additionally, the Reliable Change Index was calculated.

The results of the analyses of demographic characteristics indicates that 76.6% of the participants have multiple associated diagnoses, the most common being osteo-articular disorders and depression. In addition, participants show low levels of *subjective psychological wellbeing*, a prominent *impact of FM on their functional capacity and health*, high levels of *state and trait depression*, *trait anxiety* and a present *pain perception* above that of the general population mean.

The correlational analyses confirm that there are positive significant relationships between the *impact of FM on functional capacity and health*, *subjective psychological wellbeing*, *pain, anxiety, depression* and *anger*. In contrast, negative correlations were found between *subjective psychological wellbeing* and *impact of FM on functional capacity and health,* and the rest of the variables.

The analyses of covariance, used to compare pretest-posttest results between experimental and control groups, showed positive effects (statistically significant) in *subjective psychological wellbeing* and *state anxiety*. Furthermore, variables of *impact of FM on functional capacity and health, pain intensity, trait anxiety*, and *state anger* showed a statistical tendency.

In the intragroup comparison, the experimental group showed significant positive changes in all variables: increasing *subjective psychological wellbeing*, and reducing the *impact of FM on functional capacity* and *health*, *pain intensity*, *state anxiety, state* and *trait depression*, and *state* and *trait anger*. In contrast, the control group did not experience significant changes.

The Reliable Change Index (RCI) showed that, after the treatment, 57.6% of experimental subjects recovered in at least three of the variables and did not deteriorate in any, in contrast with to only 8.7% of the control subjects.

After three months, the experimental group fared better than before treatment with GrpMI intervention, although without statistical significance, except in *anxiety.*

These results illustrate the effectiveness of GrpMI intervention in women with FM, as a complementary non-pharmacological therapy. It is necessary to continue research in group imagery and music with a medium- and long-term follow-up, and studies that could evaluate the differential effects of GrpMI elements.

DANSK RESUME

Fibromyalgi (FM) er en sygdom, som er anerkendt af WHO siden 1992, og den rammer 2-4 % af verdens befolkning.

Det er overvejende kvinder, der får denne sygdom og den forårsager kroniske, diffuse smerter, træthed, stivhed i muskler og led, søvnbesvær og en vifte af psykologiske lidelser, herunder især depression og angstlidelser. Behandlingen består almindeligvis af medicinsk behandling, øvelser og psykokologiske samtaler/psykoterapi.

Musiklytning og indre billeder – receptiv gruppemusikterapi (GrpMI) er en holistisk behandlingsform, der fokuserer på personen som helhed. Den anvender musik, spontant opståede indre billeder og gruppen som terapeutiske faktorer.

Det overordnede formål med denne undersøgelse er at evaluere effekten af (GrpMI) anvendt med kvinder med FM. Evalueringen vedrører specifikt deltagernes oplevelse af psykisk velvære, fibromyalgiens indflydelse på funktionsevne og livskvalitet, på smerteoplevelser, samt på oplevelser af angst, depression og vrede.

Undersøgelsen anvender et randomiseret, kontrolleret før- og efter undersøgelsesdesign med follow up målinger 3 måneder efter afslutning af behandlingen. Det endelige antal deltagere i undersøgelsen blev 56 (33 kvinder i eksperimentalgruppen og 26 kvinder i kontrolgruppen) med en gennemsnitsalder på 51.3 år. Effekten blev evalueret vha seks standardiserede måleredskaber. Der er udført sammenlignende analyser mellem eksperimental og kontrolgrupper (intergruppeanalyser) samt intragruppeanalyser. Yderligere blev ”The Reliable Change Index” kalkuleret.

Resultaterne af de socio-demografiske karakteristika i den indledende deskriptive analyse indikerer, at 76.6 % af deltagerne havde flere associerede diagnoser, af hvilke osteo-articulære lidelser og depression var de oftest forekommende. Hertil kommer at resultater af spørgeskemaer viste, at deltagerne havde en subjektiv oplevelse af en ringe grad af velvære, en oplevelse af at fibromyalgien har en væsentlig indflydelse på deres funktionsniveau og helbred, på en øget grad af depression både her og nu og på længere sigt. Fibromylagien har tillige indflydelse på oplevelsen af en underliggende angst og en gennemgående smerteoplevelse. Disse resultater viste sig at afvige væsentlig fra gennemsnitlige oplevelser hos kvinder, som blev undersøgt med samme måleredskaber og som ikke var diagnosticeret med FM.

Korrelationsanalysen af sammenhængen mellem forskellige variabler bekræftede, at der er en positiv signifikant relation mellem fibromyalgiens indflydelse på funktionsniveau og helbred, smerte, angst, depression og vrede. I kontrast hertil blev der fundet en negativ relation mellem den subjektive oplevelse af velvære og de andre variabler.

Variansanalysen, anvendt til at sammenligne målinger før og efter undersøgelsesfasen mellem eksperimental- og kontrolgruppen, viste positiv effekt (statistisk signifikant) inden for en subjectiv oplevelse af velvære og en her og nu oplevelse af angst. Hertil kommer at FM´s indflydelse på funktionsniveau og helbred, oplevelse af smerteintensitet, af en underliggende angst og af en her og nu oplevelse af angst viste en statistisk tendens.

I intra-gruppe analysen viste eksperimentalgruppen signifikante positive forandringer inden for alle variabler: en øget subjektiv oplevelse af velvære, og en reduktion af FM´s indflydelse på helbred og funktionsniveau, på smerteintensitet, på her og nu oplevelser af angst, samt på her og nu oplevelser samt en gennemgående oplevelse af depression og vrede. Som kontrast hertil viste kontrolgruppen ingen signifikante ændringer i nogen af variablerne.

The Reliable Change Index (RCI) viste at, efter behandlingen, blev helbreddet bedre inden for mindst tre variabler for 57.6 % af deltagerne i eksperimental gruppen. De fik ikke tilbagefald inden for nogle af variablerne. Som kontrast hertil blev helbreddet kun bedre for 8.7 % af deltagerne i kontrolgruppen.

Tre måneder efter behandlingens afslutning havde alle deltagerne i eksperimentalgruppen det bedre end før GrpMI behandlingen startede, selv om der ikke er statistisk signifikans herfor i andre variabler end angst.

Disse resultater illustrerer effekten af GrpMI i arbejde med kvinder med FM som en komplementær, ikke-medicinsk terapiform. Det er nødvendigt at fortsætte forskningen indenfor anvendelse af GrpMI med denne målgruppe med en medium til lang-tids opfølgning på resultaterne, og med undersøgelser som kan evaluere effekten af de enkelte elementer i GrpMI behandlingen.

SPANISH SUMMARY

La fibromialgia (FM), enfermedad reconocida por la OMS desde 1992, afecta entre 2-4% de la población mundial. Estos pacientes, mayoritariamente mujeres, manifiestan dolor difuso generalizado, fatiga, rigidez articular, problemas de sueño y una variedad de trastornos psicológicos, entre los que prevalecen ansiedad y depresión. La intervención indicada habitualmente incluye tratamientos farmacológicos, ejercicio físico y terapia psicológica.

El tratamiento de Música e Imagen grupal (GrpMI) trabaja holísticamente, focalizando en la persona global, donde tanto la música, como las imágenes espontáneamente creadas y el grupo son agentes terapéuticos.

Este estudio se plantea, como objetivo general, valorar la eficacia del GrpMI en mujeres con FM en la percepción del bienestar psicológico, en el impacto de la FM en la capacidad funcional y calidad de vida, en la percepción del dolor, ansiedad, depresión e ira.

Para ello utiliza un diseño experimental aleatorio pretest, postest con grupo de control y seguimiento a los 3 meses. La muestra final estuvo compuesta por 56 mujeres (33 experimentales y 26 de control), con una media de edad de 51.3 años, que cumplimentaron seis instrumentos de evaluación. Se realizaron análisis intergrupo e intragrupo, así como el Índice de Cambio Clínico significativo.

Los resultados de los análisis de las características socio-demográficas de la muestra permiten observar que un 76.6% de participantes presentan diagnósticos asociados, siendo los más habituales los trastornos osteo-articulares y depresión. Además, las participantes muestran niveles bajos *de bienestar subjetivo*, destacado *impacto de la FM* en su *capacidad funcional y calidad de vida*, niveles elevados de *depresión (estado y rasgo), ansiedad rasgo* y *una percepción del dolor* actual superior a la media de la población.

Los análisis correlacionales constatan una relación positiva significativa entre el *impacto de la FM en la capacidad funcional y calidad de vida* y el *dolor* actual, *ansiedad, depresión e ira*. Contrariamente, existe una correlación negativa significativa *entre bienestar psicológico subjetivo* y el *impacto de la FM en la capacidad funcional y calidad de vida* y el resto de las variables.

Los análisis de covarianza, utilizados para comparar ambas situaciones, experimental y control, muestran efectos positivos, estadísticamente significativos, en *bienestar psicológico subjetivo y ansiedad estado*, y tendencialmente significativos en *el impacto de la FM en capacidad funcional y calidad de vida,* intensidad del *dolor, ansiedad rasgo* e *ira estado* después del tratamiento.

En la comparación intragrupo, el grupo experimental evidencia cambios positivos significativos en todas las variables evaluadas, aumentando su *percepción subjetiva de bienestar psicológico*, y disminuyendo *el impacto de la FM en su capacidad funcional y calidad de vida*, la intensidad *del dolor, ansiedad estado, depresión estado y rasgo,* e *ira estado y rasgo*. Por el contrario, el grupo de control no experimenta cambios significativos.

El Índice de Cambio Fiable (ICF) evidencia que, al finalizar el tratamiento, un 57.6% de sujetos experimentales muestran recuperación en al menos tres de las variables y ningún empeoramiento, frente a tan solo un 8.7% del grupo control.

Una vez transcurridos tres meses, el grupo experimental se mantiene mejor que antes de empezar el tratamiento GrpMI, aunque sin significatividad estadística, salvo en a*nsiedad*.

Dichos resultados ponen de relieve la idoneidad de esta intervención en FM, como terapia complementaria no farmacológica. Es necesario continuar investigando en este ámbito con diseños que contemplen seguimientos a medio y largo plazo, y estudios que permitan evaluar la eficacia diferencial de los componentes de GrpMI.

ACKNOWLEDGEMENTS

I want to thank everyone who kept telling me

“Es que quiero sacar de tí tu mejor tu”

(*“I want to bring out of you the best you”)*

First and foremost, I would like to thank Professor *Tony Wigram,* who placed his trust in me and encouraged me to do research, thus opening the doorway for me. He was and always will be a model teacher, a friend and guide to whom I will always be grateful.

My gratitude also goes to everyone in Music Therapy Department of Aalborg University, who received me with a warm welcome and generous hospitality, and to *Ulla Holck with* special thanks. This excellent group of professors contributed enormously to the improvement of my abilities of reflection, discussion, and group work. They gave me all manner of support with their understanding, acceptance and openness.

My gratitude also goes to my fellow doctorate students, who were always open and willing to experience, as I did, the process of discovery with a passion for research and development.

I am especially grateful to my supervisors *Inge Nygaard Pedersen* and *José Ignacio Pérez*. Their reflections, comments and constructive suggestions throughout gave form to the elaboration of my thesis. My thanks to *José Ignacio* for bringing conciseness and coherence to my research, for sharing his expertise in statistical analysis and for his patience with the endless revisions. Thanks to *Inge* for her ability to listen, understand and clarify my doubts, easily overcoming any language barrier. They have both contributed to reinforcing my skills and also to accepted my difficulties with humility.

I feel enormous gratitude to my colleagues at *the Instituto de Música, Arte y Proceso* (IMAP), for their support. Their presence, friendship and encouragement made this work easier. Without their support and their willingness to adapt themselves to my commitments and my needs, the path would have been much harder. They all brought clarity, reflection and companionship to a journey that would have seemed quite lonely if they had not been part of it.

My special gratitude to *Lourdes*, for her tireless editing of text, layout, bibliography, and for the many hours we shared in front of the computer.

I also thank *Sarah Line*, for patiently working through my long and complex phrases in Spanish and turning them into legible English.

But none of this would have been possible without the participation of the *women with Fibromyalgia* and the Associations they belong to (AFINA, AVAFAS, AFICRO and LAR). It is them I have to thank for everything I have learned about the illness and group treatment by working with them and their condition. They also showed me their potential and their desire to enjoy life. I thank them for sharing so much with me and for allowing me to participate in their process of growth and change.

I also want to thank my friends (near and far) with whom I have shared my enthusiasm for this research as well as my moments of weakness and vertigo.

Last but not least, my THANKS -with capital letters- to my husband, *Patxi*, who each and every day fulfills the words of our song *"you are my accomplice in everything, and when we walk side by side in the street, we are much more than only two"*.

And I thank my daughter *Paula,* who patiently accepted my absences from important matters in our daily family life, giving me all her love.

Both of them were always, always they backing me up, putting up with me, and consoling me.

It is them who brought out *the best in me.*

THANK YOU

TABLE OF CONTENTS

TABLE OF FIGURES

LIST OF ABBREVIATIONS

ACR: American College of Rheumatology

AFICRO: Asociación de Enfermos de Fibromialgia y Fatiga Crónica de Valladolid y provincia (Association of Fibromyalgia and Chronic Fatigue Patients of Valladolid and Province)

AFINA: Asociación de Fribromialgia de Navarra (Álava Association of Fibromyalgia)

ANCOVA: Analysis of covariance

ANOVA: Analysis of variance

ASAFIMA: Asociación Alavesa de FM y Síndrome de Fatiga Crónica (Álava Association of Fibromyalgia and Chronic Fatigue Syndrome)

ASES: Arthritis Self-Efficacy Scale

AVAFAS: Asociación Vasca de Fibromialgia y Fatiga Crónica (Basque Association of Fibromyalgia and Chronic Fatigue)

BDI: Beck Depression Inventory

BPI: Brief Pain Inventory

CES-D: Center for Epidemiological Studies Depression Scale

CI: Control Intervention

CPCI: Chronic Pain Coping Inventory

CPSS: Chronic Pain Self-Efficacy Scale

CSS: Central Sensitivity Syndrome

DQ/CID: Demographic Data Questionnaire / Cuestionario de Información Demográfica

DSM-IV: Diagnostic and Statistical Manual of Mental Disorders

DSM-V: Diagnostic and Statistical Manual of Mental Disorders

EBP: Escala de Bienestar Psicológico

EI: Experimental Intervention

FIQ: Fibromyalgia Impact Questionnaire

FM: Fibromyalgia

GAF: Global Assessment of Function Scale

GI: Guided Imagery

GIM: Guided Imagery and Music

GrpMI: Group Music and Imagery

HADS: Hospital Anxiety and Depression Scale

IAPS: International Association for the Study of Pain

ICD-10: The International Classification of Diseases

ITEQ/CIVT: Individual Treatment Evaluation Questionnaire / Cuestionario Individual de Valoración del Tratamiento

LAR: Liga Reumatológica de Asturias (Asturias Rheumatology Association)

LF-MPQ: Long Form - McGill Pain Questionnaire

M: Mean

MPI: Multidimensional Pain Inventory

MPQ: McGill Pain Questionnaire

PBL: Problem Based Learning Methodology

POMS: Profile of Mood States

PPI: Present Pain Intensity

PWS: Psychological Wellbeing Scale

RCI: Reliable Change Index

RR: Relation Risks

SCL-90-R: Symptom Checklist-90

SD: Standard Deviation

SF-MPQ: Short Form - McGill Pain Questionnaire

SPSS: Statistical Package for the Social Sciences

SS: Symptom Severity

ST/DEP: Stait-Trait Depression Questionnaire

STAI: Stait-Trait Anxiety Inventory

STAXI: Stait-Trait Anger Expression Inventory

VAS: Visual Analogue Scale

WHO: World Health Organisation

WHOQoL: World Health Organization Quality of Life

WPI: Widespread Pain Index

CHAPTER 1. INTRODUCTION

The general aim of this study, divided into six chapters, is to assess the effectiveness of the Group Music and Imagery method (GrpMI) as a complementary therapy for alleviating the general malaise that fibromyalgia (FM) patients suffer.

This first chapter presents the structure of the document, personal motivation and initial ideas behind this empirical study.

The second chapter provides a review of the literature consulted as a basis for the study, and focuses on examining the psychological aspects of fibromyalgia (FM), the Guided Imagery and Music (GIM) method and its group adaptation, Group Music and Imagery (GrpMI) used in this study. Studies related to both these fields are reviewed separately and together. Given the scarce bibliography on GIM and FM, a series of articles describing the effectiveness of GIM methods for people suffering from chronic pain, rheumatoid diseases and other diseases, with similar characteristics to those in this research work, are also considered.

The third chapter lists the study's general and specific objectives and their related hypotheses. The principal objective of this work is to assess the effectiveness of Group Music and Imagery (GrpMI) on women suffering from FM. Perception of psychological wellbeing and perceived health condition are measured through the impact of FM on functional capacity and health, pain perception and other variables such as psychological distress (including anxiety and depression) and anger. Subjects treated are compared with a control group (*intergroup analysis*) and for both experimental and control conditions *intragroup* analyses are also carried out. What is more, an assessment is made of whether the effects are maintained after three months, together with the demographic profile of the sample and correlation between variables.

Chapter four explains the research method used, in this case a randomised experimental pretest-posttest control group design with a three-month follow up. 70 women took part in the study. They were recruited from different FM associations in Spain. This chapter also describes the assessment tools and statistical analysis method used. Furthermore, it provides a description of the GrpMI intervention, in which spontaneous creation of images is encouraged whilst group members relax and listen to a selection of different pieces of music. This GrpMI approach helps participants become aware of their sensations, emotions and feelings towards FM and their own personal history. It also stimulates an individual's inherent potential to change and face adversity when seeking greater wellbeing.

Data analysis and results are presented in the fifth chapter, which is divided into the following sections: a demographic description of participants; characterisation of the sample according to the variables considered and correlations between them; results obtained from *intergroup* and *intragroup* comparison of evaluation at pretest, posttest and follow-up, and results of each subject's *clinical change*. The results of an individual assessment questionnaire filled out by the participants in the experimental group at the end of the intervention are also included.

Chapter six discusses the results obtained relative to the original objectives and hypotheses, and compares this study's findings with those obtained in similar studies. Finally, conclusions are drawn and a further two sections deal with possible study limitations and a discussion of conceivable future lines of research.

This study offers reflection and empirical observation on the usefulness and effectiveness of GrpMI treatment at improving the subjective, psychological wellbeing of women with fibromyalgia (FM), the impact of FM on functional capacity and health, and the capacity of GrpMI to reduce the intensity of perceived pain and the impact of the psychological variables of anxiety, depression and anger.

1.1. PERSONAL MOTIVATION

Since finishing my BMGIM training in 2008 I have been using GIM treatment in my private psychotherapy practice to assist people who come to express their emotional pain, psychological distress and unresolved conflicts. I have found the GIM method shows greater ease in making connections between current pain and past suffering, but more importantly, clients leave the session with better physical wellbeing, emotional release and a greater trust in their own ability to find solutions and a possible cure to their problems.

My experience of using GIM to individually treat FM clients aroused my curiosity and led me to explore the usefulness of the GIM method for treating *groups* of patients suffering this condition, in which pain goes hand in hand with other symptoms such as anxiety, sadness, anger, powerlessness, perceived injustice and personal worthlessness. The contribution music makes, as a kind of *co-therapist* is key as is the feeling of having *lived* insightful experiences related to pain messages and how to relate to pain. In the words of Marguerite Yourcenar:

> "Music transports me to a world where pain still exists but it widens, is more serene and becomes quieter and deeper again, like a torrent becoming a lake" (Yourcenar & Calatayud, 2000, p. 44) (translated by the author).

The therapeutic, individual, private and subjective experiences I have seen could have just been discarded as my clients' personal experiences and left in my notes. But I feel the application of the GIM method in groups should be shared with other practitioners. What is more, I believe its usefulness needs to be proved through empirical analysis and scientific methodology so that it can be compared with other treatment options in psychology.

In 2009 I decided to look further into this therapeutic model and started a new course of training, on this occasion to *learn how to teach* the BMGIM method to others so that it could be more broadly used by music therapists interested in working with *neurotically healthy* adult populations. This new challenge required many hours of clinical practice, commitment and responsibility and ongoing study of the theoretical and scientific basis of this therapeutic tool. This was when I came into contact with problem-based learning, Professor Tony Wigram, Aalborg University and its PhD programme. The problem-based learning methodology (PBL) used at Aalborg University`s Research School of Music Therapy has helped me bring together all my motivations under one single project *roof.* This approach to studying involves sharing and learning more (scientifically and through practice) about the usefulness of GIM therapy, whilst at the same time expressing doubts and solving them thanks to feedback from the group of music therapy experts, lecturers, students, therapists and supervisors.

In order to further explore how FM could be treated, I offered the *Asociación Alavesa de Fibromialgia y Síndrome de Fatiga Crónica* - ASAFIMA (Alava Association of Fibromyalgia and Chronic Fatigue Syndrome*)* 12 individual, sessions free-of-charge to a small group of their members who volunteered. This experience led to a 2009-2010 pilot study of five people who received individual GIM therapy for 10 sessions. After finishing treatment, these clients noticed a positive change in pain perception, anxiety reduction and above all increased psychological wellbeing. This experience thus guided me in obtaining the most appropriate treatment structure and objectives, relaxation techniques and music choice for this population group (Torres, 2010).

In 2010, thanks to contacts at my wokplace, the *Instituto Música Arte y Proceso* and also thanks to the *Conservatorio Superior de Música del Principado de Asturias* (Asturias Music Conservatory), I was able to work with the *Unidad del Dolor del Hospital de Cabueñes* (Pain Unit at Cabueñes Hospital) and the *Liga Reumatológica de Asturias* (LAR Asturias Rheumatology Association) to research the usefulness of the GIM method on people suffering from fibromyalgia. To do so, a randomised experimental study (with pretest, posttest and follow-up) was designed and changes in the following variables were observed: subjective wellbeing, impact of FM on functional capacity and health, pain, anxiety, depression and anger. These changes were compared with a control group. On this occasion Group Music and Imagery (GrpMI) was the clinical method used. During therapy, GrpMI participants were able to: 1) listen to and express their emotional pain; 2) release pain-related blocked or repressed emotions; 3) comprehend their influence when facing day-to-day situations (including the illness) and 4) develop resources and change attitudes, such as coping, communication, setting limits, delegating and acknowledgement of self-worth (Torres, 2015). Progress as a whole was favourable amongst those receiving GrpMI treatment and better than individuals in the control group who did not receive treatment.

Gradually, the question of whether the effectiveness of the GIM method as a complementary therapy could be assessed empirically using quantitative methodology became the research project presented in this thesis.

Personal rationale

I approach FM therapy with profound respect for the *experience* of a disease that causes so much suffering to those who have received this diagnosis. The way this illness is experienced is different to the way it is conceptualised. Hence, a difference must be made between *pain* (the subjective perception of the physiological components of pain) and *suffering* (the negative emotional response to pain) and, in addition to this, an individual's behaviour when facing pain, which may be more or less adaptive (Gatchel, Peng, Peters, Fuchs, & Turk, 2007).

> "Pain really affects all systems and all responses to it promote protection and cure. However, when the majority of us think of pain, we remember an unpleasant experience and this makes us react and try to face up to the situation" (Butler & Moseley, 2010, p. 9).

Every individual experience of pain modulates information and perception of symptoms and subsequent disability (Gatchel et al., 2007). This subjective perception may be regulated by the person's genetic makeup and influenced by their life experiences, current mental state and socio-cultural surroundings (Gatchel, 2004; Turk & Monarch, 2002). However no single one of these factors alone is able to appropriately explain chronic pain. Hence, any therapy needs to take into consideration all these different aspects of the disease (Miró Martínez, 2003).

This *biopsychosocial* approach is especially relevant in the case of FM since fibromyalgia symptoms include continuous, widespread difficult-to-pinpoint pain and also:

> "A significant drop in the frequency and type of everyday activities, lengthy periods of rest, physical limitations, absence from work, problems sleeping and tiredness, family problems, fewer social

> contacts, excess use of medicines and visits to the doctor and psychological changes such as anxiety, depression and irritability" (Lledó, Pastor & López-Roig, 2012, p. 4) (translated by the author).

In current FM diagnosis in addition to pain, other related symptoms and frequent comorbidity with other diseases are considered (Fitzcharles et al., 2013; Wolfe et al., 2010) and a comprehensive psychological treatment is recommended together with other treatments as part of an overall coping strategy for FM. This recommendation should facilitate an understanding of psychic functioning, influence and even modify the latter with therapy, guide the person and aid in self-care.

GIM therapy, as a humanistic and person-centred approach can provide help, support and guidance when expressing pain/suffering-related sensations, emotions and thoughts and a realisation of associated behaviour and thought.

> "Any strategy for pain control is useful, adaptive and necessary and especially so when it leads to long term overall improvement in personal functioning. However attempts in vain at controlling pain become problematic if they end up dominating the life of the patient, if they lead to additional, unwanted problems and when they separate the individual from the things that are important in his/her life" (González Menéndez, Fernández García & Torres Viejo, 2010, p. 1002) (translated by the author).

GIM therapy influences the bodily state by helping the individual concentrate their attention on bodily sensations, develop relaxation skills and strategies and promote acceptance of their own perceptions. Through image creation, it also develops attention, openness and awareness of other elements that may be influencing pain as well as other psychological and social symptoms. The GIM method is supported by the therapist who is listening, giving space to a client's subjective complaints and trying to understand the malaise and its symbolic significance in a similar way to the biopsychosocial model and psychoanalytical theories (Velasco, Ruiz, & Álvarez-Dardet, 2006). Memories, associations and conflicts frequently appear in GIM sessions possibly being expressed via the body and revealed through the images and sensations felt when listening to music and understood during the session's final, verbal part. In this way GIM encourages an individual to comprehend, integrate and cope with them, by promoting a new way of seeing them and by stimulating his/her own resources.

Group treatment (GrpMI) has the advantage of reaching a larger number of people who may share both characteristics and resources. Thus group treatment can reduce clients' feelings of inadequacy and isolation. A group approach allows some matters to be dealt with more quickly; encourages empathy and identification processes between members of the group; facilitates expression and elaboration of painful conflicts and helps treat relational difficulties. The group experience has therapeutic effects, enabling recognition, expression and sharing of unexpressed or unresolved distress and suffering which on many occasions is thought to be related to the physical symptoms these patients show (De Felipe García-Bardón, Oñoro Carrascal, & Antón Monllor, 2007).

In any event it decisively allows the building of a framework which provides: 1) sustained, structured care to deal with the true suffering that patients are going through; 2) a therapeutic approach where clients are helped to better understand how adverse psychological and relational mechanisms are expressed somatically and 3) coping and conflict-resolution strategies and an increase in general quality of life (Camino Vallhonrat, Jiménez Rico, Castro-Palomino i Serra, & Fábregas, 2009).

As a therapist I feel the motivation, trust and enthusiasm offered by the non-invasive, complementary GIM therapeutic model, a model with the potential to transform and the structure to make it possible to face the overwhelming chaos of uncertainty, thus accepting what is impossible and living what is possible (Fiorini, 2006).

CHAPTER 2. LITERATURE REVIEW

This chapter provides a review of the literature on two central themes of this study, namely fibromyalgia (FM) and the method of Guided Imagery and Music (GIM). It is divided into various sections. The first section describes the search strategies used for reviewing the literature. This is followed by a section providing a conceptual and historical explanation of FM including its definition, prevalence in the Spanish population, criteria for diagnosis, aetiology, description of the main symptoms, psychological variables associated with the illness and the variables used in this study. A third section covers the different treatment possibilities available for FM. Special attention is given to describing and presenting pieces of research related to the treatment being used here, especially those looking into music, music therapy, relaxation and guided imagery. The fourth section describes the GIM method and how it has been adapted for groups (GrpMI). This chapter closes up with a fifth section describing research in which GIM or GrpMI as the treatment model has been used where changes in FM, other similar pathologies and/or the variables analysed in this study here have been demonstrated.

2.1. DESCRIPTION OF RESEARCH STRATEGIES

Thanks to the remote access that the Music Therapy Department offers its students, the electronic databases at Aalborg University library were used for reviewing literature. Priority was given to specialist medical and psychology databases such as *PsycINFO* and *MEDline*, together with other more general ones such as Scopus. *EBSCO* was also consulted when searching for references to articles on music, health and music therapy. A database that proved especially useful was the one created by Lars Ole Bonde for the Centre for Music and Health (Norwegian Academy of Music) in Oslo.

When systematically searching these data bases keywords were introduced such as *fibromyalgia*, together with *anxiety, depression, quality of life and chronic pain.* These words were also combined with *music, relaxation, guided imagery* and *guided imagery and musi*c, GIM and BMGIM

Articles on FM in the adult population were included and those on FM in paediatrics, children, teenagers and the elderly were excluded. Articles written in both Spanish and English were consulted. No time limit was put on this review although preference was given to articles and research published during the last twenty years.

Special attention was given to articles describing original results of clinical and experimental research, articles carrying out systematic reviews and meta-analysis.

Similarly, special attention was given to articles published in specialized music therapy and GIM journals such as the Journal of Music Therapy, the Nordic Journal of Music Therapy and the Journal of the Association of Music and Imagery. Doctoral theses were also consulted.

Other documents which proved to be useful for advice and guidance were those recommended at the doctoral courses organised by Aalborg University's Department of Music Therapy and by the supervisors, especially those that have been useful for integrating, understanding and developing appropriate research methodology.

Books describing the therapeutic models used with different groups were also consulted, especially those used with FM and pain groups, for example *Explicando el dolor* (Butler & Moseley, 2010). Similarly books such as *Guided Imagery and Music, The Bonny Method and Beyond* (Bruscia & Grocke, 2002), were also consulted as a way of getting information about how the GIM method is defined and put into practice.

2.2. FIBROMYALGIA

Much and varied research work has been put into trying to provide a clear definition of fibromyalgia, its origin, characteristic symptoms and recommended treatment.

Fibromyalgia was recognised as a disease by the World Health Organisation in 1993 (WHO; ICD-10; code M79.0). Initially it was defined using diagnostic criteria that concentrated on pain and tender points at certain sites around the body on digital palpation (Wolfe et al., 1990), but more recently there has been a redefinition with more symptoms being included (Wolfe et al., 2010). A person with FM experiences continued widespread pain that cannot be precisely located and for which there is no pathological explanation. Other symptoms include joint stiffness, fatigue, sleep problems, and emotional and cognitive imbalance.

This variety of symptoms with no known direct cause means that the disease confounds specialists, patients and their relatives alike. The relevance of FM, the way it affects the daily lives of patients and the numerous specialists involved in its diagnosis and treatment makes it a major health problem (Montoya et al., 2010). It is an illness that can be very incapacitating, affecting the biological, psychological and social spheres of a person's life (Collado et al., 2002; Rivera, Alegre, Nishishinyac, & Pereda, 2006). As such, the importance of offering interdisciplinary treatment is currently being explored.

2.2.1. THE HISTORY OF FIBROMYALGIA

Fibromyalgia comes from the Latin word *fibro* (fibrous tissues) and from the Greek *myo* (muscle) and *algia* (pain). These terms refer to two of the illness's main characteristics: *myalgia,* referring to the extension of widespread muscular pain and *fibro* referring to the tender points where the fibrous muscular tissue connects to the bone (Goldenberg, 2003).

Descriptions similar to those for FM can be found in the mid 19th century, a period when similar disorders were called *soft tissue rheumatism (*Frioriep*, 1843,* quoted in Villanueva et al., 2004). In 1904 Sir William Gowers described a muscular rheumatism condition with areas sensitive to pressure, feelings of fatigue and sleep disorders and called it *fibrositis*. He believed the condition was due to inflammation of the muscle tissue (García, Cuscó, & Poca, 2006; Villanueva et al., 2004). In 1976 Doctor Hench used the term *fibromyalgia* to refer to muscular pain without inflammation. From this moment onwards *fibrositis* was no longer used (the ending *algia* refers to pain, whereas *itis* suggests inflammation). The studies of Smythe & Moldofsky (1977) who described chronic pain of musculoskeletal origin, with the existence of specific *pain points* associated to sleep disorders, helped extend the use of the term fibromyalgia. During rheumatology examinations Yunus, Masi, Calabro, Miller & Feigenbaum (1981) described other fibromyalgia-related clinical manifestations such as stiffness, fatigue, anxiety, insomnia, headaches, irritable bowel syndrome, swelling and numbness as well as widespread musculoskeletal pain and the presence of multiple tender points.

Major progress was made in 1990 when the American College of Rheumatology (ACR) accepted the term fibromyalgia and a series of classification criteria were laid down identifying FM as a musculoskeletal disorder with widespread pain in combination with tenderness at 11 or more of 18 specific tender point sites (Wolfe et al., 1990). The 1992 Copenhagen Declaration recommended that since they operate as a standardisation protocol the criteria set out by the ACR should be accepted for research purposes. They even added to the characteristics mentioned by the ACR and pointed out that the pain experienced by FM sufferers also means that they experience depression and anxiety (Csillag, 1992).

Fibromyalgia was finally recognised as a human disease when, in 1993, the World Health Organization (WHO, 1993) included the term fibromyalgia in its list of diseases, coded under **M79.0 i**n CIE-10. In 1994 the International Association for the Study of Pain (IAPS) classified it with code **X33.X8a** in its taxonomy of pain syndromes (Merskey & Bogduk, 1994).

In 1994, due to their common clinical characteristics and response to serotonergic and noradrenergic agents, Yunus included FM within the *dysfunctional syndrome* together with other pathologies such as irritable bowel syndrome, chronic fatigue syndrome, restless leg syndrome and tension headache syndrome, putting forward as a hypothesis the existence of a neuroendocrine-immune dysfunction as the link between all of them (Villanueva et al., 2004; Yunus, 1994). Currently Yunus (2007, 2008) and others include FM in the *Central Sensitivity Syndrome* (CSS), a syndrome that embraces a group of pathologies with a series of common characteristics but each has their own, specific diagnostic specificities and their origin in hypersensitivity to stimuli of the central nervous system. These pathologies involve other genetic, immunological, endocrine, sleep-related, stress and physical trauma (Fitzcharles & Yunus, 2012).

Throughout history FM has been considered from perspectives other than the biomedical one. In 1869, the American doctor, Beard used the term *neurasthenia* to refer to people experiencing loss of strength, chronic fatigue or tiredness. In the 19th century neurasthenia was described using terms such as physical and mental weakness, headaches, sleep disorders, back pain, hyperesthesia, muscle weakness, dyspepsia and various sexual disorders (Quintner & Cohen, 1999). Another term, *psychogenic rheumatism* considered these symptoms the outward expression of neurotic disorders (García, Cuscó et al., 2006; Martinez-Lavin, 2012).

Patients have also been described as having *histeria* characteristics, such as egocentricity, histrionics, emotional lability, reduced or fake emotions, eroticization of social relations, frigidness, emotional dependence and intolerance of personal rejections as well as excess energy spent on trying to find approval, attention and praise from others (Peñacoba, 2009). According to Barrera Villalpando, Aguirre González, Cortés Sotres & Guerrero Manning (2005) people with FM show high levels of neuroticism, anxiety and depression and have learnt hysteria personality traits.

In 1999, Wessely, Nimnuan & Sharpe included this pathology under the general term *functional somatic syndromes* and underscored the close association between the somatic and emotional distress symptoms of FM, with all of them sharing a series of common elements (Nimnuan, Rabe-Hesketh, Wessely, & Hotopf, 2001; Wessely et al., 1999). What is common to all these syndromes and especially to fibromyalgia, chronic fatigue syndrome and irritable bowel syndrome is that all of their symptoms have no known organic cause, there is a high degree of overlapping of symptoms in the same patient, a greater prevalence of psychological disorders than in the general population, resistance to medical and palliative treatment, sporadic outbreaks, difficulty in diagnosis and a combination of biological, psychological and social factors influencing both the origin and the symptoms of the illness (Cuevas Toro, 2010; Nimnuan et al., 2001).

A study by Mcbeth & Silman (2001) seem to provide evidence that FM has a strong psychological component and meets the characteristics defined in the term *somatisation* (expression of emotional and social distress through physical symptoms), which contributes to the person developing widespread chronic pain. Reports from these same authors show that previous disease and behaviour with somatic symptoms before suffering FM are significant predictors for developing widespread chronic pain. And yet if the somatisation characteristics are absent, patients do not experience widespread chronic pain. According to Winfield (1999) there is a connection between somatisation, dysfunctional chronic pain behaviour and the type and amount of pain the individual informs of since in some people emotional stress is expressed through somatic symptoms (including widespread pain) rather than an emotional disorder or distress. However, the presence of somatisation and other psychological factors does not negate the presence of elements such as fatigue and pain and Winfield highlights how important it is to consider other variables (Winfield, 2001).

Some authors consider this varied symptomatology under the category of *somatoform disorders*, meaning unexplained somatic symptoms lasting for at least 6 months which lead to significant deterioration in a person's daily functional ability. No general medical condition can explain the nature and number of symptoms or the patient`s anxiety and concern, which cannot be attribute to the presence of any other mental disorder. Emotional and psychosocial conflicts play an important role in the onset, severity, exacerbation or maintenance of physical symptoms (Häuser, Kosseva, Üceyler, Klose, & Sommer, 2011). According to the new DSM-V (2013) criteria, where this term is replaced by *Somatic Symptom Disorder,* all FM patients may meet the criteria set out namely: (1) excessive and disproportionate thoughts regarding symptoms; (2) high levels of health or symptom anxiety; and (3) excessive time and energy spent on these symptoms or health problems. And yet Wolfe, Walitt, Katz & Häuser (2014) point out, that given how difficult it is to guarantee the objectiveness of terms such as *disproportionate* or *excessive*, the reliability and validity of DSM-V criteria with this population is very low.

Today both patients and researchers agree that a biopsychosocial approach should be taken to FM in which both biological and psychosocial factors are important to the predisposition, exacerbation and maintenance of FM symptoms (Häuser & Henningsen, 2014). These authors consider a multidimensional diagnosis more appropriate in which somatic and psychological complaints, psychosocial stress, incapacity and subjective beliefs on the cause of the disease are all taken into consideration.

2.2.2. PREVALENCE AND IMPACT OF FIBROMYALGIA IN SPAIN

Different studies maintain that FM represents the most widespread form of chronic osteo-muscular pain in the population and is more frequent in women and generally in middle age. In Spain estimated prevalence is 2.37% of the general population over the age of 20 (Mas, Carmona, Valverde, & Ribas, 2008; Valverde, Juan, Ribas, & Carmona, 2001).

90% of patients with FM remain undiagnosed and an average of between two and seven years may pass between the appearance of symptoms and diagnosis (Vázquez Gallego & Solana Galdámez, 2004).

FM appears in all age groups with a maximum prevalence in the 40-49 age group (almost 5%) although average age at which symptoms are felt is 44.7 (EPISER, 2001). With 90% of patients diagnosed with FM being women, it is more frequent amongst women than men. Prevalence amongst women is 4.2% and 0.2% in men (Valverde et al., 2001). It is more frequent in rural (4.1%) than urban (1.7%) environments. Years of education correlates inversely with FM frequency and the illness is more prevalent amongst people without studies (4.8%) or with only basic education (3%), going down to 0.6% amongst the population with a university education. As far as work goes, there is a greater prevalence amongst the unemployed and housewives in comparison to the general population (Mas et al., 2008). In a 2006 study, Lera describes, in a sample of 83 women with FM, a high percentage (66%) of women with elementary studies, a smaller percentage of women with secondary education and only a very small number with a university degree. The majority of the sample worked in unskilled jobs requiring much physical effort (59%), 15% was self-employed and 20% had never been in employment. The study by De Felipe García-Bardón, Castel-Bernal & Vidal-Fuentes (2006) found that 30% were housewives, 20% worked outside the house and 50% were disabled. The study by Mas et al. (2008) also underscored prevalence in the Spanish population of FM patients on sick leave from work, unemployed and housewives.

Amongst people suffering from rheumatoid illness in the general population, the two pathologies associated with the greatest consumption of chronic care are fibromyalgia (87%) and rheumatoid arthritis (82%) (Valverde et al., 2001). FM and lumbago were the rheumatic complaints, which led to worst quality of life due to emotional limitation. Several studies, such as the one by Junyent Priu, Benavides, Borrel Muñoz, Sisó Almirall & Herrero Camp (2005) highlighted the high comorbidity of FM with other illnesses. In this study, of 130 women with FM who had used primary healthcare services 56% had rheumatologic, 55% psychiatric and 36% digestive diseases.

An FM patient is one of the most costly patients to the health service, consuming triple the health resources of any other chronic patient, has a greater number of specialist and GP appointments, larger number of admittances through A&E and more hospital stays (Castilla Plaza & López Sanz, 2007; Pastor Mira, Lledó Boyer, López-Roig, Pons Calatayud, & Martín-Aragón Gelabert, 2010; Sicras-Mainar, Blanca-Tamayo, Navarro-Artieda, & Rejas-Gutiérrez, 2009).

2.2.3. DIAGNOSIS

As has already been mentioned previously, FM is diagnosed using two criteria determined by the ACR in 1990 (Wolfe et al., 1990).

1. History of widespread pain. Pain is considered widespread when all of the following are present: pain in the left side of the body, pain in the right side of the body, pain above the waist, and pain below the waist. In addition, axial skeletal pain (cervical spine or anterior chest or thoracic spine or low back) must be present. This symptom should be present for at least 3 months.

2. Pain, on digital palpation, must be present in at least 11 of 18 sites. Digital palpation should be performed with an approximate force of 4 kg, which is basically, when the examiner's nails have changed colour. For a tender point to be considered *positive* the subject must state that the palpation was painful.

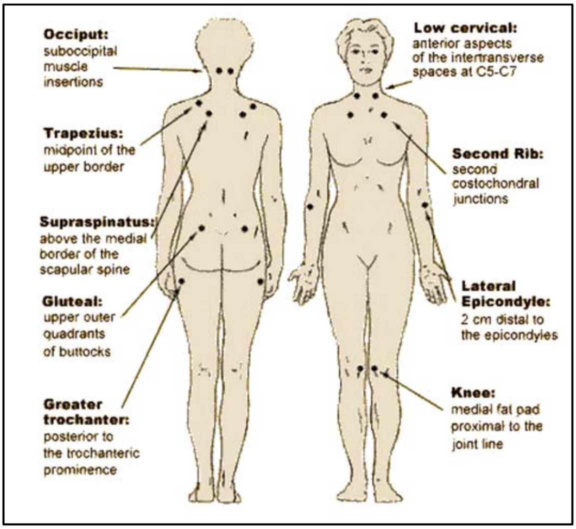


Figure 1. Tender points in fibromyalgia.

Source: Fibromialgia. Ministerio de Sanidad, Política Social e Igualdad, 2012, Madrid: Ministerio de Sanidad, Política Social e Igualdad, (p. 31)

However, in the light of evidence that when fibromyalgia was diagnosed in primary care, these tender points were not being used, Wolfe et at., (2010) proposed new diagnostic criteria for FM and developed two assessment scales that did not need tender point location and were based on the two variables which best diagnose fibromyalgia: widespread pain and symptom severity.

1. The *Widespread Pain Index* (WPI) assesses the presence of localised pain in different areas of the body. The patient scores between 0 and 9 for the pain levels he/she had in these areas during the previous week.
2. The *Symptom Severity Scale* records the presence and intensity of fatigue, tiredness on waking, cognitive symptoms and somatic symptoms during the previous week. Replies are given on a Likert scale of between 0 (asymptomatic) and 3 (many symptoms).

According to this form of measurement, for FM to be diagnosed, the 3 following criteria must be met: 1) Widespread Pain Index ≥ 7 and Symptom Severity Scale ≥ 5 or Widespread Pain Index ≥ 3-6 and Symptom Severity Scale ≥ 9; 2) Symptoms must have been present at a similar level for at least 3 months; and 3) the patient has no other pathology that can explain this pain. This change in criteria eliminates dependence on detecting and examining tender points and makes the broad spectrum of symptoms that a person suffering from fibromyalgia may have the protagonist (Wolfe et al., 2010).

Wolfe et al. (1990)	Wolfe et al. (2010)
• History of widespread pain. • Pain in 11 of 18 tender point sites on digital palpation. • Symptoms have been present for at least 3 months.	• Widespread pain index (WPI) > 7 and FM symptom severity (SS) score > 5 or • Widespread pain index (WPI) > 3-6 and FM symptom severity (SS) score > 9. • Symtoms have been present at a similar level at least 3 months. • The patient does not have a disorder that would otherwise explain the pain.

Figure 2: Comparison of ACR criteria for diagnosing FM in 1990 and 2010.

Source: Wolfe et al. (1990) The American College of Rheumatology 1990 criteria for the classification of fibromyalgia. *Arthritis & Rheumatism*, *33*(2), 160-172; Wolfe et al. (2010) The American College of Rheumatology preliminary diagnostic criteria for fibromyalgia and measurement of symptom severity. *Arthritis care & research*, *62*(5), 600-610. Inspired by García Fontanals, 2013, p. 57.

2.2.3.1 Differential diagnosis

FM may be accompanied by a large number of related disorders and this can make diagnosis difficult. 25% of FM patients have inflammatory disorders such as rheumatoid arthritis, ankylosing spondylitis or lupus (Crauw, 2009). According to Villanueva et al. (2004) some diseases that should form part of the differential diagnosis are:

Rheumatic diseases	Polymyositis and dermatomyositis, rheumatic polymyalgia, lupus, rheumatoid arthritis, Sjögren's syndrome.
Muscular diseases	Inflammatory myopathies, myopathies of metabolic origin
Endocrine-metabolic diseases	Hypothyroidism hyperthyroidism, hyperparathyroidism, adrenal insufficiciency, osteomalacia
Infectious diseases	Lyme disease, postviral syndrome
Neurological diseases	Parkinson's disease, myasthenia gravis, myasthenia-type syndromes
Neoplasic diseases	
Psychiatric diseases	Major depressive disorder, somatisation disorder
Chronic fatigue syndrome	
Myofascial syndrome	

Figure 3. Diseases that form a part of fibromyalgia's differential diagnosis.

Source: Villanueva, V. L., Valía, J. C., Cerdá, G., Monsalve, V., Bayona, M. J., & Andrés, J. D. (2004). Fibromialgia: diagnóstico y tratamiento. El estado de la cuestión. *Revista de la Sociedad Española del Dolor*, *11*(7), 50-63.

2.2.3.2 Principal measurement tools

When assessing the impact FM has on a patient all the different aspects of the illness must be considered. The majority of studies include one or several pain scales, one or more health questionnaires and a means of quantifying hyperalgesia. The following tools have been used to assess different FM symptoms amongst the Spanish population:

1) For pain: the Visual Analogue Scale (VAS), the McGill Pain Questionnaire (MPQ; Melzack, 1975), the Multidimensional Pain Inventory (MPI; Kerns, Turk, & Rudy, 1985) and the Brief Pain Inventory (BPI; Cleeland & Ryan, 1994) together with other, non-specific tools such as the SF-36 (Ware Jr & Sherbourne, 1992).

2) For tenderness/hypersensitivity during examination: the ACR's tender point count and, to a lesser extent, specifically designed dolorimeters.

3) For general life quality, functional ability and overall health: The Fibromyalgia Impact Questionnaire (FIQ; Burckhardt, Clark, & Bennett, 1991), Short Form 36 (SF-36; Ware Jr & Sherbourne, 1992), and the EuroQol 5D Health Questionnaire (Group, 1990).

4) For the different symptoms, tests were used to assess:

a) Depression using the Beck Depression Inventory (BDI: Beck. Ward. Mendelson, Mock, & Erbaugh 1961) and the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977).
b) Anxiety using the State-Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, & Lushene, 1982) or the Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983).

5) Other means of measurement were also used such as the Chronic Pain Coping Inventory (CPCI; Jensen, Turner, Romano, & Strom, 1995) to measure coping strategies, the Arthiritis Self-Efficacy Scale (ASES; Lorig, Chastain, Ung, Shorr, & Holman, 1989) to measure the ability to solve or manage illness-related issues and the Chronic Pain Self-Efficacy Scale (CPSS; Anderson, Dowds, Pelletz, Edwards, & Peeters-Asdourian, 1995) for patients with chronic pain (de España G., 2012; Rivera, Alegre, Ballina et al., 2006).

2.2.3.3 Benefits and drawbacks of diagnosis

Giving an FM diagnosis is controversial and some authors prefer not to do so. They argue that making a diagnosis of FM has a harmful effect on the person, by *medicalising* the person and creating a patient, where previously there was none (Hadler, 2003). For these authors diagnosing FM is like creating a *iatrogenic* condition which reaffirms painful conduct, magnifies the disease and is detrimental to both patient and health system.

However FM diagnosis does not determine subsequent adverse effects to the patient’s clinical condition but rather the contrary, it seems to improve some health-perception related issues (White, Nielson, Harth, Ostbye, & Speechley, 2002). Furthermore there seems to be more advantages than drawbacks to an FM diagnosis since it 1) leads to greater understanding with the patient; 2) removes any doubts he/she may have regarding other, more serious diagnoses and helps the individual realise that their problems are shared by others; 3) prevents the patient from going on a *search for meaning* for their symptoms, reduces consumption of health resources and the risks of iatrogenia; 4) adds a new dimension to other illnesses by providing valuable information on managing other systemic processes (Rivera, 2004) and 5) allows fears, complaints and expectations to be shared with other people who also have the disease (Andreu & Sanz, 2005). Van Houdenhove (2003) points out that the aim of the FM label is not to *dehumanize* patient suffering into an illness construct. He reiterates the importance of person-centred care and of carrying out a broad diagnostic assessment that includes biomedical aspects as well as psychological and social issues. Attentive listening and an unbiased therapeutic alliance of trust and empathy can be extraordinary powerful tools. Good differential diagnosis should be coupled with patient education so that psychosocial factors do not develop or strengthen maladaptive behaviour to the disease (Goldenberg, 2009; Kasper, 2009).

Some studies describe how individuals see many different specialists (Muro Gastañaga, 2007; Valverde, Markez, & Visiers, 2010), and that final diagnosis actually produces some relief (Tobo Medina, 2007) which then becomes frustration due to the lack of effective treatment and due to the rejection that FM provokes in certain professionals. This feeling of frustration and of being abandoned by health professionals is repeatedly expressed (De Felipe García-Bardón, 2012). After FM diagnosis, expenditure on healthcare decreases (Annemans et al., 2008; Hughes, Martínez, Myon, Taïeb & Wessely, 2006), statistically significant improvement in health satisfaction can be observed and, provided FM cases have received early diagnosis, fewer symptoms are reported (White et al., 2002).

2.2.4. AETIOLOGY

Despite many explanatory models coming from different specialities, the cause of fibromyalgia remains unknown. Today it is accepted that biological, psychological and socio-cultural imbalances all have an impact on the development and perpetuation of this disease.

Different medical specialists have suggested a whole range of anomalies which may impact on the disease, such as: disturbed sleep (the appearance of alpha waves during non REM sleep) (Moldofsky, 1986); imbalance in growth hormones (Bennett, 2002) influencing homeostasis and muscle recovery which requires deep sleep to recover (Moldofsky, 1993); muscular disorders (muscle hypoxy and a reduction in high energy phosphates); immunological (De Meirleir et al., 2000) or viral (Douche-Aouric et al. 2003; Lombardi et al., 2009) upsets, hyperactivity in cortisol-producing hormones (Neeck & Riedel, 1994); neurohormonal dysfunction, especially of the hormones produced by the hypothalamic, pituitary and adrenal system related to the stress response (Crofford & Demitrack, 1996) and genetic predisposition (Neumann & Buskila, 2003) (cited in Hidalgo, 2011).

Pain processing theories have generated much research into the multiple systems involved in pain regulation, from the existence of a dysfunctional response to stress (Okifuji, Turk, & Marcus, 1999) and further to an increase in central sensitivity (Yunnus, 2007).

Van Houdenhove, van Den Eede & Luyten (2009) emphasise that the mechanisms involved in the cause and development (aetiopathogenesis) of fibromyalgia are not just central sensitivity but also a dysfunctional response to stress based on the relation between adverse life experiences, the systems involved in responding to stress, pain processing mechanisms and genetic predisposition.

As has already been described in previous pages, the world of psychology has also attempted to locate a specific pathological origin for FM (major depression, somatisation disorder). Within this line of research there are studies underlining that many patients have depression (Arnold et al., 2008; Nicholas, Coulston, Asghari, & Malhi, 2009; Pae et al., 2008) and that depression is related to pain and FM; or the existence of high vulnerability to stress (Hudson, Arnold, Keck, Auchenbach, & Pope, 2004; Winfield, 2000); since there is evidence that stress is a significant predictor of pain behaviour in people with fibromyalgia (Thieme, Spies, Sinha, Turk, & Flor, 2005). White, Carette, Harth & Teasell (2000) talk of post-traumatic stress and state that 50% of people with FM have suffered an event that triggered the diagnosis, normally some kind of physical trauma (traffic accident, infection, major surgery) and in general post-traumatic stress situations as well as physical and psychological events (Goldberg, 1999; White et al., 2000).

Sufficient empirical evidence has been found to support the idea that psychological problems are present in FM, even though they may not be equally severe in all affected people. There is currently a great deal of experimental work assessing FM adaptive modulating variables such as coping strategies and other emotional factors (van Houdenhove, Egle, & Luyten, 2005).

2.2.4.1 The Biopsychosocial Model

This approach is a dynamic model in which initial biological (such as genetic predisposition) and psychosocial factors (such as adverse experiences in childhood) predispose a person to the disease. As a result, the person may notice the presence of certain symptoms such as moderate pain or fatigue. Some people find that adaptive and coping mechanisms activate regulatory responses both to physiological and psychological reactions, but in others this adaptive system fails either because of excessive reactivity of the central nervous system, excessive stressors or other affective, cognitive and environmental factors (such as a lack of social support) or the interaction of all of these, thus generating a dysfunctional response (Okifuji et al., 1999; Lledó et al., 2012). Some authors highlight that these deregulatory responses are triggered subsequent to an additional physical or emotional event (such as for example an accident, whiplash, an increase in responsibilities or loss of a loved one). This kind of response may become chronic and so symptoms persist or even worsen under the influence of a series of both affective (anxiety, depression) cognitive (excessive worry and catastrophic thinking), behavioural (hypervigilance, hyperactivity) and social (lack of understanding of the environment) factors (van Houdenhove et al., 2005; van Houdenhove, Kempke, & Luyten, 2010).

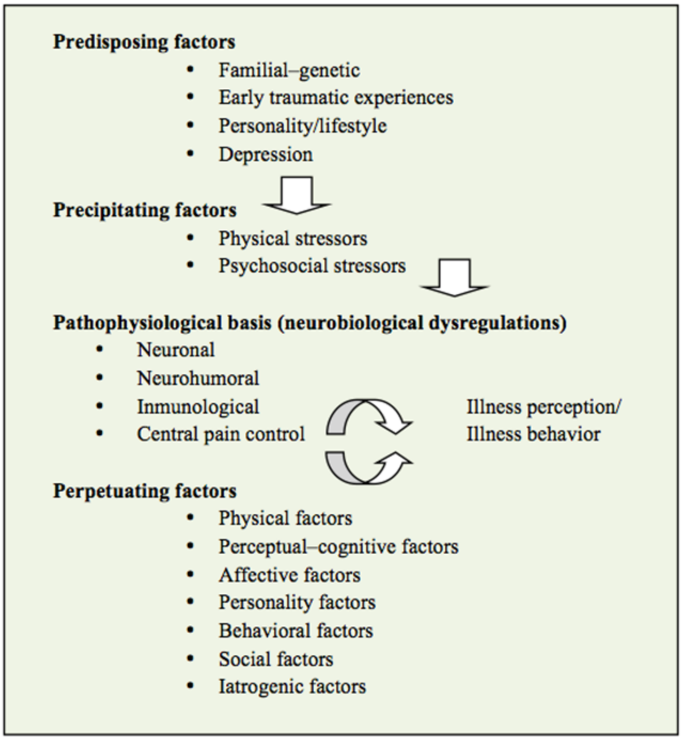


Figure 4. The biopsychosocial model of fibromyalgia.

Source: van Houdenhove, B., & Luyten, P. (2008). Customizing treatment of chronic fatigue syndrome and fibromyalgia: the role of perpetuating factors. *Psychosomatics*, *49*(6), 470-477.

2.2.5. MOST FREQUENT CLINICAL SYMPTOMS

According to Rivera, Alegre, Ballina et al. (2006) pain and fatigue are the two of all the many symptoms that these patients have, which the lives of FM sufferers primarily are centred on. Ortega Pardo (2012) combined the results of three studies (Bjorkegren, Wallander, Johansson, & Svardsudd, 2009; Casanueva, 2007, Choy et al., 2010) to highlight the most frequent symptoms (present in more than 50% of the sample) such as: disturbed sleep (insomnia, light sleep, frequent arousal, teeth grinding and non-restorative sleep); morning or after-rest stiffness; involuntary movements of the extremities (paroxysmal movements), especially in legs (restless leg syndrome); arthralgia; paraesthesia; tension headaches; difficulty concentrating and difficulty remembering things (bad memory); and psychological distress, with close association to anxiety, mood swings, dysthymic symptoms and depression. In addition to these, other symptoms are mentioned such as: irritable bowel (dyspepsia, flatulence, nausea, constipation diarrhoea, pseudo-obstructive symptoms, etc); genitourinary symptoms (dysmenorrhoea, premenstrual syndrome and irritable bladder); Raynaud's disease, vegetative and functional symptoms (cold extremities, dry mouth, hyperhidrosis, orthostatic dysfunction and involuntary trembling) and intolerance to many medicines (Martínez, González, & Crespo, 2003; Villanueva et al., 2004). These symptoms tend to come and go and do not necessarily all occur at the same time. They may appear gradually or suddenly (Rivera, Alegre, Ballina, et al., 2006).

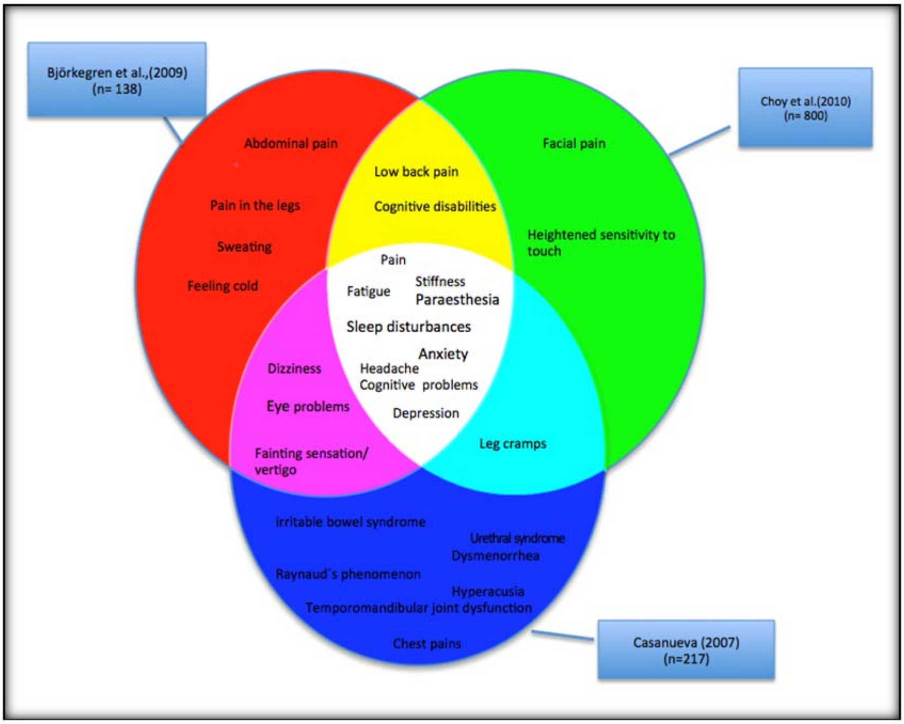


Figure 5. Symptoms generally associated to fibromyalgia.

Source: Ortega Pardo, J. (2012). *Tratamiento cognitivo-conductual protocolizado y en grupo, para la fibromialgia: Aplicación en contexto hospitalario* (Doctoral dissertation, Universidad Nacional de Educación a Distancia) (p.13).

2.2.5.1 Pain

Patients describe pain especially in the area around the spine, as continuous although with oscillations over time; worse in the morning, partial improvement during the day and renewed worsening in the afternoon/evening. Factors that most frequently worsen pain include, body posture, physical burden, emotional triggers and changes in the weather. Pain acuteness is a significant characteristic and patients frequently explain that pain is acute and excruciating, using both sensory adjectives (tightness, stiffness) and emotional ones (depressing, exhausting) to describe a characteristic pattern of chronic pain. Choy et al. (2010), Casanueva (2007) and Björkegren et al. (2009), give figures of 65%, 90.78% and 93.4% respectively for patients with pain symptoms (quoted in Ortega Pardo, 2012).

Pain is considered complex, subjective and therefore also an emotional experience (IASP; 1994; Merskey & Bogduk, 1994) resulting from an interaction between physiological, behavioural, cognitive, emotional and social processes (Miró Martínez, 2003; Renn & Dorsey, 2005).

Butler & Moseley (2010) consider many factors that influence pain, all of which contribute to the way it is experienced.

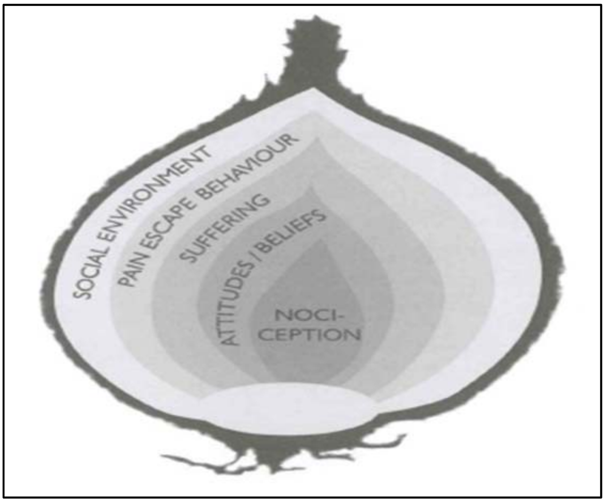


Figure 6. Factors contributing to the pain experience.

Source: Butler, D. S., & Moseley, G. L. (2010). *Explain Pain.* Noiggroup Publications. Australia (p. 97).

In addition to the distress, impairment and suffering generally associated to painful experiences, chronic pain usually affects emotional stability, daily flow of life, and quality of life. The impact of pain varies considerably from patient to patient and it is now recognised that these differences can be explained to a large extent by factors such as, beliefs regarding illness, emotional regulation, self-efficiency, coping strategies and social support (Gatchel et al., 2007; Turk & Okifuji, 2002). Additionally high anxiety, stress or depression levels are related to each other and influence an individual's pain response (Miró Martínez, 2003).

From a psychoanalytical viewpoint pain appears at the conceptual frontier-line that exists between what is physical and what is emotional and where a sensation of pain is revived by the memory of the mental representation of injury. The way pain is represented depends upon the sensory, emotional and associational tributes it is given (De Felipe García-Bardón, 2012) and to recover from this pain it is necessary to evoke and express these experiences.

2.2.5.2 Fatigue

Fatigue is present in a high percentage of patients and may manifest as one or two-day periods of complete exhaustion or, more frequently, on-going fatigue. Some patients suffer continuous severe fatigue rather than pain and meet the diagnostic criteria of chronic fatigue syndrome. Björkegren et al. (2009) and Casanueva (2007) mention chronic fatigue in over 90% of patients whilst Choy et al. (2010) put this figure at 56% (Ortega Pardo, 2012).

Many factors correlate with fatigue levels including pain, disturbed sleep, symptoms of depression and positive or negative interpersonal experiences (Kurtze & Svebak, 2001; Nicassio, Moxham, Schuman, & Gevirtz, 2002; Parrish, Zautra, & Davis, 2008) (in Ortega Pardo, 2012).

2.2.5.3 Disturbed sleep

Disturbed sleep is the third most common symptom and correlates with the degree of severity of fibromyalgia. It may precede the onset of pain and it most commonly affects falling and staying asleep, with frequent arousals and non-restorative sleep. A large number of painful muscle twitches also occur during sleep. Biggatit, Henández, Cronan and Rand (2008) corroborate the existence of disturbed sleep and furthermore point out that disturbed sleep predicts pain level and pain predicts levels of physical functioning, with physical functioning predicting depression. So, a lack of nighttime rest may correlate to the presence of emotional distress, anxiety and depression, and hinder recovery from negative or stressful experiences (Hamilton et al., 2008).

2.2.6. RELATED PSYCHOLOGICAL SYMPTOMS

The majority of research studies note that FM patients have significantly more psychological problems than healthy control groups or patients with chronic pain disorders and structural diseases like rheumatoid arthritis (Peñacoba, 2009; Yunus, Celiker, & Aldag, 2004). Some of these studies point out that people with FM have more: 1) depression and anxiety symptoms (Gormsen, Rosenberg, Bach & Jensen, 2010); 2) psychosocial problems and psychiatric disorders such as depression, anxiety, somatisation, phobia and panic attacks (De Felipe García-Bardón et al., 2006); and 3) post-traumatic stress disorders and personality disorders (Rivera, Alegre, Nishishinyac, et al., 2006). In general, FM patients suffer from more emotional disorders, have limited strategies for coping with pain, smaller social circles and more negative social ties than the rest of the population (Nicassio, 2001).

Epstein, Kay, Clauw, Heaton & Klein (1999) concluded that psychological variables such as anxiety and depression can adversely affect perception of illness severity, functional ability and perception and tolerance of pain. Their results showed that FM patients in their sample had a) greater levels of depression (both in the present and throughout their lives) and panic attacks; b) in general showed greater prevalence of psychiatric disorders, c) their degree of psychopathology was greater than those suffering other debilitating diseases, c) functional incapacity was shown to be severe in comparison to other chronic disorders; d) current emotional states of subjects correlated with physical wellbeing, with those people with higher levels of anxiety and depression functioning worse and e) subjects also exhibited higher levels of hypochondria and neuroticism.

2.2.6.1 Anxiety

Anxiety is the psychological factor which is earliest and best identified as a response to a painful experience (Alda, García Campayo, Pascual, & Olmedo, 2003). It is a characteristic FM symptom.

Anxiety may play a key role in perpetuating FM since it produces muscle tension, an increase in susceptibility to and a reduction in tolerance of pain as well as perpetuation of *painful feelings*, once the stimulus ceases (Alda et al., 2003), more tender points, hyperventilation and, in the case of fear of pain, an increase in avoidance behaviour and exhaustion (van Houdenhove & Egle, 2004). Furthermore, the time and difficulty involved in obtaining a correct diagnosis may produce a great deal of distress, an increase in attention to physical symptoms and a tremendous medical pilgrimage in the search for alternatives or solutions to improve health.

2.2.6.2 Depression

Pain influences depression levels and depression also acts reciprocally by pre and/or intermorbidly partially or severely determining pain levels (Tennen, Affleck & Zautra, 2006). Depressive disorders are the most frequent comorbid psychiatric conditions in fibromyalgia patients with a prevalence rate of between 20 and 80% (Fietta, Fietta & Manganelli, 2007), followed by depressive symptoms with a prevalence level of 40% (Kato, Sullivan, Evengård, & Pedersen, 2006). They are associated with greater pain perception, lower quality of life and more serious life events (Aguglia, Salvi, Maina, Rossetto, & Aguglia, 2011).

Different explanations have been put forward for this and can be summarised as: 1) depression precedes the onset of chronic pain and fibromyalgia; 2) depression is a consequence of chronic pain; 3) depressive episodes before the appearance of chronic pain and/or FM predispose an individual to new depressive episodes during the disease; 4) psychological factors such as coping strategies mediate between depression and pain and 5) depression and chronic pain share common characteristics but are different diseases (Blackburn-Munro & Blackburn-Munro, 2001).

For some authors the mechanisms behind depression and anxiety development may be different for people with FM than for those with neuropathic pain (Gormsen et al., 2010). For example, Palomino, Nicassio, Greenberg & Medina (2007) conclude that the cognitive significance given to having FM plays a greater role in predicting depressive symptomatology than stress factors related to disease, pain or disability.

2.2.6.3 Anger

Just like depression and anxiety, anger is a pain-related emotion and may increase pain perception, trigger physiological responses and muscle tension. A study by van Middendorp et al. (2010), suggests that anger and a general tendency to restrain anger is a predictor of greater pain in the day-to-day lives of FM patients. Thus psychological treatment might want to concentrate on healthier ways of anger expression and in this way alleviate FM symptoms. In this study, carried out on 62 women with FM and 59 without, *state anger* predicted (with statistical significance) greater pain at the end of the day in half the patients but less pain in a quarter of patients. Trait anger control was found to be related to more pain with lowest pain levels recorded in patients with high trait anger expression, i.e. those patients able to express (anger-out) their anger.

Camino Vallhonrat et al. (2009) applied the STAXI-2 test at a two-group sample with a total of 20 patients. She showed the importance of anger in FM when scores obtained for experience, expression and control of anger at the pretest evaluation showed results, that the authors interpreted as a tendency to control anger (and the high levels of anger felt) for prolonged periods of time - without the ability to express it, thus stimulating somatisation.

A study by Burns, Quartana & Bruehl (2008) alludes to models that suggest that anger control during a challenging event may increase pain later. According to these authors, and following Wegner's model (1994), efforts to suppress anger expression or components of anger expression may make this anger more accessible and relevant to the conscience and therefore more impulses, feelings and thoughts related to this unwanted anger can surface and exacerbate feelings of frustration, irritation and annoyance.

The study of Sayar, Gulec & Topbas (2004) also showed that women with FM (*n* = 50) have high anger scores in comparison with healthy women (*n* = 42) and rheumatoid arthritis patients (*n* = 20) and show positive correlation to chronic pain. However, the study seems to indicate that whilst FM patients internalise and repress their anger, rheumatoid arthritis sufferers are more prone to trait anger and express this anger more easily.

2.2.6.4 Cognitive aspects

Several studies demonstrate that the relationship between cognitive and affective dimensions can activate chronic pain states even without the presence of physical factors.

One of the most studied factors is the perception of self-efficacy in pain control and acceptance (Martín-Aragón et al., 2000). The study by Pastor Mira et al. (2010) demonstrates that pain acuteness, tiredness and disturbed sleep do not explain medicine consumption. What does explain medicine consumption is the patient`s perception of self-efficacy for managing pain symptoms.

Several pieces of research emphasise the relationship between pain, FM and cognitive distortion or misconceptions of oneself or one's personal situation (De Felipe García-Bardón et al., 2006), as well as the use of maladaptive or negative coping strategies such as catastrophic thinking (Gónzalez et. al., 2009) and passive behaviour (Cuevas Toro, 2010; Lundberg, Anderberg, & Gerdle, 2009; Ramírez Maestre, Esteve Zaragoza, & López Martínez, 2001). So, people with fibromyalgia use negative coping strategies such as directing their attention at pain, closely watching any change, remaining still, anticipating future problems or confronting major challenges. And yet Govillard Garmendia (2011) highlights in a study that people with FM use significantly more positive coping strategies such as distraction through thought (64.3%), activity (57.1%), the setting of small challenges (42.1 %) and positive thinking-visualisation (43.6%) than healthy people.

2.2.7. QUALITY OF LIFE AND SUBJECTIVE WELLBEING

According to the World Health Organisation’s definition, quality of life is individual perception of one’s life situation within a cultural context and a specific value system that includes aims, expectations, standards and concerns (WHO QoL, 1995) and is influenced or affected by health (Ortega Pardo, 2012; Tander et al., 2008).

García Martín (2002) quotes Lawton (1983) when mentioning the four sectors of quality of life:

> “Behavioural competence refers amongst other things to adequate health and functional ability, social behaviours and cognition. Psychological wellbeing includes coherence between desired aims and those that have been obtained in life, contentment and optimum affective levels. As for perceived quality of life this includes individual satisfaction with oneself, family, friends, work, activities and place of residence. And finally objective environment encompasses all the physical characteristics of the surroundings where a person leads their life” (García Martín, 2002; p. 4) (translated by the author).

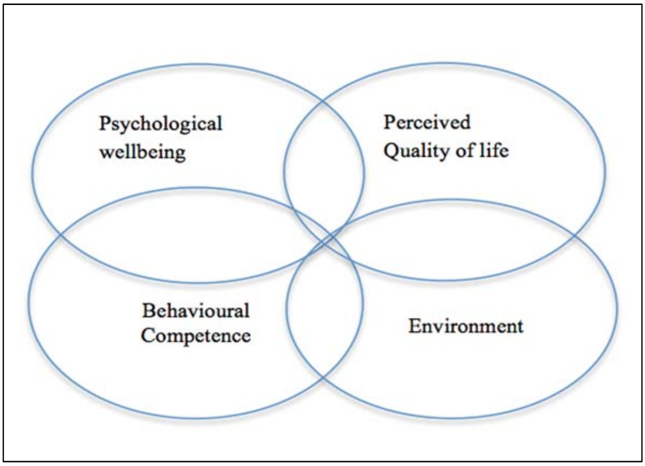


Figure 7. Quality of life sectors.

Source: García Martín, M. Á. (2002). El bienestar subjetivo. *Escritos de psicología*, (6), 18-39 (p. 4)

There is almost unanimous agreement that people with FM suffer a severe worsening of physical, psychological and social wellbeing (Hoffman & Dukes, 2008; Ortega Pardo, 2012). Tander et al. (2008) point out that the negative impact of FM on quality of life is similar to that of rheumatoid arthritis and yet these two diseases have different effects on a person's mental state and physical and social functioning, with psychological functioning being far more deteriorated in people with FM.

The quality of life and health impact variable is a key factor for determining effectiveness of FM treatments and assessing specific FM disorders such as physical ability, influence on working life, pain, fatigue, tiredness, stiffness, perception of wellbeing, anxiety and depression (mainly recorded using the Fibromyalgia Impact Questionnaire, FIQ). Factors that influence qualities of life include sleep quality (Theadom, Cropley, & Humphrey, 2007), pain intensity (Jensen et al., 2010); anxiety symptoms, depression and coping strategies (Campós & Vázquez, 2013) and tiredness (Ubago Linares et al., 2008).

Moving on to examine subjective wellbeing, the majority of authors explore satisfaction with life and emotions; -both positive (for example: joy, pride, ecstasy) and negative (blame and shame, sadness, anxiety, depression, stress). Others broaden this idea to include acceptance, personal development and adaptation and integration into social surroundings (García-Martín, 2002). Vinaccia & Orozco (2005) underscore the importance of *physical wellbeing,* determined by functional activity, strength or fatigue, sleep and rest, pain and other symptoms; *psychological wellbeing,* related to fear, anxiety, depression, cognition and distress generated by disease and its treatment; *social wellbeing,* i.e. emotional functions and relations, intimacy, appearance, entertainment, isolation, work, economic situation and family suffering and *spiritual wellbeing* which includes the meaning of illness, hope, transcendence, uncertainty, religiousness and inner strength. The concept of personal wellbeing depends to a large extent on a person's value and belief systems, cultural context and personal history and these authors highlight the influence of all this on the perpetuation, recovery or loss of health amongst people with chronic diseases. Specifically, people with FM have greater feelings of being a victim or a burden, less feeling of happiness, positivity and of being understood by society, healthcare professionals or work colleagues and a reduced perception of their quality of life (Govillard Garmendia, 2011).

2.2.8. IS FIBROMYALGIA A UNIFORM CONDITION OR ARE THERE SUBGROUPS?

The FM population shares similar symptoms and conditions but has significant internal differences as well, mainly to do with perceptions of pain control, anxiety and depression and catastrophic thinking.

Turk, Okifugi, Sinclair & Starz (1998) made an attempt to classify the FM population into subgroups and by applying the Multidimensional Pain Inventory

(Kerns et al., 1985) divided FM patients into three groups by psychosocial profiles. 1) The largest *dysfunctional* group contained people with high pain intensity, high pain interference, high psychological stress, low activity levels and low control perception. 2) The *interpersonal stress* group had, in addition to the previous characteristics, a low perception of support and high perception of punishment for pain from their surrounding environment. 3) A *coping* profile group, characterised by high perception of social support, low pain intensity and low pain interference, high activity levels, low distress and high perception of control. Turk (2005) proposed that:

> "This lack of efficacy of chronic pain treatment could be attributed to the prescription of similar treatments to patients with different characteristics, and that subdivision of patients into more homogeneous subgroups with similar adjustment styles could help to tailor different interventions to different patient profiles, and consequently improve treatment outcomes" (López-Chicheri, 2012, p. 4).

Giesecke et al. (2003) differentiated three subgroups of patients with FM in which three symptoms were considered: hyperalgesia (pain sensitivity), degree of anxiety/depression and catastrophic thinking. Of these subgroups, *group I* represents the typical FM patient who goes to primary healthcare services, has moderate anxiety/depression symptoms, does not experience too much catastrophic thinking, has internal locus of control, low pain sensitivity and responds well to treatment. *Group II* has high anxiety and depression levels, an external locus of control, higher values of pain sensitivity and more years with symptoms of important social, cognitive and behavioural consequences. *Group III* is the group with most intense pain, normal depression and anxiety levels, an internal locus of control and no catastrophic thinking. In other words they are patients who respond and cope with the situation better than the other two groups and the prospect of obtaining improvement through pharmacological treatment (with antidepressants and analgesics) is good. In *Consenso Interdisciplinar de la Fibromialgia* (Interdisciplinary Consensus on Fibromyalgia) (Montoya et al., 2010) support from Giesecke et al. (2003) classification and include biological and cognitive aspects, to better adapt it to clinical reality.

In the study of De Souza et al. (2009), using the *Fibromyalgia Impact Questionnaire* (FIQ, Burckhardt et al., 1991) two groups was differentiated. *Group I* had high pain scale scores, stiffness and fatigue and low anxiety and depression levels (even lower than the control group) and *group II* experienced high levels of pain and fatigue (no different to group I), more stiffness and significantly greater anxiety and depression. Additionally, this study examined the groups with regard to demographic variables (age, years with symptoms, years since diagnosis, employment situation), pain level (pain tolerance by immersion in cold water), the number of pain points, restrictions to daily activities and social support, without finding any significant differences. However group II scored significantly higher in catastrophic thinking, interference or impact of pain on day-to-day activities and emotional distress as well as significantly lower scores in self-control.

Calandre et al. (2011) replicated in the study of De Souza et al. (2009) in Spain with a larger sample size (*n* = 421). The results of the study place 82.2% of people with FM in group II (high pain levels, fatigue, tiredness in the morning, anxiety and depression).

2.2.9. SUMMARY

Although FM has been recognised as a disease by the World Health Organisation since 1993 (WHO, 1993), its unknown origin, difficult diagnosis and high overlap with other medical and psychological symptoms and diseases, means that it is still not clearly differentiated. The disease's most relevant characteristics are pain, disturbed sleep, fatigue and a depressed state of mind.

Affecting 3-4%, the incidence of FM in the population is very high. It affects mainly women and has a high economic cost in terms of absenteeism, disability, number of specialist consultations and medicines consumed.

The main psychological symptoms linked to FM are anxiety and depression (although there is no conclusion as to whether these two are the cause or consequence of the disease), stress and lower coping skills and strategies. Some studies hint at the possibility of considering the existence of FM sub-groups with different depression and/or anxiety symptoms, pain levels and coping strategies.

Since many factors influence the origin, progression and chronification of FM, a comprehensive treatment approach is necessary in order to treat all affected systems.

2.3. TREATMENT FOR FIBROMYALGIA

Since FM is considered a chronic illness, treatment is not aimed at curing the condition but rather preventing some symptoms and alleviating others. Since this disorder has such a variety of symptoms and is comorbid with other psychological and physical disorders, many different kinds of treatment have been tried and an interdisciplinary approach is advisable. In addition to drug treatment, the most commonly-used treatments today are: patient education and information, exercise and psychological therapy.

The next section describes some of these treatments. After a brief reference to drug treatment, a second section explains two psychotherapeutic modes of treatment: cognitive-behavioural therapy and psychoanalysis. Finally, treatment using music and music therapy is taken up. Treatment using relaxation and guided imagery are dealt with separately.

2.3.1. DRUG TREATMENT

There are currently no drugs or combination of drugs (including hormone therapy) that have proved to be effective in treating FM symptoms as a whole (Abeles, Solitar, Pillinger, & Abeles, 2008). The drugs that are most widely used and have given best results include analgesics such as tramadol; antidepressants (including tricyclic antidepressants) and, more recently, anticonvulsants, such as gabapentin and pregabalin. Not all patients benefit from treatment with these drugs and their effects are limited in time (Goldenberg, 2007; López-Chicheri, 2012).

Treatment exclusively with drugs has not proven to be the most effective. What is more, continued or excessive drug consumption may have negative effects on the body’s organism, increase dependency on health services and interfere in the incorporation of other more adaptive actions for the pain problem (Pastor Mira et al., 2003; Pastor Mira et al., 2010).

Moix Queraltó (2005) states that:

> “Patients show greater improvement when, in addition to medical treatment, they receive psychological treatment, than when only medical treatment is given. The people treated in this joint way have greater reduction of anxiety, depressive feelings, the medication they need, problems produced by pain and even acuteness of pain” (De Felipe García-Bardón, 2012, p.25) (translated by the author).

2.3.2. PSYCHOLOGICAL TREATMENT

The aim of the majority of psychological treatment today is to help the patient control emotional aspects such as anxiety and depression together with cognitive, behavioural and social aspects that may be aggravating their symptoms. Equally, psychology aims to help patients modify their beliefs regarding the illness and learn coping techniques so that they can adequately respond to pain and other FM manifestations (Peñacoba, 2009).

Rossy et al. (1999) compared the efficacy of drug and non-drug treatments on FM by evaluating 40 studies. They concluded that the optimum way of treating FM was an approach that included non-drug treatment, especially physical exercise and cognitive-behavioural therapies. Sim & Adams (2002) also reviewed non-drug treatment of FM in 25 studies. The treatments evaluated were exercise, education, relaxation, cognitive-behavioural therapy, acupuncture and hydrotherapy. The inferior quality of the studies with small samples and follow-up of less than 16 weeks meant they had difficulty drawing conclusions on whether one kind of treatment was better than another. Hassett & Gevirtz (2009) insist on the advisability of offering treatment where behavioural, cognitive and affective dimensions are all covered and suggest using the acronym *Express* as a strategy in the therapeutic approach.

> ”Ex is for *Exercise*. (…) P is for *Psychiatric comorbidity* since both depression and anxiety disorders are common in chronic pain conditions and contribute significantly to pain and disability. R is for *Regaining function* which in FM often involves helping patients with activity pacing so that they do not do too much one day when they feel good and do too little on days that they feel bad. E is for *Education* (…) S is for *Sleep hygiene* which is necessary for many who have developed counter-productive habits. The final S is for *Stress management* which includes any number of elements including CBT, relaxation techniques, hydrotherapy and gentle exercise to name just a few” (Hassett & Gevirtz, 2009; p. 9).

In the meta-analysis of Glombiewski et al. (2010) 23 research studies including 30 conditions for psychological treatment for FM were studied by analysing results in: pain, sleep, depression, catastrophic thinking and functional state. The analysis showed that psychological treatment for FM is promising and its effects can be equated, in the short term to drug treatment and other treatments for pain. The treatments studied used relaxation strategies, education, meditation and cognitive-behavioural treatment.

2.3.2.1 Cognitive-behavioural treatment

Several studies have looked into the effects of cognitive-behavioural treatment strategies on patients with FM and have found evidence of its efficacy. The basis of cognitive-behavioural therapy is that both thought and behaviour can affect a person’s symptoms and may hinder their recovery. Therapy consists of reducing unhealthy thoughts and helping the patient to develop coping strategies, not just for their illness but for day-to-day life events and interpersonal relations (Morris, Bowen, & Morris, 2005). This kind of treatment incorporates different interventions such as self-regulation, biofeedback, coping strategies and cognitive restructuring.

Cognitive-behavioural therapy can be applied individually or in group and normally comprises different phases: 1) an educational phase in which patients are informed of the disease and means of coping with it; 2) a skills acquisition phase and, 3) a putting into practice phase (Govillard Garmendia, 2011).

Several studies make clear the efficacy of this kind of treatment with FM patients (García, Simon, Duran, Canceller & Aneiros, 2006; Vidal Pérez, Redondo & Pérez Nieto, 2005) concerning improvement of depression, fatigue, pain, impact of FM and reduction in drug use (Anderson & Winckler, 2007; Falcao et al., 2008) and concerning improvement of self-assessment and personal efficacy (Rivera, Alegre, Nishishinyac et al., 2006; Rocha Ortiz & Benito González, 2006; Villalobos-Pérez, Araya-Cuadra, Rivera-Porras, Jara-Parra & Zamora-Rodríguez, 2005). Some authors demonstrate that modifying efficacy beliefs and expectations regarding disease control (cognitive resources) coupled with training patients to seek appropriate states of stress-recovery are key elements for FM patients positive progression (González-Menéndez et al., 2010; Menzies, Taylor, & Bourguignon, 2006).

Current proposals include contextual cognitive-behavioural treatment which does not concentrate on avoiding/reducing symptoms but rather patients are brought to *accept their continuing pain*, something that requires an active, functioning individual who partakes of pleasant activities that give their life meaning, even if that requires experiencing painful sensations (González-Menéndez et al., 2010). Results from different pieces of research show that people with a greater acceptance of pain report less pain, anxiety, depression, and disability, greater activity levels and better labour status (Costa & Pinto-Gouveiam, 2011; Cuevas Toro, 2010; McCracken, Carson, Eccleston, & Keefe, 2004; McCracken & Eccleston, 2003; McCracken, Vowles, & Eccleston, 2004).

2.3.2.2 Psychoanalysis

Only very few studies refer specifically to psychoanalytic therapy. Treatment focuses on helping the patient develop the emotional content of pain and increasing their ability to express feelings related to painful physical and life experiences (De Felipe García-Bardón, 2012). Space/time is given to complaint and the subjective and symbolic meaning of symptoms, seeking to understand these meanings in relation to experience gathered and social context (Velasco et al., 2006). Some research points to the existence of an early traumatic experience, before the appearance of FM (Afari et al., 2014; Amital et al., 2006; Anderberg, Marteinsdottir, Theorell & Von Knorring, 2000; Goldberg, 1999), in which pain and pain’s mental representation are related to subjective experiences (D´Alvia, 2002).

De Felipe García-Bardón evaluates the effectiveness of a psychodynamic approach to psychotherapy on a group of 116 individuals, in comparison to a wait list control group of 91 individuals. He qualitatively assesses the content of the group sessions and carries out a satisfaction survey before and after the 12 sessions of treatment, carried out over a period of 3 months. In the conclusion he highlights that group psychotherapy was effective at improving depression, anxiety, psychosomatic traits, quality of life, overall health and interpersonal relations (De Felipe García-Bardón, 2012; De Felipe García-Bardón et al., 2007).

2.3.3. MUSIC THERAPY AND MUSIC-BASED TREATMENT

There are two different approaches to using music in medicine; 1) the use of pre-recorded music in a hospital environment as a complement to the medical treatment offered by doctors and nurses and 2) music therapy in which treating the biomedical aspects of the injury or disease is combined with the treatment of its related psychosocial and emotional factors (Bruscia, 1998). Music can offer support to medical procedures thanks to its neurophysiological effects and by stimulating emotional processes that have a positive effect on the wellbeing and mood of patients (Dileo, Bradt & Murphy, 2008; Schou, 2008).

> “Music therapy can be defined as the clinical and evidence-based use of music and/or its elements by a qualified music therapist to accomplish individualized goals within a therapeutic relationship with one client or a group. The aim of music therapy is to develop potentials and/or restore impaired functions of individuals so they can achieve better intrapersonal and/or interpersonal integration, which may promote a better quality of life, through prevention, rehabilitation or treatment of specific problems” (Bernatzky et al., 2011; p. 1991).

Kwan (2010) highlights four functions of music in music therapy used for treating patients in pain: 1) relaxation, 2) resonating synchronically 3) release, reorganising and restructuring and 4) reconstituting and integrating, considering three main categories: the client’s pain, the role of music in the healing process and progression of the client’s wellbeing. Kwan also highlights six main themes in the therapeutic relationship between client, music and music therapist: trust, presence, care, physical empathy and sympathetic resonance, empowerment and facilitation of communication and emotional expression.

Some authors highlight how patients perceive the benefits of relaxing and listening to music, especially their preferred music from the past since it provides distraction from and reduces the feeling of pain and the negative experiences that go with it (Mitchell, McDonald & Brodie, 2006; Mitchel, Macdonald, Knussen & Serpell, 2007). Others emphasize, in addition to possible physical pain avoidance, the ability of music to evoke memories of oneself before the onset of pain.

Furthermore, music can improve mood, enrich spiritually, console, energise and accompany (Gold & Clare, 2013). Evidence shows that music's intrinsic and extrinsic properties may have effects, especially because they stimulate cognitive and emotional mechanisms (Garza-Villarreal, Brattico, Vase, Østergaard & Vuust, 2012; Garza-Villarreal et al., 2014; Hauck, Metzner, Rohlffs, Lorenz & Engel, 2013; Roy, Lebuis, Hugueville, Peretz, & Rainville, 2012). Hauck et al. (2013) suggest that different mechanisms are activated in the pain processing system depending upon whether the patient's preferred music is played (his/her focus of attention is transferred on to the pain stimulus) or if through interaction with a music therapist his/her own compositions are used, which activate the patient's ability to control.

In a meta-analysis on music therapy carried out by Dileo & Bradt (2005), the results concerning the effects of music therapy on pain reduction (examined 48 studies, 43 were music medicine and only 5 music therapy studies) were inconsistent across specialitation involved, with a mean effect size of $r = .21$, and the moderator analysis revealed that music therapy had much greater effect than music medicine intervention. Other research studies demonstrate the usefulness of this therapy in pain modulation and its effectiveness at reducing the amount of drug treatment and improving a person's wellbeing (Bernatzky, Presch, Anderson, & Panksepp, 2011; Bernatzky, Strickner, Presch, Mendtner & Kullich, 2012; Matsota et al., 2103; Nilsson, 2008). Music therapy treatment is more effective if offered by a music therapist, who is able to take care of the therapeutic relationship and its subsequent therapeutic process (Dileo & Bradt, 2005; Dileo, 2006), and if the chosen music specifically follows predictable, stable parameters of tempo, volume and smooth melodic lines (Gooding, Swezey & Zwischenberger, 2012).

Pothoulaki, MacDonald & Flowers (2012) made a systematic review of studies on chronic disease where the link between listening to music and psychological variables such as restlessness, feelings of control, anxiety, depression, powerlessness and pain was explored. The different approaches covered in this review range from using music previously chosen by the patient (Yu, Liu, Li & Ma, 2009; Park, 2010) to studies which included instructions for muscle relaxation and breathing (Smith, Dauz, Clements, Werkowitch & Whitman, 2009) or used music and movement (Sung, Chang, Lee & Lee, 2006) or music-listening together with patient comments (Batt-Rawden, 2006). This treatment could be complementary to pharmacological treatment since it acts deep on the nervous system, activates self-healing mechanisms and promotes mental health. Furthermore, it has no side effects and can easily be included in multi-component treatments (Bernatzky et al., 2011).

Only very few studies have examined the effects of music on fibromyalgia or chronic pain. Schorr (1993) observed in a quasi-experimental study that pain perception was reduced in 30 women with rheumatoid arthritis when they listened to music of their own choice for 20 minutes and further observed that this effect persisted even 2 hours later. However the absence of a control group in the study reduced the capacity to say that music was the only factor causing a change in pain perception.

McCaffrey & Freeman (2003) also used this hypothesis when they surmised, that music could alleviate the physical pain of the elderly suffering from *osteoarthritis* (n = 66), improve their motivation and mood and increase feelings of control. Measured through the McGill Pain Questionnaire (SF-MPQ), results showed a significant drop in the pain experienced by the experimental group in comparison with the control group. Listening to 20 minutes of relaxing music every day reduced the pain of chronic osteoarthritis to a greater extent than simply sitting and resting without listening to music.

In the study of Kullich et al., (2003) on 65 patients with *lumbar pain* and a control group, pain reduction and a positive effect on sleep disturbance was achieved through an intervention in which music was listened to together with relaxation instructions.

Siedliecki & Good (2006) made a randomised distribution of participants (n = 60) with chronic pain in two experimental groups with a control group. The two experimental groups listened to music for one hour over a 7-day period; for one group the music used was a standard selection of relaxation tracks and the other chose their preferred music. At posttest evaluation, both experimental groups showed better results than the control group with reductions in pain, depression and disability and improvements to patient ability perceptions. However, there were no significant differences between the two experimental groups.

Guetin et al. (2012), in their study on 87 patients with chronic pain confirmed the efficacy of listening to pre-recorded music in significantly reducing pain and in reducing anxiety depression and consumption of medication.

Onieva-Zafra, Castro-Sánchez, Matarán-Penarrocha, & Moreno-Lorenzo (2013) studied the effects of music on a nursing procedure and stated the effectiveness of listening to music to reduce pain intensity and improve depression symptoms in patients with FM. In this study, a randomized controlled clinical trial was carried out with a sample of 60 people diagnosed with FM. 30 patients were assigned to the music intervention group, treated with daily music-listening for four weeks, and 30 to the control group. Here McGill's Pain Questionnaire (LF-MPQ), Beck's Depression Inventory (BDI) and the Visual Analogue Scale (VAS) were used to measure outcome. Results indicated pain and depression reduction in the experimental group at posttest measurements and no change in the control group.

Garza-Villarreal et al., (2014) analysed the analgesic effects of music on pain in people with FM. To do so they divided 22 patients with FM into two groups; an experimental group that listened to self-chosen relaxing, pleasant music and a control group subject to *pink noise*. They found that listening to self-chosen, relaxing, pleasant, familiar music increased the mobility of patients with FM, suggesting that music reduces pain in these patients possibly through cognitive and emotional mechanisms and its use may contribute to increasing these patients' functional mobility.

No articles have been found demonstrating the efficacy of active music therapy on people with FM. The book by Vannay (2013) describes music therapy using active improvisation based on Priestley's analytical music therapy method carried out in a group. Vannay (2013) highlights the positive effects on pain and emotional expression obtained after treatment.

In the only study found in the literature evaluating the effect of vibroacoustics on pain points in people with FM, it is highlighted that although the experimental group's perception of pain on tender points improved, the difference between the group that received vibroacoustics (with a frequency range of between 600 and 300 Hz) and the control group was not significant (Chesky, Russell, López & Kondraske, 1997).

2.3.4. RELAXATION TREATMENT

Frequently music listening has been used together with relaxation techniques and has had a positive influence on affective-cognitive and sensorial processes at the same time as reducing the negative effects of stress on pain.

Some studies highlight the efficacy of relaxation training in combination with information about the disease, group discussion and self-control techniques on patients with FM (Keel, Bodoky, Gerhard, & Müller, 1998), and emphasise the positive effects on pain variables, anxiety, depression and fatigue, increase in mobility and reduction in medicine intake (Persson, Veenhuizen, Zachrison, & Gard, 2008).

Amongst the studies quoted by Glombiewski et al. (2010) on psychological treatment of FM we find: Field et al. (2002) who used Jacobson`s relaxation training: Rucco, Feruglio, Genco, & Mosanghini (1995) and Keel et al. (1998) who looked into autogenic group training, and the studies of van Santen et al. (2002) and Hassett et al. (2007) who used relaxation techniques combined with biofeedback in their study. Finally, Hammond & Freeman (2006) included visualisation and group discussion in the experimental group that received relaxation. These studies did not find any significant evidence of an impact on the pain of FM in comparison with multimodal treatments (see Table 2).

2.3.5. GUIDED IMAGERY TREATMENT

Different pieces of research have demonstrated the positive impact of guided imagery treatment on people with FM in particular and on dealing with pain in general. Guided imagery is a dynamic, psychophysiological modality in which a person imagines and experiences an internal reality in the absence of external stimuli (Menzies & Taylor, 2004).

In Hammer's study (1996) on 18 subjects with dependencies, those who received treatment (*n* = 9) were given 10 weekly sessions of 30 minutes training in relaxation and guided visualisation whilst listening (for 8 - 10 minutes) to music where both music and induction images had been chosen previously. Despite the experimental group obtaining a reduction in stress and anxiety perception, these results were not found to be significant when compared to the control group.

Fors, Sexton & Götestam (2002) carried out a study to test the efficacy of attention distraction by using relaxation training and instructions of pleasant guided images. In their randomised study with a control group, the sample of 55 women with FM was divided up into three different groups. One group received training in relaxation and pleasant images with a view to distracting from pain; another received training and relaxation in images to focus on pain and a third, control group, continued with normal treatment. Results were measured daily with a visual analogue scale (VAS) for four weeks and significant differences in pain perception between the three groups were found. The group receiving distraction training showed significant positive effects in pain reduction using the visualisation of pleasant images in comparison with the control group, whilst the group receiving training in pain control images did not display any difference.

Menzies et al. (2006) also studied the effects of a 6-week intervention of guided imagery on pain level, functional status, and self-efficacy in people with FM (*n* = 48). Participants randomized to guided imagery plus usual care intervention group received a set of three recorded guided imagery scripts, and were instructed to use at least one tape dairy for 6 weeks and report weekly frequency of use (dosage). Results showed FIQ scores decreased over time in the guided imagery group compared to the usual care group (*p* = .03). Ratings of self-efficacy for managing pain (*p* = .03) and other symptoms of FM also increased significantly over time (*p* = .01) in the guided imagery group compared to the usual care group. However, participants' reports of pain did not change.

Verkaik et al. (2014) also studied the effects of guided imagery on pain, functional ability and auto-efficacy on 65 people with FM in a randomised study with a control group over four weeks. The intervention consisted of two group sessions; one with initial information and the other at the end and a 4-week period between the two during which participants used a CD with relaxation techniques, music, positive images and instructions for pain management. The results showed guided imagery had no effects on perceived pain intensity, self-efficacy or functional status.

Onieva-Zafra, García & Del Valle (2015) carried out a study to assess the effects of guided imagery on pain and depression in a group of 60 patients with FM. The patients were randomly assigned a guided imagery group (*n* = 30) or a control grupo (*n* = 30). The effects were examined at baseline, post intervention (4th week), and at the end of the study (8th week). The treatment group reported statistically significantly lower levels of pain (*p* = .046), using the long-form McGill Pain Questionnaire (LF-MPQ), and a reduction in depression (*p* = .010) than the control group at the week 4 evaluation. A statistically significant effect of pain as measure by the daily VAS diary was also found in the experimental group. At week 8, no significant differences were found for pain.

Table 1. Relevant studies relating FM and/or chronic pain with music therapy and/or music treatments.

Author (year)	**MUSIC/FM-PAIN**	**SAMPLE**	**DESIGN**	**OUTCOMES MEASURES**	**RESULTS**
Schorr (1993)	**EI:** Listening music 20 m. in a comfortable position.	30 women with rheumatoid arthritis	Quasi-experimental design Repeated measures Not control group	Pain: MPQ	One 20-minute period of listening to music is associated with reduction in the experience of pain, but it is not sufficient to engender a transformation.
McCaffrey & Freeman (2003)	**EI:** Listening music 20 m. daily **CI:** control group (14 days)	66 elders suffering from chronic osteoarthritis pain	Randomized trial Repeated measures	Pain: SF-MPQ	Significant decrease in pain among experimental group participants when compared with the control group on the pain descriptor section of the SF-MPQ ($p = .001$) and the visual analogue portion of the SF-MPQ ($p = .001$).
Kullich et al. (2003)	**EI:** Listening music at least once a day; no specified time and relaxation text. **CI:** control group (3 weeks)	65 low back pain patients	Randomization trial	Pain: VAS Sleep disturbances: PSQI, Pittsburgh Sleep Quality Index	Statistically significant improvement of total sleeps quality score and four of seven PSQI components, and the global pain, established by VAS, as well as the pain on pressure improved significantly.
Siedliecki & Good (2006)	**EI1:** standard music group **EI2:** Patterning music group **CI:** control group	60 patients with chronic-non-malignant pain.	Randomized controlled clinical trial	Pain: SF-MPQ Depression: (CES-D; Centre for Epidemiological Studies Depression)	The music groups had more power and less pain, depression and disability than the control group, but there were no statically significant differences between the two music interventions.
Guétin et al. (2012)	**EI:** Listening music 2 daily session (10 m.) and at home **CI:** control group (standard treatment)	87 patients with chronic pain (included FM)	Controlled, single blind, randomized design.	Pain (VAS) Anxiety-Depression (HADS) Consumption of medication	The treatment group reported a more significant reduction in pain ($p < .001$) and significant reduction in both anxiety-depression and the consumption of anxiolytic agents.

EI: Experimental intervention; CI: Control intervention

Onieva-Zafra et al. (2013)	**EI**: Listening to music once a day for 4 consecutive weeks using two types of CDs. **CI**: control group.	60 patients with FM	Longitudinal trial design.	Pain: (LF-MPQ) Depression (BDI) VAS	The treatment group reported a significant reduction in pain and depression at week 4 compared with the control group. Members of the control group reported no differences in pain
Garza-Villarreal et al. (2014)	**EI:** Listening 3 pieces of music (Self-chosen, relaxing and pleasant) during 10 m. **CI:** Pink noise	22 patients with FM	Randomized controlled clinical trial	Pain: (PCS, Pain Catastrophizing Scale) & VRS (Verbal rating Scale) Anxiety: (STAI) Depression: (CES-D) Functional mobility: TUG (timed Up & Go)	The patients reported significantly less pain only in the music condition: This means the patients reported feeling less pain after the music rather than after the control auditory stimulus. Furthermore, the patients were significantly faster after the music condition in the TUG task ($z= -2.88$, $p = .006$), but not after the control condition.
Korhan et al. (2014)	**EI:** Listening 60 m. of Classical Turkish music.	30 patients with neuropathic pain	Quasi-experimental study Repeated measures Not control group	Pain: VAS	The patients ‘mean pain intensity scores were reduced by music, and that decrease was progressive over the 30th and 60th minutes of the intervention, indicating a cumulative dose effect.

EI: Experimental intervention; CI: Control intervention

Table 2. Relevant studies relating FM with relaxation treatment.

Author (year)	**RELAXATION/FM**	**SAMPLE**	**DESIGN**	**OUTCOMES MEASURES**	**RESULTS**
Günter et al. (1994)	**EI:** Jacobson relaxation **CI:** Bath therapy (10 session/ treatments twice weekly for 5 weeks)	25 FM patients	(None follow up)	Pain (VAS) Sleep	No differences between the two treatment groups could be found.
Rucco et al. (1995)	**EI:** Autogenic training **CI:** Analogic Erickson techniques (8 sessions/group)	53 FM patients	Randomized design Comparative study	Pain (VAS) Sleep (VAS)	Erickson techniques were superior compared to the results obtained in the group of patients treated with autogenic training in all the parameters examined.
Keel et al. (1998)	**EI:** Autogenic training **CI:** Psychological treatment (15 sessions/group)	32 FM patients	Pre-post-follow up 4 months	Pain, daily activities, general symptoms, psychological functioning (FIQ)	At the end of treatment, 7 patients from the Psychological treatment and 2 from the only autogenic training showed significant clinical improvement in 3 of 6 parameters (NS). At follow-up, the improvement was still present in 5 Psychological treatment experimental cases but in none of the only autogenic training (p = .024)
Field et al. (2002)	**EI:** Progressive muscle relaxation **CI:** massage therapy. (30-minute treatments twice weekly for 5 weeks)	24 FM patients	Pre-post (None follow up)	Pain (Likert Scale) Anxiety & Depression (BDI) Sleep	Both groups showed a decrease in anxiety and depressed mood immediately after the first and last therapy sessions. However, across the course of the study, only the massage therapy group reported an increase in the number of sleep hours and a decrease in their sleep movements.

EI: Experimental intervention; CI: Control intervention

van Santen et al. (2002)	EI: Biofeedback EI2: Fitness program CI: Control group (all received an educational program (Individual)	143 FM patients	Randomized design Pre-post (None follow up)	Pain (VAS)	After treatment, no significant differences in change scores of any outcome were found between the groups (ANOVA, *p* > .05). All outcome measures showed large variations intra- and interindividually.
Hammond & Freeman (2006)	**EI:** Relaxation lesson (visualisation, breathing exercises) **CI:** Educational exercise therapy (10 sessions/group)	183 FM patients	(0,4 and 8 months)	Pain (FIQ) Self-reporter	At four months, there was a difference in average changes in total FIQ scores between the two groups: patient education group -3.38 (*SD* = 9.35); relaxation group 0.3 (*SD* = 8.85); *p* = .02; other symptoms (patient education group 0.72 (*SD* = 1.33); relaxation group 0.03 (*SD* = 1.16); *p* = .002). At eight months these differences were no longer apparent. 47% in the patient education group self-reported improvement compared with 13% in the relaxation group ($\varkappa^2$ = 13.65; *p* = .001).
Hasset et al. (2007)	**EI:** Autogenic training (10 sessions/individual)	12 FM patients	No comparison condition	Depression Sleep FIQ	There were clinically significant decreases in depression and pain and improvement in functioning from session 1 to a 3-month follow-up. For depression, the improvement occurred by Session 10.

EI: Experimental intervention; CI: Control intervention

Table 3. Relevant studies relating FM with guided imagery and/or visualization treatment.

AUTHOR (year)	GUIDED IMAGERY/FM	SAMPLE	DESIGN	OUTCOMES MEASURES	RESULTS
Fors & Götestam (2000)	**EI1**: Education programme **EI2**: Visualization: *pleasant nature images* (PI) **CI**: talking about FM (4weeks/ daily treatment)	58 FM patients	Pre-post (no follow up)	Pain (VAS)	Results indicate that patient education and guided imagery reduced both the patients' current pain and anxiety levels while the pain related talk procedure neither decreased nor increased the symptoms
Fors et al. (2002)	**EI1**: Visualization: *pleasant nature images* (PI) **EI2:** Visualization: *attention imagery* (AI) **CI**: Talking about FM (4weeks/ daily treatment)	55 FM patients	Pre-post (no follow up)	Pain (VAS)	They found significant differences of the pain-slopes between the three psychological conditions (p = .001). The *pleasant imagery* (p < .005), but not the *attention imagery* group's slope, declined significantly when compared with the *control group* (p > .05)
Menzies et al. (2006)	**EI**: Usual Care + Guided Imagery (listening to three audio-recorded guided imagery scripts **CI**: Usual Care (6 -10 weeks/ daily treatment)	48 FM patients	Pre-post	SF-MPQ FIQ	FIQ scores decreased over time in the GI group compared to the Usual Care group (p = .03). Ratings of self-efficacy for managing pain (p = .03) and other symptoms of FM also increased significantly over time (p = < .01) in the GI group compared to the Usual Care group. Pain as measured by the SF-MPQ did not change over time or by group. Imagery dosage was not significant.
Castel et al. (2007)	**EI1:** Hypnosis with relaxation suggestions; **EI2**: Hypnosis with analgesia suggestions; **CI:** Relaxation	45 FM patients	Pre-post	Pain (VAS) FIQ	The results showed: (1) that hypnosis followed by analgesia suggestions has a greater effect on the intensity of pain and on the sensory dimension of pain than hypnosis followed by relaxation suggestions; (2) that the effect of hypnosis followed by relaxation suggestions is not greater than relaxation.

EI: Experimental intervention; CI: Control intervention

Menzies et al. (2014)	**EI**: Usual Care + guided Imagery (listening to three audio-recorded guided imagery scripts) **CI**: Usual Care (6-10 weeks/daily treatment)	72 FM patients	Pre- 6 months-10 months-post	BPI BFI	The UC + GI group change from baseline to 6 weeks was significantly different ($p \leq .05$) for decreased fatigue symptoms (BFI) and pain severity (BPI-S). There were marginal statistically significant ($.05 \leq p \leq .10$) changes from baseline to 6 weeks for decreased perceived stress (PSS) and pain interference (BPI-I). The UC + GI group change from baseline to 10 weeks was significantly different from the corresponding UC group change for all of the symptoms with the exception of pain interference (BPI-I) which was marginally statistically significant ($p = .08$; $p = .09$ [6 and 10 weeks, respectively]).
Verkaik et al. (2014)	**EI:** Group Guide imagery (instructions +discussion GI+ exercises + CD with GI exercise **CI**: Group discussion (4 weeks/ 2 ses./daily treatment)	70 FM patients	Pre-post-follow up (6 weeks)	Daily VAS FIQ	The groups do not differ significantly.
Onieva-Zafra et al. (2015)	**EI:** Group Guided Imagery **CI:** Control Group (8 weeks)	60 FM patients	Quasi-experimental	Pain: LF-MPQ, VAS Depression: BDI, VAS	The treatment group reported statistically significantly lower levels of pain ($p < .046$) and depression ($p < .010$) than the control group at the week 4 evaluations. A statistically significant effect on pain as measured by the daily VAS diary was also found in the experimental group. At week 8, no significant differences were found for pain.

EI: Experimental intervention; CI: Control intervention

2.3.6. SUMMARY

Apart from prescribing drugs, different approaches to treating FM have been taken, ranging from exercise and education to psychological therapy and guidance. Currently an interdisciplinary approach using a combination of interventions is recommended.

Psychological interventions have been shown to have positive effects on the main symptoms of FM (including pain, fatigue, mood, and physical function). The most recommended therapies today are cognitive-behavioural, since they have extensively shown their effectiveness in the short and medium term, especially those combining some kind of educational component with cognitive strategies to cope with stress and behavioural strategies, with relaxation being especially relevant. Other therapeutic approaches, including working on the subjective meaning of the symptoms in a group setting, have also been shown to be effective, even though they do not appear with such prominence in the literature.

Very few articles in the literature refer to treatment using music therapy and yet several recent studies show the effect of that listening to music (either on its own or in combination with relaxation and/or guided imagery techniques) on improving FM and quality of life in both nursing and hospital settings. More controlled studies proving the effectiveness of music therapy are necessary if a true comparison of the usefulness of this treatment is to be made.

2.4. THE BONNY METHOD OF GUIDED IMAGERY AND MUSIC (GIM)

This section provides an introduction to the different components of the original, individual GIM method and also describes the specific characteristics of this method once adapted to group use (GrpMI). Following this, there is a section on the qualitative and quantitative studies found in the literature relating to this research. No quantitative studies have been found in which the GIM or GrpMI method has been applied specifically to fibromyalgia patients, but both quantitative and qualitative studies are quoted that analyse changes in characteristic FM symptoms (such as mood, quality of life or pain) of other medical populations after using this method.

2.4.1. DEFINITION

The Bonny Method of Guided Imagery and Music (GIM) is a music-assisted integrative therapy form, which facilitates explorations of consciousness that can lead to transformation and the method has evolved through the research and practice of Helen L. Bonny. In 1990 the Association for Music and Imagery (AMI) defined the GIM method as:

> “A centred, transformational therapy, which uses specifically programmed classical music to stimulate and support a dynamic unfolding of experiences in service of physical, psychological and spiritual wholeness (Association for Music and Imagery, 1990, p. 4).

Bruscia (2002, p. 46) defined this therapy model in its original format as an: individual therapy based on the exploration of consciousness through the spontaneous creation of images in an expanded state of consciousness, whilst listening to a pre-designed selection of western classical music and interacting with a specialist facilitator who intervenes not to guide nor to analyse, within a client-centred, music-supported approach and with the session structured into: an initial conversation, relaxation-induction, experience with images, return to a conscious state and postlude conversation.

GIM therapy is recognised as a therapy that can have effects on the person as a whole, since it encourages clients to experience and freely express their bodily sensations, perceptions, emotions and thoughts by taking ownership and responsibility of their own story (Short, 2002). Short proposes that images emerging in GIM sessions can be taken as a recording of the range of physical, emotional, psychological and/or spiritual responses that a person experiences as a reaction to an event. This experience with images and their comprehension during verbal processing may: provide information about the person’s physical or emotional state, help transform internal perceptions and, as a result, cognitive explanations about the client and his/her illness (Short, 1991, 2002, 2003; Schou, 2008).

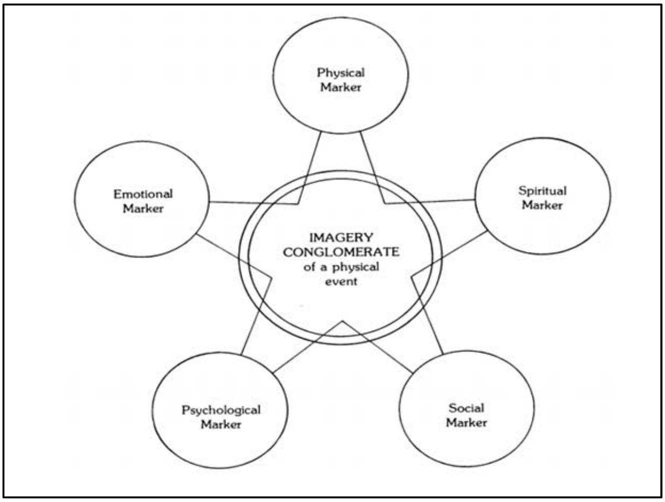


Figure 8. Schematic diagram of the imagery generated by a physical illness.

Source: Short, A. (2002). Guided Imagery and Music (GIM) in medical care. *Guided Imagery and Music: The Bonny method and beyond*, 151-170 (p.157).

2.4.2. COMPONENTS OF THE GIM METHOD

GIM cannot be carried out in individual segments: it can only be applied when all segments are connected in a unified process. Additionally, clients relate differently to different phases of the session, articulating the uniqueness in which each person perceives and comprehends their life and biographical context (Abbott, 2005).

Induction and relaxation

Depending upon the client's needs, different forms of relaxation are used, although the most widely used is autogenic relaxation (Schultz & Luthe, 1959) and Jacobson's progressive muscle relaxation (Jacobson, 1938). In previous sections of this thesis, several studies supporting the use of relaxation on its own or in combination with guided imagery have been mentioned. However the GIM method uses relaxation in *preparation* for music-listening and image creation.

> "In contrast, in GIM, the traveller undergoes a relaxation induction such as the *ball of light* before the music begins, in order to facilitate free imaging to the music. At this point, the image and music help the client to move beyond the *relaxed* feeling to a fuller exploration of more expanded states of consciousness, as they shift in depth and breadth from moment to moment" (Bruscia, 2002, p. 49).

Music

Bonny (2002) and other GIM therapists have indicated that music has the potential to wake up, structure and transform different aspects of experiences instantaneously. Thus, music can 1) wake up something of the person's experience that perhaps needed to be awakened and expressed; 2) structure that person's experiences, so that they can feel like being understood as well as accompanied by the music; 3) contain the experience and thanks to its structure, offer a figurative place in which the person feels safe whilst exploring his/her sentiments; 4) transform the person's experiences enabling them to be felt like alternative experiences; 5) integrate these change experiences through all sensory channels and 6) help containing pain and painful memories (Bonny, 2002; Abbott, 2005).

The music, which is chosen from a series of pieces that GIM therapists normally use (Bruscia & Grocke, 2002) to facilitate a broad range of emotional expression is not pre-determined and the choice of music may vary to adapt to the client's energy (ISO *principle*) (Short, 1992; Wärja & Bonde, 2014), focus of intention and depth of music therapy work (Summer, 2002). Bonny & Savary (1994) stated:

> "Each composition is chosen with the following in mind: 1) to encourage visual images, 2) to raise emotional and feeling states, 3) to suggest early memories, 4) to create positive feedback, 5) to effect physical relaxation, and 6) to support spiritual experience" (translated by the author).

Some authors (Bonny & Savary, 1994) have followed Hevner's model (1937) to try to classify the music used and in this way cater for emotional expressions and musical criteria such as structure, predictability, complexity and dynamics. Summer (2002) proposed that the pieces of music used in group GIM work be classified as *supportive, re-educative and reconstructive*. Wärja & Bonde (2014) used clinical experience with individual patients, work with GrpMI and more specifically work on the *Brief Music Journe*y (Wärja, Bergmark, & Bonde, 2012) to redefine these categories into 1) *supportive music, 2) supportive and challenging music and 3) challenging music*, with three subcategories in each one of them correlating the level of musical intensity and complexity, the music's duration and its effect on emotions.

These relations are illustrated by Moe (2011) in Figure 8 below.

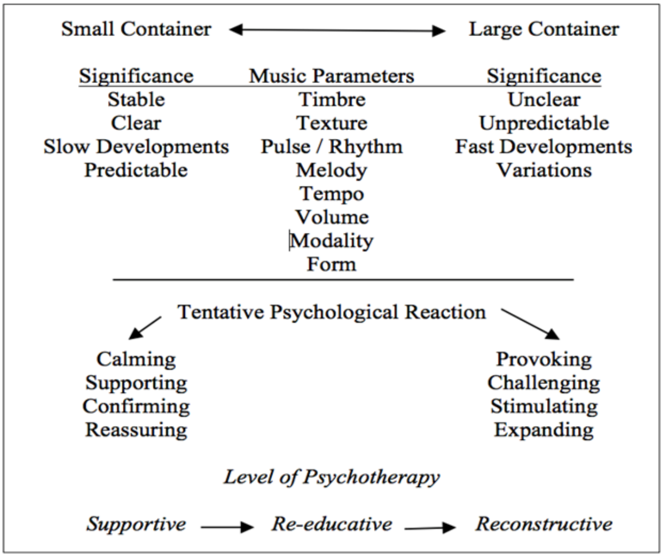


Figure 9. Relationship between psychological stimuli and music parameters.

Source: Moe, T. (2011). Group Guided Imagery and Music Therapy for inpatients with substance abuse disorder. *Journal of the Association for Music & Imagery*, *13* (p.84).

Grocke (1999) in a study looking into music characteristics in key GIM moments noted the following:

> “The music was written in a structured form. The rhythmic features remained constant, and there was repetition of rhythmic motifs. The tonal structure was diatonic and constant and harmonic progressions were predictable. The melodic line was an important feature, although the shape of melodies differed. The main instrumental timbre differed: strings, woodwind, brass, human voices all played major roles but in different selections. There was dialogue between the instrumental parts, and the mood of the music was predominantly calm, with one selection very energetic and loud” (Grocke, 1999; 2010).

She also describes evidence of the music influencing client imagery, as well as other situations in which the images seem to have a life of their own and are not at all influenced by the characteristics of the music.

The choice of music may be perceived during the session as: *supportive* - and the client may receive it with joy, feeling at one with it or surrounded by it; *challenging*

- and the client may feel threatened, overwhelmed wanting to flee or succumb to it; as a *source of vibrant energy* – triggering physical sensations and responses; or as *something that provides structure and meaning to internal chaos* (Isenberg- Grzeda, 1999; in Maack, 2012).

Images

Images emerge spontaneously when relaxing and listening to music and the flow of the music is what encourages their production. Clients are invited to freely use their imagination, explore any experience or image that comes to mind whilst listening to the music and interact with it. A client may experience a range of experiences. Grocke (1999, 2005) suggested a comprehensive categorization system with 15 categories of imagery experiences: 1) visual experiences, 2) memories, 3) emotions and feelings, 4) body sensations, 5) body movements, 6) somatic imagery, 7) altered auditory experiences, 8) associations with the music and transference to the music, 9) abstract imagery, 10) spiritual experiences, 11) transpersonal experiences, 12) archetypal figures, 13) dialogue, 14) aspects of the Shadow or Anima or Animus, and 15) symbolic shapes and images. However Chou & Lin (2006) classified the images appearing during a study carried out with people suffering from depression into five categories: 1) natural environments; 2) surreal environments; 3) memories of past experiences; 4) experience of physical relaxation and 5) experiences of simply enjoying and interacting with the music. Images may vary as music and therapeutic process progress - on some occasions appearing to be superficial and on others the client getting deeply involved in them. Bonde (2007) also described different categories of images over the course of 28 individual GIM sessions with people who had overcome cancer and compared them with those put forward by Moe (2002) in his study with psychiatric patients receiving group therapy. He concluded that there are similarities in the ability to: improve self-knowledge, foster hope and facilitate symbolic and metaphorical expression of aspects of one’s own life.

This makes it important to consider the process of image-creation and the personal significance given to these images, valuing their metaphorical meaning through comprehensive verbal expression work and, with the assistance of the therapist, using the images as a synthesis of what is known and unknown to the client (Bonde, 2000).

The verbal process

The phase before the musical experience (investigative discussion) and the reflection phase afterwards (cumulative discussion) are both significant and maximise the impact of the GIM method (Abbott, 2005), and hence

> "Investigative Discussion accesses information such as comments about previous sessions (as applicable), about experiences of imagery, relaxation and music; current and past health status; and current feelings and awarenesses. Cumulative Discussion focuses on the preceding imagery and music experience, and on any links or insights of which the participant may have become aware. It also accesses further information about the meanings and associations for the participant, including cultural information" (Short, Gibb & Holmes, 2011, p. 7).

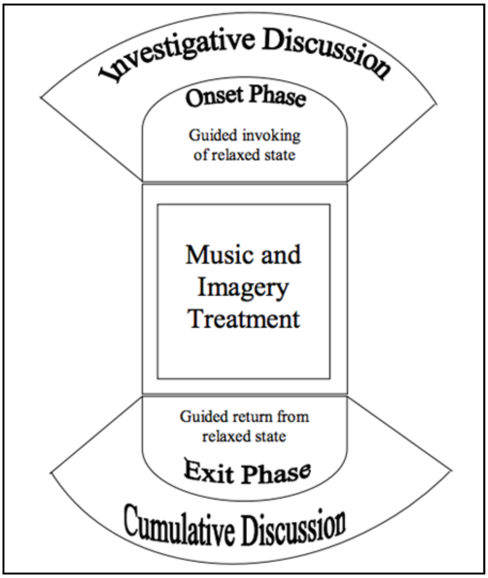


Figure 10. Phases of a GIM session.

Source: Short, A., Gibb, H., & Holmes, C. (2011). Integrating words, images, and text in BMGIM: Finding connections through semiotic intertextuality. *Nordic Journal of Music Therapy*, *20*(1), 3-21 (p. 7).

Several researchers have referred to the importance of the verbal process in developing, understanding and integrating the (often symbolic or metaphoric) imagery experiences of GIM sessions and also facilitating an understanding of what the person has experienced. (Bonde, 2000; Perilli, 2002; Zanders, 2008) highlight the relevance of both client and therapist using metaphors in GIM, because metaphors assist in: describing an experience, feeling more comfortable and safe during this experience, encouraging emotional involvement, increasing self-understanding and inspiring transformation.

The presence of the therapist

The therapist is a fundamental part of the *setting,* structuring it and making it safe for the client. Through the therapist`s way of being present, clients are able to find a focus, a *screen for projection*, an instrument that resonates their tone of voice and a music-adjusted way of speaking. The GIM therapist functions as a facilitator providing presence, structure and support in creating images (Moe, 2002), and is someone seeking emotional tuning with the client through music (Summer, 2009; Geiger, 2007). The therapist: 1) facilitates that the client is opening up to new experiences; 2) helps him/her face up to issues and helps assimilate the images, feelings, symbols and/or associations that may emerge; 3) (thanks to their physical proximity and quiet, concentrated demeanour) keeps the client in contact with reality; 4) helps the client conclude the music and image experience and 5) reviews and incorporates what has been relevant in the experience together with the client (Bonny, 2002; Grocke, 2005).

2.4.3. GROUP MUSIC AND IMAGERY (GRPMI)

Bruscia (2002) describes the characteristics of Group Music and Imagery (GrpMI) as a way of working with individuals in a group format in which each member spontaneously creates images whilst remaining in a relaxed state of consciousness and listening to one or more pieces of music without any permanent direction or dialogue with a guide.

A GrpMI session is comprised of: initial conversation, relaxation-induction, experience with images, return to a conscious state and postlude conversation (Bruscia, 2002). Some adaptations have been described such as when 1) participants remain seated with their eyes open; 2) the relaxation exercise is shorter and more superficial so as not to break down all defences; 3) high level of specificity of image and goal; 4) short duration of music and 5) emphasis on safety, validation and reinforcement of efforts to create solutions during the prelude (Blake & Bishop, 1994).

This adaptation of individual work into group work has been given different titles ranging from *Group GIM*, used by Summer (1988, 2009) to describing a 1981 adaptation for treating patients in a psychiatric hospital; *Music and Imagery* used by Short (1992) in a course of treatment adapted for use with a group of elderly people; *Modified GIM therapy for groups* used by Goldberg (1994) for her experience with hospitalised psychotic patients and G*roup GIM Therapy* used by Blake & Bishop (1994) for their treatment of clients suffering PTSD; whilst *music reinforced relaxation* and *insight –oriented music and imagery* was the expression used by Justice (1994) when referring to his group work with people suffering from eating disorders. Grocke & Wigram (2007; 2008) quote work by Marr (2001) with a church community Borczon (1997) with clients being treated for drug addiction, and Weiss (1994) with adolescents as examples.

Some authors refer to the types of musical pieces and/or programmes recommended for use during a group context (Summer, 2002; Wärja & Bonde, 2014). For Goldberg (1994) in group sessions, the music should offer greater support and stability than in individual sessions, thus allowing a brief experience of images without the revealing dynamic that is characteristic of standard GIM sessions.

2.4.3.1 Advantages of group therapy

Group adapted GIM treatment has some advantages since it reduces the intensity of the therapist´s attention, assists with better tolerance toward this kind of therapy and increases therapeutic improvements by connecting clients with other people experiencing similar problems (Short, 2002). Group work allows a) the individual aims of clients identified at the beginning of each session to be broached; b) a person's own images to be processed and integrated and to establish connections with those of other members of the group; c) the facilitation of supportive relationships between the clients and d) encouragement of clients to take responsibility for themselves (Goldberg, 1994; Summer, 2002).

In line with work by Yalom (Vinogradov & Yalom, 1996; Yalom, 2000), Summer (2002) suggests focus on different growth phases of a group. She points out that 1) initially clients need to develop feelings of trust (both towards the therapist and other group members) if they are to fully participate in the therapeutic process. As the group's trust and cohesion increases 2) participants see themselves not only as individuals but as members of a group unit, and at this stage of group GIM therapy, it is a good idea to encourage and stimulate positive and immediate interpersonal interaction centred on the here and now. These interventions help group members to put aside their individual concerns and to discover a positive common denominator. Through focus and greater complexity of the kind of music used, the group will progressively work on more conflictive or threatening latent situations. As the group comes together self-understanding may arise since its members do not feel threatened by differences, they may learn from each other. At this stage of group GIM work, the focus could 3) concentrate on the psychological conflicts of one or several group members as emerging in the groups. At this time, the aim is to assist clients to look into how their internal conflicts have been represented through images and how these conflicts influence interpersonal relations (both within and outside the group).

In 2012 De Felipe García-Bardón suggested that:

> "In a group, interaction and greater possibilities of expression assist conflict elaboration and group peers become therapeutic agents. Facing up to images, fantasies, feelings, relationships and experiences leads to changes in group members' interiors" (De Felipe García-Bardón, 2012) (translated by the author).

Another way in which the group transforms into a therapeutic agent for each of its members is through the emotional responses offered to the images visualised by other members (Summer, 2002). In some group GIM treatments, such as that proposed by Körlin (2007), treatment is accompanied by psycho-educational elements to make the experience more manageable, comprehensible and significant for patients. Goldberg (1994) emphasized the role played by the therapist's ability to provide a well-defined verbal structure to the images, so that they do not become threatening or overwhelming, supervising the verbal phase subsequent to the images so that each participant is encouraged to tell the group of their images, enabling each member to make connections between the images and their own life or current targets. In the study of Moe, Roesen & Raben (2000), participants (who were psychiatric patients participating in group-adapted GIM therapy) were asked which aspects of the therapy they found most beneficial and they highlighted the positive relevance of the relationship with the therapist, the feeling of personal responsibility and belonging to a group.

The group may feel protected thanks to the structure, work, protection, support and care of the therapist. This helps group members to recognise and explore images that are often difficult to put into words and obtain a complete explanation of their story that can have an effect on improved self-image and self-confidence (Körlin, 2005, 2007). To be offered a space to relax, concentrate, create, remember, feel and relate to other people fills their lives with hope, connection and meaning (Blake & Bishop, 1994).

Skaggs (1997) (cited in Murphy, 2008) found that group GIM in the treatment of those with chemical addictions in a residential treatment programme was beneficial for: 1) viewing life from different perspectives, 2) accessing and building a trust in the inner helper; 3) taking moral and personal inventory of self in its deepest nature; 4) resolving internal conflicts; 5) healing old hurts, 6) providing an on-going support system independent of external sources, 7) bringing together fragmented pieces of life, 8) serving as a model of healthy responses and 9) changing moods. Similar characteristics were underlined by Murphy (2008) when emphasising the effects of GrpMI treatment on the psychological health of adult substance abusers, thanks to the fact that it offered participants the opportunity of practising new forms of interacting with themselves and others. This included learning to: 1) recognise and share feelings with others, 2) relax the body, 3) calm and concentrate the mind 4) use internal reflection to explore personal questions related to the first three steps, and 5) integrate new knowledge and understanding in the recovery process.

2.5. STUDIES USING GIM AND GRPMI

Since there are no specific studies looking into the use of GIM or GrpMI methodology with FM, this section will describe some quantitative and qualitative research in which diseases similar to FM have been treated using the GIM or

GrpMI methodology that include some of the variables used in this study. Data from quantitative and qualitative studies show the GIM method to be effective in treating the emotional distress related to pain (Short, 2002) and chronic illness, demonstrating positive changes in mood, depression, anger, fatigue and confusion (Burns, 2002).

2.5.1. QUANTITATIVE STUDIES

Jacobi & Eisenberg (2002), in their study examining 27 patients with rheumatoid arthritis showed the effectiveness of the GIM method in reducing pain and depression after 10 individual sessions. In their work, together with other forms of measurement, they used the SCL-90-R psychometric scale to measure psychological distress and the McGill Pain Questionnaire (MPQ) to measure psychological reduction of pain. Results showed significant reduction in both. Music brought back negative images of self-esteem, relations, hurtful memories and catharsis. The researchers mention how important it is to activate the subconscious so that repressed feelings can be articulated and the energy implicit in emotional and psychosomatic symptoms released. They also refer to the importance of working on self-control and self-efficacy perceptions, because both influence patient belief in managing available internal resources, levels of activity/apathy and motivation and seek to improve patients' cognitive coping skills, emotional coping and behavioural change.

McKinney, Antoni, Kumar, Tims & McCabe (1997) noted that GIM had a positive influence on mood, reduced cortisol levels in healthy adults, and could have consequences for the health of people with chronic stress. They studied the effects of GIM on 28 healthy adults, who received six individual GIM sessions with pre and post treatment measurements, subsequent follow-up and a wait list control group. Results were measured using the Profile of Mood States (POMS) and an analysis of 15 cc of blood. A significant reduction in depression, fatigue and mood disorders was observed in post-treatment results as well as a significant reduction in the level of cortisol in the blood at follow-up. In a previous study McKinney, Antoni, Kumar & Kumar (1995) had also shown the effects on the depressed mood of a group of 8 healthy subjects after six individual GIM sessions.

Burns (2002) researched the effects of GIM on the quality of life of cancer patients. In her work, Burns used a pretest posttest experimental design and follow up (at 6 weeks) with an experimental group of four individuals receiving 10 individual GIM sessions and a wait list control group. The results demonstrated differences between the two groups and improvements in the state of mind of the experimental group. Moreover positive results were maintained 6 weeks later with an additional positive change to depression and anger measurements. Those in the experimental group spoke of better quality of life including factors such as physical wellbeing, psychosocial adaptation and spiritual wellbeing. The rating scales used were POMS and Quality of Life - Cancer Scales (QOL-CA). Burns indicated that the clients involved, reported that they used the initial part of the session to rest and obtain energy from the music and images so that subsequently there would be more movement of images and an increase in energy at the end of the sessions. The second part of the session and programme was spent on expressing emotions related to their illness and on giving meaning to their experience.

Bonde (2005) highlighted the quantitative (although not statistically significant) changes to anxiety, depression, quality of life and general attitude to life when pretest, posttest and follow up results were compared after applying 10 individual GIM sessions for 6 cancer survivors. He also suggested that 10 sessions may be sufficient to improve the mood and quality of life of these patients, indicating that this effect could be the result of the reconfiguration of metaphors and narratives in the therapeutic process.

In the preliminary results of a study with psychiatric patients which used the Global Assessment of Function Scale (GAF), Bonde (2010) highlights that social anxiety was reduced in all participants and that imagery stimulated by classical music, including challenging features, was effective in boosting the health and quality of life of these patients.

Beck (2012) examined the effects of 6 GIM sessions on adults on long-term sick leave for stress. The study included a control group and follow-up. She showed significant effects of GIM treatment compared to standard care on the psychological variables of mood, anxiety, sleep quality, and wellbeing and other physiological symptoms. A conclusion that can be drawn from convergence of qualitative and quantitative results is that GIM decreases bodily stress symptoms, increases energy and wellbeing, enhances coping with inner and outer conflicts, helps to overcome traumatic work experiences, provides new relational competencies, improves mood and gives access to hope for future work life.

2.5.2. QUALITATIVE STUDIES

In the study of Jackson (2011) a woman who was suffering pain as a result of unsuccessful back surgery, GIM played a role in helping her understand the meaning of an experience of chronic pain, changing her perception of pain so that she gradually stopped taking medication and even (by the end of the study) was just taking an antidepressant. The client made the link between the perception of physical pain and the emotional pain of the events and situations of her past, describing feelings of powerlessness, shame and punishment and understanding the influence of unresolved problems from the past on her current life.

Worth mentioning is a one-patient study carried out by Grocke (2003) detailing the transformation of a 43 year old woman with rheumatoid arthritis after long term treatment with GIM. Thanks to the treatment patient was able to relive painful events in her emotional life, find a link between the symbolism of her images and the manifestations of her disease and generate images in connection with her body and symptoms.

In research by Bjellånes (1998) physical responses to pain perception and emotional responses to music were studied when relaxation techniques were taught to 12 women with FM. The women received this treatment over 39 weeks divided into four periods. For 17 weeks they were trained in autogenic relaxation techniques. This was followed by 9 weeks of a combination of relaxation training and music. Afterwards, there was a 7-week intervention using the GIM methodology and finally, 6 weeks during which participants used these relaxation techniques with and without music in their daily lives but without the help of a therapist.

Merrit (1993) describes remission of ankylosing spondylitis (a progressive, paralysing disease) in a 44 year-old male. A reduction in chronic pain and stiffness was achieved with a GIM intervention of just 2 sessions that led to the release of repressed thoughts and the emotions underlying them together with the appearance of powerful archetypical figures during the sessions.

Logan (1998) and Burns (1999) have also described how GIM can reduce feelings of pain and improve mood in cancer patients (cited in Burns, 2002).

2.5.3. SUMMARY

GIM (and its group adaptation, GrpMI) is a method that in every session brings together several components influencing multiple dimensions of a person, including: training in relaxation techniques, cognitive and emotional stimulation through music, linking to and understanding the symbolic significance of image production and development of social inter-relational skills. All of this supported and influenced by the prominence of perception, meaning and relevance that each individual finds.

A review of the literature on quantitative and qualitative studies of people with chronic pain problems, musculo-skeletal diseases or cancer confirms the usefulness of this method and shows that GIM treatment can offer important positive changes in patient mood and quality of life as well as in other aspects such as anxiety, depression, anger or fatigue. However, there are no references in the literature to the application of the GIM or GrpMI method with FM patients.

Further research needs to be done on the usefulness of this therapy method with randomised control trials and larger samples and/or studies that show the differential efficacy of the different component parts of this method.

Table 4. Relevant quantitative studies using GIM treatment.

Authors (year)	**SAMPLE**	**VARIABLES**	**DESIGN**	**OUTCOMES MEASURES**	**RESULTS**
Bonny (1976)	24 Healthy adults / neurotic symptomatology		GIM or Brief intensive psychotherapy GIM indiv. (< 60 hours)	Nº of session, length of therapy; therapy goals met.	Not statistical analysis
McDonald (1990)	30 Adults with hypertension	Blood pressure	GIM or verbal therapy or NO therapy (RCT) GIM indiv. (6 sessions)	Mean systolic and diastolic blood pressure	Significant decline in systolic and mean diastolic blood pressure.
Wrangsjö & Körlin (1995)	14 Adults with moderate psychiatric disturbances	Psychiatric symptoms Quality of life	Pre-post-Follow up Repeated measures designs GIM indiv. (different number of sessions)	Hopkins SC-90, Inventory of interpersonal problems, Sense of Coherence Scale	Significant decrease in almost all measures of psychological distress, significant improvement of interpersonal relationships, increased sense of meaningfulness and coherence.
McKinney et al. (1995)	8 Healthy adults	Mood	Experimental pilot GIM or Wait list (RCT) GIM indiv. (6 sessions)	Profile of Mood States (POMS)	Decrease in depressed mood
McKinney et al. (1997)	28 Healthy adults	Mood Cortisol level	Pre-post-follow up GIM or control group (wait-list) (RCT) GIM indiv. (6 sessions)	Profile of Mood States (POMS) Cortisol level	GIM participants reported significant decreases between pre- and post-session depression, fatigue, and total mood disturbance and had significant decreases in cortisol level by follow-up. Pre-test to follow-up decrease in cortisol was significantly associated with decrease in mood disturbance

Maack & Nolan (1999)	25 Former GIM clients	Most Positive changes	GIM indiv. (different number of sessions)	Self-report-Questionnaire	Improvements in mood, level of growth, self-awareness and relaxation.
Burns (2001)	8 Female cancer survivors	Mood Quality of Life	Pre-post-follow up GIM or control (wait-list) (RCT) GIM indiv. (6 sessions)	Profile of Mood States (POMS) Quality of life scores (QoL)	Decrease in mood disturbances. Increase in QoL measures.
Jacobi & Einsenberg (2002)	27 Rheumatoid arthritis	Functional Articular indices Pain Psychological distress Depression	Pre-post-follow up Repeated measures designs GIM indiv. (10 sessions)	Pain (MPQ) Psychological distress (SC-90-R) Depression (CES-D) Walking speed, Morning stiffness	Decrease in psychological distress and pain. Increase in walking speed
Körlin & Wrangsjö (2002)	30 Healthy adults & psychiatric patients	Psychiatric symptoms Quality of life	Pre–post–Follow-up Repeated measures designs GIM indiv. (different number of sessions)	Hopkins SC-90 Quality of life scores (QoL)	Decrease in psychiatric Symptoms. Increased SOC (Meaningfulness and Manageability).
Moe (2002)	9 Schizotypal patients	Mood Global functioning	Pre-post-Follow up GIM indiv. (21 sessions)		Increased mood. Improved GAF (8 of 9)
McKinney & Clark (2003)	10 Cancer survivors	Mood Quality of life Endocrine markers	Pre-post-Follow up GIM indiv. (6 sessions)	Profile of Mood States (POMS) Quality of life scores (QoL) Endocrine markers	Decreased mood disturbance. Increased wellbeing. Decreased intrusive thoughts. Not sustained at F-U. No change in endocrine markers.
Bonde (2005)	6 Female breast cancer survivors	Anxiety Depression	Pre-post-Follow up Repeated measures designs GIM indiv. (10 sessions)	Anxiety (HADS) Depression Sense of Coherence	Anxiety decreased significantly pre-post-therapy.

McKinney et al., (2011)	10 Female breast cancer survivors		Entry-mid point-post-Follow up GIM indiv. (6 sessions)	Quality of life Depression Fatigue Scores Event Scales Scores Endocrine levels	Decreased mood and increase in quality of life
Maack (2012)	112 woman with PTSD		Cohort study GIM indiv. or PITT	Self-Report Inventory for Disorder of Extreme Stress (SIDES-SR), Dissociative Experiences Scale (DES-T) Somatoform Dissociation Questionnaire (SDQ-5), Inventory of Interpersonal Problems for Personality Disorders (IIP-PD25) Sense of Coherence Scale	Results showed significant differences in all scores when either of the treatment conditions was compared to the control group.
Beck (2012)	20 (Disability from work stress)	Mood Sleep Quality Anxiety Wellbeing Physical symptoms	Crossover design GIM indiv. (6 sessions)	Profile of moods States (POMS-SF) Generalized Anxiety Disorder-7 WHO Mayor Depression Inventory WHO-5 Wellbeing Index Perceived Stress Scale (PSS) Sleep diary	Significant effects of GIM compared to standard care were found after nine weeks in the psychological variables Mood, Sleep Quality, Anxiety, Well-being and Physical Symptoms with effect sizes ranging from 0.73 to 1.37.

Table 5. Relevant qualitative studies using GIM treatment.

AUTHORS (YEAR)	SAMPLE	DESIGNS / TREATMENT	RESULTS
Pickett (1987)	2 Fibroid tumours	Case Study BMGIM	Coming to terms with life and death.
Merrit (1993)	1 Ankylosing spondylitis	Case study BMGIM/ individual	Release of memories and emotions. Bodily equilibrium and healing.
Bjellånes (1998)	12 Females with FM	Quasi-experimental Adapted GIM	Improved consciousness of health and quality of life.
Jacobi & Einsenberg (2002)	27 Rheumatoid arthritis	Clinical out-come Pre-post-follow up BMGIM (10 sessions)	Decrease in psychological distress and pain. Improvements in physical measures.
Grocke (2003)	1 Rheumatoid arthritis	Case study BMGIM/individual (100+)	Release of memories and expression of emotions. Freedom of symptoms.
Jackson (2011)	1 Chronic pain back	Case Study BMGIM/individual	BMGIM could play a role in making meaning of the experience of chronic pain, and assisting in shifting the perception of pain to allow use of fewer pharmaceuticals.

CHAPTER 3. OBJECTIVES AND HYPOTHESES

Set out below is the general objective, followed by the specific objectives of this study and the hypotheses formulated from them.

3.1. OBJECTIVES

The principal objective of this study is to evaluate the effectiveness of GrpMI treatment on women with fibromyalgia (FM). The more specific study objectives are the following:

1. To examine the demographic and clinical profile of the sample of women suffering from FM who took part in this research and the extent to which their symptoms are comorbid with other illnesses.
2. To analyse the association between the different study variables.
3. To assess the effectiveness of GrpMI on the one hand, by comparing subjects receiving treatment with a control group of similar characteristics who do not receive treatment (intergroup analysis), and on the other hand, by taking into consideration the development of participant according to each of the study variables (intragroup analysis).
4. To check whether therapeutic results remain three months after the end of treatment.

3.2. HYPOTHESES

Based on the literature review presented in the previous chapter, the general hypothesis of this study is that GrpMI will significantly improve participant's subjective perception of their psychological wellbeing, whereas impact of FM on functional capacity and health, pain perception, anxiety and depression will decrease significantly, as well as their experience, expression and control of anger.

9 hypotheses are formulated in relation to the specific objectives. One refers to the first objective (hypothesis 1) another to the second objective (hypothesis 2), 6 to the third objective (hypotheses 3-8) and a final hypothesis relates to the fourth objective (hypothesis 9).

Hypothesis 1: The women in the sample will show higher levels of impact of FM on functional capacity and health, pain, anxiety, depressive symptoms, and anger than the general population, whereas the subjective psychological wellbeing of the sample will be lower than amongst women who do not suffer FM.

Hypothesis 2: A significant positive correlation will be found between the impact of FM on functional capacity and health, pain perception and the different indicators of psychological distress evaluated (anxiety, depression and anger), whereas the relationship between all these variables and the indicators of subjective psychological wellbeing will be negative.

Hypothesis 3: GrpMI will significantly increase the subjective psychological wellbeing of the women receiving treatment.

Hypothesis 4: After treatment, there will be a significant reduction of the impact FM has on functional capacity and health of the women receiving treatment.

Hypothesis 5: As a result of treatment, women taking part in the study will experience a significant decrease in pain perception as expressed in current pain intensity.

Hypothesis 6: After treatment, state and trait anxiety will be significantly reduced in the group receiving treatment.

Hypothesis 7: After treatment, the affective component of state and trait depression will be significantly reduced in those women receiving treatment.

Hypothesis 8: After treatment, women will see a significant decrease in their experience, expression and control of anger.

Hypothesis 9: The effects of GrpMI therapy on people with FM will remain three months after the end of treatment.

CHAPTER 4. METHOD

This chapter describes the method used in this study to assess the effectiveness of GrpMI treatment in women with FM. The research design used in the study consisted of pretest-posttest and follow-up measurement with treatment and control groups, comprising a sample of 70 women with FM.

The first section explains the design and procedure used in the research study. The second section describes the participants and sample selection. The third section describes the tools used for measurement and the fourth section describes the application, aims and structure of the treatment. The fifth section presents the data analysis process used explaining the characteristics of the process. Finally, there is a reference to how ethical aspects are dealt with.

4.1. STUDY DESIGN

The research design used in the study consisted of repeated pretest-posttest and 3-month follow-up measurements of treatment and control groups (see Figure 11).

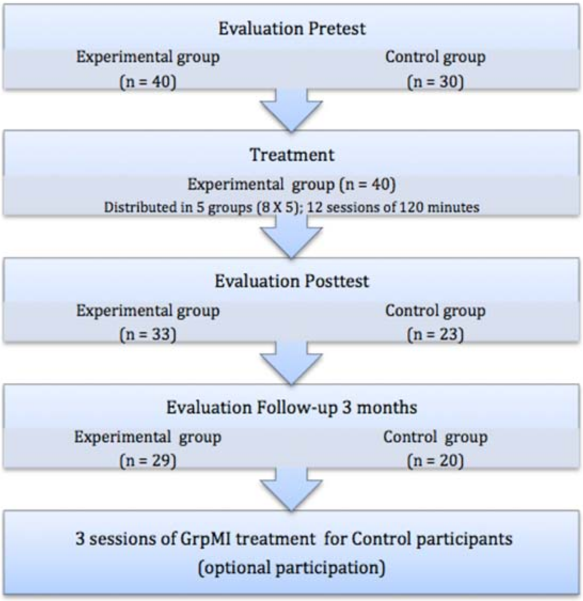


Figure 11**.** Design and procedure used in the research study.

Six measurement tools were used during the pretest procedure to measure the dependent variables that, according to the hypotheses, would benefit from the treatment. Also an *ad hoc* questionnaire was designed to determine a number of different demographic variables on FM comorbidity and medication. The researcher applied all measurement tools.

During 2012 and 2013, participants subsequently received continued and systematic group treatment in 12 sessions of GrpMI, as shown in Figure 12. The researcher, who is a GIM therapist with the necessary credentials to use this therapy method, also performed the treatment. The therapeutic treatment was performed once a week with 8 subjects in each group. The sessions took place at the premises of the associations (Pamplona, Bilbao and Valladolid).

Figure 12. Participating associations and dates of GrpMI treatment (2012-2013).

Notes: AFINA: Asociación de Fibromialgia de Navarra; AVAFAS: Asociación Vasca de Fibromialgia y Fatiga Crónica; AFICRO: Asociación de enfermos de Fibromialgia y Fatiga Crónica de Valladolid y provincia.

4.2. PARTICIPANTS

The study sample consisted of 70 women aged between 35 and 65 diagnosed with FM. Participants in the study were recruited from three Spanish FM associations: the Fibromyalgia Association of Navarra (AFINA), the Basque Association of Fibromyalgia and Chronic Fatigue (AVAFAS) and the Association of Fibromyalgia and Chronic Fatigue Patients of Valladolid and Province (AFICRO-VALL).

In order to estimate a sample size, a power analysis was performed with the statistical package G*Power 3.1.3. An *a priori* analysis was carried out (using ANCOVA with one covariate and two groups), in which alpha level was set to 0.05.

If a medium effect were assumed (*f* = 0.25), the total sample size to achieve the recommended minimum power of 0.80 (Cohen, 1988) would be 128, whereas if a large effect was assumed (*f* = 0.40) 52 participants would be sufficient to achieve the same power.

Of the 70 women participants, 40 were allocated to the experiment group and 30 to the control group.

4.2.1. INCLUSION AND EXCLUSION CRITERIA

To be included in the sample, the subjects were required: a) to be women aged between 35 and 65, with a diagnosis of FM from a consultant using ACR criteria (1990); b) to volunteer to participate in the study, filling out the Informed Consent Form and c) not to have been diagnosed with serious dementia, schizophrenia, paranoia, major depression or mental disability (according to DSM IV criteria in effect at the time of the study).

4.2.2. SAMPLE SELECTION PROCEDURE

The following procedure was used to create the sample:

1. Contact was made with several FM associations.
2. The secretary (or equivalent in the association) prepared a list of possible candidates, based on the established criteria. These people were entirely unknown to the researcher.
3. An information sheet was sent to each person on this list (see Appendix A) with the objectives and conditions of the study. Those expressing their curiosity, interest or motivation, could confirm their wish to participate by contacting the secretary. The secretary listed their names, ages and telephone numbers and sent the final list to the researcher. The researcher contacted each of them by phone to arrange a group appointment for an information session.
4. In the information session the candidates were informed of the study procedure and objectives and the proposed treatment model. Candidates wishing to commit to the trial signed a Participant Consent Form (see Appendix B).
5. The candidates were then given a new appointment to perform the pretest measurement and complete the questionnaire on demographic data, co-morbidity and medication.
6. Once the pretest measurement tools had been completed, the women were randomly assigned to one of the two groups (control/experiment). Simple randomisation was carried out for this purpose, using the SPSS21 statistics packet for Windows. Each subject was randomly allocated a number from

0 to 70. This procedure was conducted separately for each participating FM association.

7. Finally, participants were told by telephone of the two groups to which they had been assigned. A date and time for the first session was agreed with the members of the experimental group. Members of the control group were asked to attend a future posttest measurement session (to be held approximately 12 weeks after the treatment).

4.2.3. SAMPLE DESCRIPTION

Of the 70 participants, 29 came from AFINA (Pamplona), 24 from AVAFAS (Bilbao) and the remaining 17 from AFICRO-Vall (Valladolid). As Table 6 shows, 56 participants completed the pre-post test phase and 49 completed the entire process, including the 3-month follow-up phase. Of those who failed to complete the experiment, 10 were from the control group and 11 from the experimental group.

Table 6. Participants from the sample in experimental and control groups broken down by membership of the different Spanish associations.

Association/group	Randomization (*n* = 70)	Pre-post (*n*= 56)	Follow-up (*n* = 49)
Experimental	40	33	29
AFINA/1	8	8	7
AFINA/2	8	6	5
AVAFAS/3	8	6	4
AVAFAS/4	8	6	6
AFICRO/5	8	7	7
Control	30	23	20
AFINA	13	11	11
AVAFAS	8	5	3
AFICRO	9	7	6

$F(1,38) = 0.075, p > .0.5$

Notes: AFINA: Asociación de Fibromialgia de Navarra; AVAFAS: Asociación Vasca de Fibromialgia y Fatiga Crónica; AFICRO: Asociación de enfermos de Fibromialgia y Fatiga Crónica de Valladolid y provincia

It was decided to include all members of the experimental group in the analysis, even those who had not attended all sessions. The maximum number of sessions not attended by any participant was four. Seven women abandoned treatment, due to: a) scheduling problems; b) one women said she had already addressed the goals of this therapy in other previous sessions and c) one woman said the therapy caused adverse effects, making her feel more tired than before. The experimental group was therefore reduced to 33 individuals in the posttest phase. With regard to the follow-up assessment; four women did not complete the assessment tools.

From the control group, two individuals were excluded from the sample in the pretest phase because they had psychiatric disorders (schizophrenia combined with limited intellectual capacity and bipolar disorder, respectively). Five people did not complete the tools in the posttest assessment while three people did not complete them at the 3-month follow-up. The control group was therefore reduced to 20 individuals (see Figure 13).

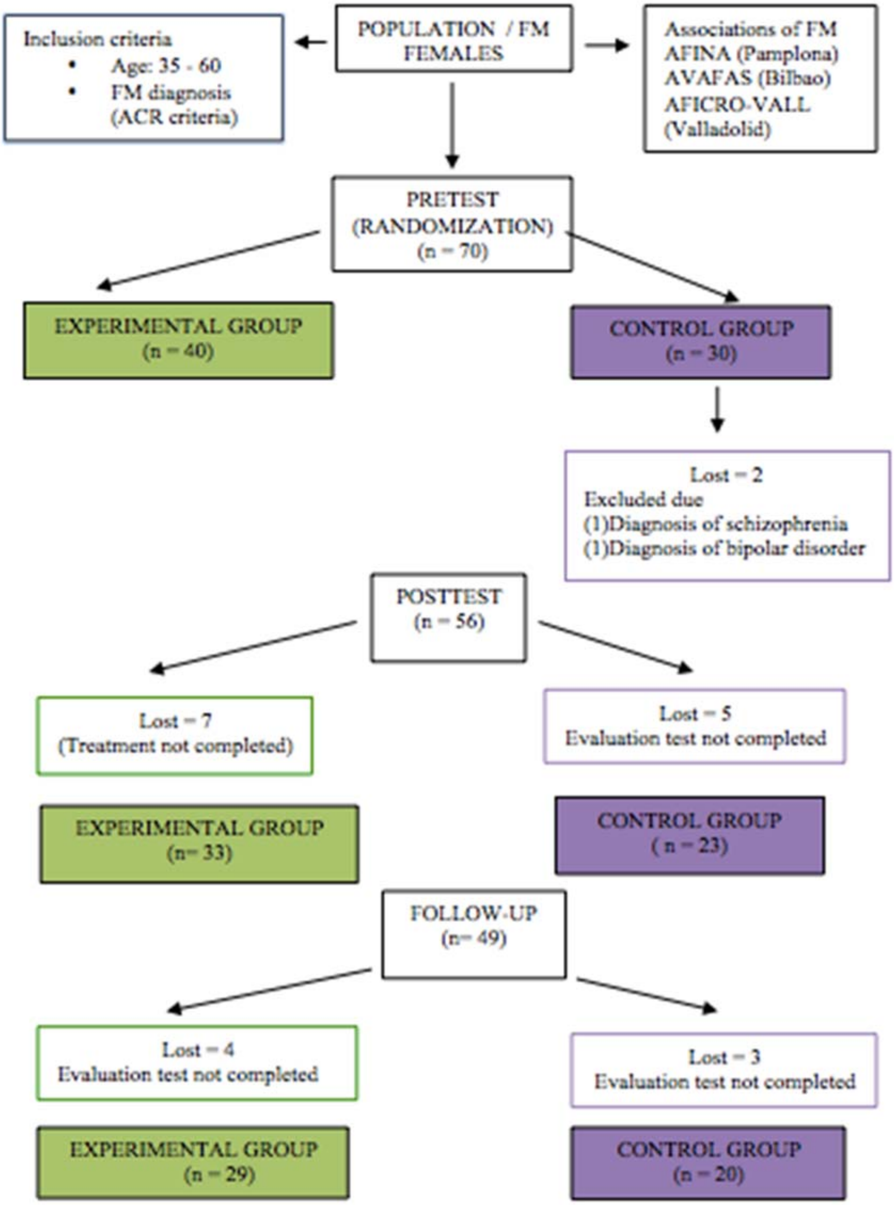


Figure 13. Flow chart of participation in the study.

4.3. MEASUREMENT

Six measurement tools with suitable psychometric guarantees were used to measure the dependent variables. In addition, a further two tools were used, one to collect demographic data on the sample and another specific tool for the GrpMI treatment, the *Individual Assessment Questionnaire*, which was completed only by women taking part in the treatment. The aim of the questionnaire was to evaluate patients' subjective perception of the treatment after completing it.

The tools used for the experimental measurement are described below.

4.3.1. QUESTIONNAIRE OF DEMOGRAPHIC DATA

Demographic information on the participants was collected using a questionnaire designed specifically for this study. The questionnaire covered: 1) general information on age, marital status, children, education attained and employment status, 2) information on diagnosis, time since diagnosis and any associated diagnoses and 3) medication being taken (Appendix C).

4.3.2. PSYCHOLOGICAL WELLBEING SCALE (PWS; SÁNCHEZ-CÁNOVAS, 1998/2007)

The PWS consists of 65 items intended to measure psychological wellbeing. The subject uses a scale from 1 to 5 to say to what extent s/he agrees with phrases such as "I am excited" o "I feel everything is going well for me". The higher the score, the higher the subjective perception of wellbeing. The PWS contains subscales on *subjective psychological wellbeing* (30 items), *material wellbeing* (10 items*),* *wellbeing at work* (10 items) and *wellbeing in relations with partner* (15 items). This study only used the first of these subscales (subjective psychological wellbeing (30 items)), which addresses happiness, i.e. a positive mood.

Internal consistency of the test is very high for subjective psychological wellbeing (*Cronbach's alpha = .95*). Criterion validity studies confirm similar correlations (r = .89) with the *Oxford Happiness Inventory.*

4.3.3. FIBROMYALGIA IMPACT QUESTIONNAIRE (FIQ; BURCKHARDT, CLARK & BENNETT, 1991)

The FIQ consists of 10 items. Its purpose is to measure the impact of FM on functional capacity and health, taking into consideration the physical and psychological variables most frequently affected. The first item, relating to the physical function, consists of 10 questions related to the subject's capacity to perform everyday activities (such as "doing the shopping" or "climbing the stairs").

These were measured using a Likert-type scale from 0 (always) to 3 (never) during the week prior to the measurement. Item 2 measures general wellbeing. The subject was asked how many days she had felt well over the last week. Item 3 measure the impact on work and the degree to which the pain and symptoms (of FM) interfere in the performance of everyday work. Specifically, subjects were asked how many days they were unable to perform their usual work (including housework) because of FM. Items 4 to 10 used a Likert-type scale from 0 to 10 to measure the subjective perception of different FM-related symptoms (perception of pain, fatigue, tiredness in the morning, rigidity/stiffness, anxiety and depression). The FIQ has a score range of 0 to 100; the higher the score the higher the FM impact. The following cut-off points are used: minor impact: FIQ - total ≤ 50; moderate impact: 50 < FIQ – total ≤ 70 and severe impact: FIQ – total > 70 (Casanueva, 2007).

Burckhardt et al. (1991) concluded that the original American version was adequately reliable and valid and could be used in both clinical practice and in FM research. This present research uses the updated harmonised Spanish adaptation, created with involvement of the research groups behind each of the four previous Spanish-language versions of the FIQ (Esteve-Vives, Rivera, Salvat, Gracia & Alegre, 2007). Although Esteve-Vives et al. (2007) cannot be considered a proper validation study, a criterion validity study of this Spanish adaptation of the FIQ showed a good correlation with semi-objective and subjective indices of FM severity – .57 and .76, respectively (p < .001). It is therefore considered that the proposed questionnaire may be of interest in measuring FM patients in Spain.

4.3.4. MCGILL PAIN QUESTIONNAIRE (MPQ; MELZACK, 1975)

The MPQ identifies sensory and sentimental components of pain and is used for measuring quantitative and qualitative pain-related aspects. The MPQ has been found to offer adequate psychometric guarantees (Melzack, 1975), and the preliminary analyses carried out with the Spanish adaptation indicate very similar reliability and validity results to the original (Lázaro, Bosch, Torrubia, & Baños, 1994).

We have used two scales from this tool. The first is the scale of *Present Pain Intensity* (PPI), where the measurement procedure uses a descriptive score on a scale with five possible response categories (“minor”, “moderate”, “strong”, “very strong”, and “unbearable”). The second is the *Visual Analogue Scale* (VAS) in which each participant is asked to score the intensity of the pain they are currently feeling on a Likert scale from 0 to 10 (where 0 indicates “no pain” and 10 the “worst pain imaginable”).

4.3.5. STATE-TRAIT ANXIETY INVENTORY (STAI; SPIELBERGER, GORSUCH & LUSHENE, 1970/1982)

The STAI is a self-reported assessment consisting of 20 items related to state anxiety (a transitory emotional state, characterised by subjective feelings, consciously perceived, of tension and apprehension, and by hyperactivity of the autonomic nervous system), and another 20 related to trait anxiety (stable anxious predisposition to perceive situations as threatening). Subjects score how they feel right now (state scale), and how they generally feel most of the time (trait scale); the answers are scored on a Likert scale from 0 to 3. For each scale, the score ranges from 0 to 60. The higher the score, the higher the manifestation of the aspect in question (state anxiety or trait anxiety). Psychopathological scores are not proposed, although some authors have proposed a percentile of > 75 (De Felipe García-Bardón, 2012).

The validation of the Spanish version, developed on the basis of work by Bermúdez (1978a, 1978b) suggests that the averages and reliability (Cronbach's alpha and test-retest correlation) are similar to the original, which ranges from .82 to .92. The concurrent validity in the original studies (relating STAI with other measures of anxiety) ranges from .52 to .80 in the case of female university students. A recent study (Guillén-Riquelme & Buela-Casal, 2011) shows that the Spanish adaptation of the STAI retains adequate levels of psychometric properties. Moreover, it has proved sensitive to an increase in stress-provoking stimuli in the environment.

4.3.6. STATE-TRAIT DEPRESSION QUESTIONNAIRE (ST/DEP; SPIELBERGER, BUELA-CASAL & AGUDELO, 2008)

The ST/DEP is a questionnaire consisting of 20 questions on a Likert scales (1 to 4). The aim of this is to identify the degree of impact (state) and frequency (trait) of the emotional component of depression. Each scale contains 5 items for assessing dysthymia or negative impact, and another 5 for measuring euthymia or positive impact (these items have an inverse score). In the state scale, subjects are asked to circle the option that is closest to how they feel at this time (answers indicate intensity: "not at all", "somewhat", "quite a bit" or "a lot"). For the trait scale, they are presented with the same statements, but asked to circle the option that comes closest to how they generally feel most of the time (in this case the answers reflect frequency: "hardly ever", "sometimes", "often" or "nearly always"). The scores range from 10 to 40 for each scale. The higher the score, the higher the level of state/trait depression. Scores above the 75th percentile indicate the existence of depression (Buela-Casal & Agudelo, 2008).

In terms of psychometric guarantees, the internal consistency figures obtained by the authors with a sample of university students, adolescents, general populace and a clinical sample gave alpha coefficient values of between .83 and .87 for the state scale and between .79 and .84 for the trait scale. Convergent validity was tested with the Basic Depression Questionnaire (*Cuestionario Básico de Depresión* or CBD, Peñate Castro, 2001), giving a correlation of .64 for state depression and .64 for trait depression.

4.3.7. STATE-TRAIT ANGER EXPRESSION INVENTORY (STAXI-2; SPIELBERGER, 1999/2006)

The STAXI-2 is used to measure the experience, expression and control of anger. It can be used to obtain an *anger expression inventory* (AEI) showing the general frequency with which the subject expresses anger either internally or externally. It consists of 49 questions on Likert scales (from 0 to 3) divided into three separate sections: state anger, trait anger and expression-control. The *state anger* section contains three sub-scales (feeling, verbal expression and physical expression) and includes feelings or actions such as “I am furious”, “I feel like breaking things”, etc., reflecting how the subject feels at that moment. The *trait anger* section contains two sub-scales (temperament and reaction) and includes items such “I have an irritable character”, “I get angry very easily”, etc. Subjects have to answer how they normally feel. The third section, consisting of two sub-scales, expression and control, lists feelings subjects might have or actions they might do when they get angry. These 24 items are used to obtain four scales: *internal expression, external expression, internal control and external control.* The higher the score, the higher the degree of state anger, trait anger or anger expression. Individuals scoring above the 75th percentile are likely to experience and/or express angry feelings that interfere with optimal functioning (Spielberger, 1988, 1999).

The authors of the Spanish adaptation report a test-retest correlation of .71 and a *Cronbach’s alpha* coefficient of .89 for the state anger scale, .82 for the trait anger scale, and .69 for the anger expression inventory. Validation studies have shown construct validity. Correlations between trait anger and the hostility index in the Buss-Durkee Inventory were .66 for female university students and .73 for female army recruits.

Table 7. Measurement tools used in this study.

Measurement tool	Variables	Items	Reliability and validity
DQ /CID. Demographic Questionnaire (Torres, 2010)	Demographic data, co-morbidity and medication	-	-
PWS. Psychological Wellbeing Scale (Sánchez-Cánovas, 1998/2007))	Subjective psychological wellbeing	30 items self-reports (scale from 1 to 5)	Reliability: *Cronbach`s alpha* = 0.95 Validity: correlation $r = .89$ with *Oxford Happiness Inventory* (Argyle, Martin & Crossman, 1989)
FIQ. Fibromyalgia Impact Questionnaire (Burckhardt, Clark & Bennett, 1991; Spanish adaptation by Esteve-Vives, Rivera, Salvat, Gracia, & Alegre, 2007)	Functional capacity and current health status - Physical functioning scale - Work status - Health perception for pain, sleep, fatigue, stiffness, anxiety and depression.	10 items self-reports (Likert scale from 0 to 3) (no. of days in the week) (Likert scale from 0 to 10)	Reliability: *Cronbach`s alpha* = 0.82 for all items and 0.86 for 9 sub items of physical function. Validity : correlation semi-objectives index $r_S = .57$; $p < .001$ correlation subjective index $r_S = 76$: $p < .001$ (Esteve-Vives et al, 2007)
MPQ. McGill Pain Questionnaire (Melzak, 1975; Spanish adaptation by Lázaro, Bosch, Torrubia, & Baños, 1994)	Variation in present pain intensity - Present Pain Intensity (PPI) - Visual analogue scale (VAS) adaptation	2 items self-reports (scale with 5 ranges) (Likert scale from 0 to 10)	Reliability: *Cronbach`s alpha* = 0.84
STAI. State Trait Anxiety Inventory (Spielberger, Gorsuch & Lushene, 1970; Spanish version of TEA, 1982)	Anxiety state-trait - Anxiety state (S) - Anxiety trait (T)	40 items self-reports 20 items (Likert scale, from 0 to 3) 20 items (Likert scale (from 0 to 3)	Reliability: *Cronbach`s alpha* 0.92 - 0.93 ( by STAI-state) *Cronbach`s alpha* 0.84 - 0.87 (by STAI-trait) Validity: *Cronbach`s alpha 0.52 - 0.87* (Bermúdez, 1978a, 1978b)

ST/DEP. State Trait Depression Questionnaire (Spielberger, 2002 ; Spanish versión of Buela-Casal & Agudelo, 2008)	Depression state and trait - Depression state - Depression trait	20 items self-reports 10 items (Likert scale (from 1 to 4) 10 items (Likert scale (from 1 to 4)	Reliability: *Cronbach`s alpha* 0.83 - 0.87 (by S/DEP-state) *Cronbach`s alpha* 0.79 - 0.84 (by T/DEP-trait) Validity: correlation *r* =. 64 (by S/DEP) and *r* = .64 (by T/DEP) with *Cuestionario Básico de Depresión* (CBD) (Peñate Castro, 2001)
STAXI-2. State Trait Anger Expression Inventory (Spielberger, 1999; Spanish version of Miguel-Tobal, Casado, Cano-Vindel, & Spielberger, 2006)	Experience, expression and control of anger - Anger state - Anger trait - Anger expression index	49 items self-reports 15 items (Likert scale from 1 to 4) 10 items (Likert scale from 1 to 4) 24 (Likert scale from 1 to 4)	Reliability: *Test-retest = .71;* *Cronbach`s alpha* = 0.89 (by Anger-State) *Cronbach`s alpha* = 0.82 (by Anger-Trait) *Cronbach`s alpha* = 0.69 (by AEI) Validity: correlation *r* = .66 (university women) and *r* = .73 (army women) between anger-trait and hostility index of *Buss – Durkee Hostility Inventory (BDHI)* (Miguel-Tobal et al., 2001)
ITEQ/CIVT. Individual Treatment Evaluation Questionnaire (Torres, 2010)	Satisfaction with experience and perception of change - Changes in most frequent symptoms - Changes in everyday life Satisfaction with treatment and its components		-

4.3.8. INDIVIDUAL TREATMENT EVALUATION QUESTIONNAIRE

The posttest phase used the same instruments as in the pretest phase. In addition, participants in the experimental group completed an *ad hoc* treatment evaluation questionnaire, based on other questionnaires used in GIM (Bruscia, 2000; Meadows, 2000; Moe et al., 2000) (Appendix D). The purpose of the questionnaire was to ascertain the opinions and subjective perceptions of change of participants in the experimental group, and how useful they felt the GrpMI treatment had been for them.

It included questions about their perception of change in their self-perception with regard to: 1) the most frequent FM-related symptoms (pain, fatigue, sleep, concentration and mood), and 2) changes in everyday life (at work, in relations with their partners, children, in their social lives and in their perception of themselves or self-worth, and whether they felt that these changes were related to the GrpMI treatment. In these sections, subjects were asked for *yes* or *no* answers*,* and then they were given the option of making a short comment or of qualifying their answer. In other sections, the women were asked to give their opinions on 3) the usefulness of the treatment, 4) the different phases of the sessions and their relevance to the treatment process: significant images (their own or those of other participants) music and subjects, 5) group relations and 6) relations with the therapist. Finally, 7) they were asked for their suggestions and proposed changes, and 8) whether they would like to have the option of continuing with the treatment, as a further measure of their satisfaction with the treatment.

4.4. INTERVENTION

The treatment used in this experimental study consisted of 12 weekly sessions of GrpMI, each two hours in long. Each group consisted of 8 individuals.

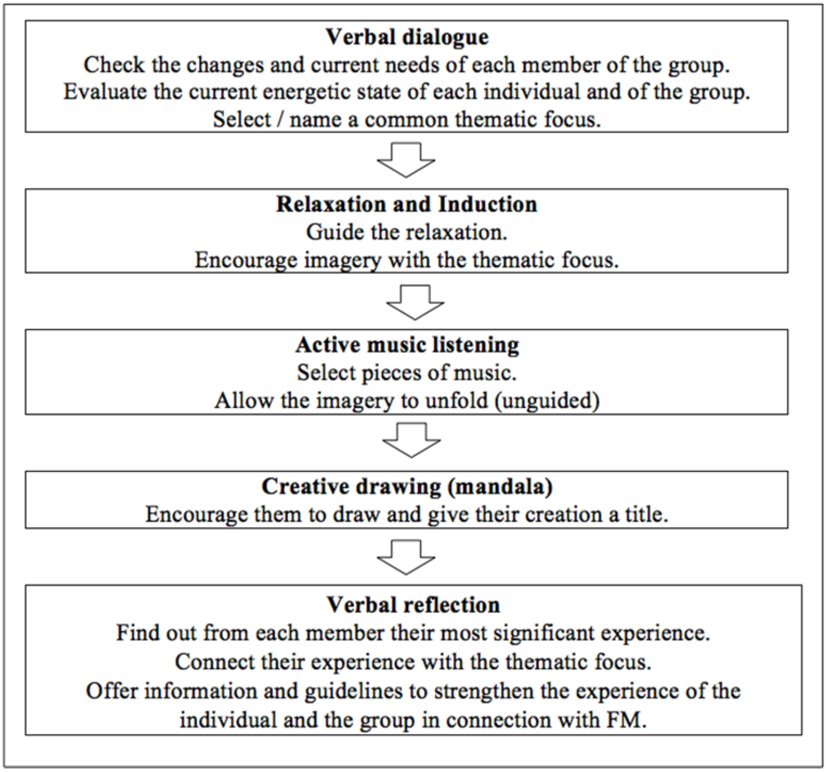
The sessions took place in a specially prepared room (with soundproofing, warmth, comfort and spaciousness). There were two separate areas in the room: one with chairs for the verbal sections of the session and another for the musical listening and image section with mattresses where the women could lie down. Subjects were offered a choice between sitting or lying down during the music-listening, depending on their individual movement restrictions and/or limitations due to pain. A CD player, sheets of A4 paper and crayons (for drawing the mandala) were also provided.

GrpMI treatment requires and works with an open attitude for verbal participation and acceptance of the images that arise spontaneously during the musical listening, as well as subsequent recounting of the experience. The experience with imageries can include physical sensations, emotions, memories and/or thoughts. These may be associated with the given theme of the session or with other matters. In the subsequent conversation, patients are encouraged to consider and interpret these images and relate them to their own everyday life. All members participate actively at all phases of the session.

The structure of each of the sessions (see Figure 14) follows the sequence proposed by Grocke & Wigram (2007; 2008). This consists of:

1. *Dialogue between therapist and participants,* during which each participant remembers significant aspects of the previous session and significant changes since then and suggests a theme to be addressed in the session. After this verbal introduction, the therapist agrees on a common theme to be shared by the group. The therapist also asks how each participant is feeling in terms of pain, tension and/or emotional state/mood. Taking these answers into consideration, the therapist selects music to facilitate an experience with self-generating images.
2. *Relaxation and induction*, guided by the therapist. The relaxation is adapted to the participants' stated needs. Among other methods it may use relaxation focusing on breathing or progressive muscle relaxation or colour or light sensations enveloping the body. After this relaxation, participants are invited to listen to music, while considering the theme of the session. Participants are expected to allow images and/or sensations to emerge with the help of the music, experiencing them fully without trying to change or retain any of them.
3. *Active listening to a selection of music* adapted from programmes used in individual GIM therapy (Bonde, 2010; Bruscia & Grocke, 2002). As shown in Table 8 the duration of the musical selection ranged from 6.36 minutes to 18.30 minutes. In some selections, subjects listened to a single piece and in others up to three separate pieces consecutively. As mentioned above, in this form of treatment, there is no dialogue either with the therapist or among participants during the musical listening. Nonetheless, the therapist observes the participants and can provide help if required.
4. *Creative drawing (mandala*); after the musical listening has ended, participants are invited to draw a creative picture graphically and symbolically expressing what they consider to be most important or significant about the session, using circles as references on a piece of blank paper and crayons. Once the drawing is finished, individuals are asked to give their mandala a title, consisting of a single word or short phrase.
5. *Dialogue between participants and the therapist* addressing their experience with the music, the images and how they were expressed in the drawing (mandala) and discussing the most significant aspects of this experience. They also discuss how it relates to the goal of the session and/or with each participant's everyday life. The therapist may intervene

on occasions with guidance and summaries that will help internalise perceptions and strengthen positive internal skills and strengths.



Verbal dialogue
Check the changes and current needs of each member of the group.
Evaluate the current energetic state of each individual and of the group.
Select / name a common thematic focus.

Relaxation and Induction
Guide the relaxation.
Encourage imagery with the thematic focus.

Active music listening
Select pieces of music.
Allow the imagery to unfold (unguided)

Creative drawing (mandala)
Encourage them to draw and give their creation a title.

Verbal reflection
Find out from each member their most significant experience.
Connect their experience with the thematic focus.
Offer information and guidelines to strengthen the experience of the individual and the group in connection with FM.

Figure 14. Structure of the GrpMI sessions and function of the therapist.

Adapted from Wärja & Bonde (2014). Music as Co-Therapist: Towards a Taxonomy of Music in Therapeutic Music and Imagery Work. *Music and Medicine*, *6*(2), 16-27.

Table 8. Table of musical selections used in GrpMI treatment.

Session	Pieces used in each of the five GrpMI treatment groups
1º	• **(2)** Beethoven: *Piano Concerto* nº 5 (adagio); (6:36) • Secret Garden: *Song from secret garden & Serenade to spring;* (6:51) • Kobialka: *The water is wide;* (6:09) • Haydn: *Cello concerto in C Major (adagio*); (9.45)
2º	• Kostia & Arkenstone: *The cello`s song &* Morricone*: Gabriel's Oboe;* (10:49) • **(3)** Haydn: *Cello concert in C (adagio);* (9:45) • Secret Garden: *Sigma Chaconne, Song from secret garden & Serenade to spring;* (13:30)
3º	• **(3)** Secret Garden: *Sigma Chaconne, Song from secret garden & Serenade to spring;* (13:30*)* • **(2)** Debussy: *Dances sacred and profane*; (10:30)
4º	• Kobialka: *The water is wide & Will mountain theme* (11:49) • **(2)** Elgar: *Enigma Variations (8 and 9)* & Schumann: *Fünf Stücke*; (10:22) • Debussy: *Prelude to the afternoon of a faun* & Vaughan -Williams: *Fantasia on Greensleeves;* (15:00) • Dvorak: *Serenade in E (larghetto)*; & Warlock: *Capriol in suit, pieds en l´air;* (9:00)
5º	• Strauss: *Hero`s Journey* & Dvorak *Czech Suite, 4th movement;* (13:48) • Brahms: *Violin concert (adagio)* & Bach: *Concerto for 2 violins and strings (largo*); (16:29) • Bach: *Prelude in B minor* & Bach: *Air on G;* (10:01) • Bach: *Prelude in B minor,* Bach: *Chorale from the Easter Cantata* & Bach: *Air in G;* (arr. Stokowski); (14:33) • Bach: *Concerto for 2 violins and strings (largo);* (7:38)
6º	• Vaughan - Williams: *The lark ascending; (15:05)* • Dvorak: *Serenade in E (larghetto)* & Warlock: *Capriol in suit, pieds en l´air; (9:00)* • **(2)** Vaughan - Williams: *Rhosymedre, Prelude*; Belioz: *L´enfance du Christ* & Canteloube: *Songs of the Auvergne*; (18:31) • Brahms: *4th symphony (andante moderato);* (12:40)
7º	• Kostia & Arkenstone: *The cello`s song;* (7:12) • Debussy: *Prelude to afternoon of faun* & Vaughan – Williams: *Fantasia on Greensleeves;* (15:00) • Beethoven: *Piano Concerto nº 5(adagio) &* Vivald*i: Gloria et in terra pax;* (12:22) • Mahler: *5th symphony, adagietto* & Corelli: *Concerto Grosso nº8 in g minor (adagio);* (14:10) • Vaughan - Williams: *Rhosymedre, Prelude*; Belioz: *L´enfance du Christ* & Canteloube: *Songs of the Auvergne*; (18:31*)*

(n): number of groups for which the music was used.

8º	• Brahms: *4th symphony (andante moderato) ;(*12:40) • Lloyd Weber: *Alice,* Morricone: *Childhood* & Kobialka: *Awakenings Bach* (11:26) • Elgar: *Serenade for strings (larghetto),* Walton: *Touch her soft lips* & Massenet: *Sous les tilleuls* (12:50) • Brahms: *Violin concert (adagio)* & Bach: *Concert for 2 violins and strings (largo)* (16:29) • Chopin: *Piano Concerto nº1 in E major, Romance (larghetto)* & Mozart: *Vesperae solennes de confessore (laudate dominum) (*14:26)
9º	• Orff: *Carmina Burana Excerpts;* (10:00) • Beethoven: *9th symphony (adagio molto)*; (16:03) • Nusrat Fateh Ali Khan: *III movement, Hope (The prayer cycle)* & Zimmer: *New we are free (Gladiator);* (10:52) • Brahms: *4th symphony (andante moderato);* (12:40) • Bach: *Prelude in Eb* & Dvorak: *Czech Suite, romance;* (10:01)
10º	• Brahms: *Violin concert (adagio)* & Bach: *Concerto for 2 violins and strings (largo);* (16:29) • Bach: *Prelude in B minor,* Bach: *Chorale from the Easter Cantata* & Bach: *Air in G;* (arr. Stokowski); (14:33) • Strauss: *Hero`s Journey* & Dvorak: *Czech Suite, 4th movement;* (13:48) • Vivaldi: *Trio in C (larghetto),* Vivaldi: *Guitar Concert in D* & Boccherini: *Cello Concert nº 7 in G (adagio);* (16:03) • Mahler: *Symphony 5, in C minor, Adagietto* & Corelli: *Adagio, Concerto grosso;* (14:18)
11º	• Beethoven: *9th symphony (adagio molto*); (16:02) • Brahms: *Violin concert (adagio)* & Bach: *Concerto for 2 violins and strings (largo);* (16:29) • Brahms: *4th symphony (andante moderato);* (12:40) • Elgar: *Enigma Variations 8 and 9*; Barber: *Adagio for Strings* & Schumann: *Fünf Stücke;* (18:01) • Elgar: *Dream children, nº 1 G; andante* & Fauré: *Pavana op. 50;* (10:09)
12º	• **(3)** Wagner: *Lohengrin (prelude to Act I); (*9:50) • Elgar: *Enigma Variations (8 and 9)* & Schumann: *Fünf Stücke;* (10:28) • Bach: *Prelude in Eb* & Dvorak: *Czech Suite, romance;* (10:01)

(n): number of groups for which the music was used.

Treatment objectives

The treatment uses the condition of listening to classical music in a state of relaxation to provoke images and feelings that enable subjects to experience wellbeing, self-knowledge and creativity. The aims of the sessions were: 1) to increase the subjects' ability to relax, and increase their bodily awareness; 2) to improve pain management and acceptance of the illness; 3) to increase expression of their feelings (pain, depression, anxiety and anger), understanding of their personal significance and relationship with symptoms; 4) to increase the ability to look after and be responsible for themselves and 5) to facilitate, increase and improve interpersonal relationships.

Monitoring of the process

Throughout the process, the GrpMI treatment was continually monitored and evaluated using observational techniques. The purpose was to consider and adapt the process and the attention to each individual member of the group and the group dynamic as a whole. This made it possible to observe any progress or regression in the group, encourage dialogue and integration of the different themes that arose in the sessions and to identify specific targets for individual and collective work at the different stages.

The following techniques were used for recording the process: 1) a session log, describing the musical selections, the most significant forms of behaviour observed, the focus of the individual themes and the common focus, the themes expressed verbally at the beginning and end of each session and the conclusions arising from each session; 2) an archive of creative drawings/mandalas and their titles; and 3) a record of level of pain and tiredness before and after the session, with each participant being asked to score their perception of present pain and tiredness on a scale of 0 to 10 (where 0 is “no pain” and 10 “the worst pain possible”).

4.5. DATA ANALYSIS

4.5.1. STATISTICAL ANALYSES

Statistical analyses of this study were made using the SPSS 21 statistics program for Windows.

Firstly, the basic assumptions required for using parametric tests were verified (normality, homogeneity of variance and independence). The Kolmogorov-Smirnoff test showed that the assumption of normality was not met in the following variables: *pain intensity index*, *D* (56) = 0,230, *p* = .000, *pain intensity on visual analogue scale*, *D* (56) = 0,180, *p* = .000*, state anger, D* (56) = 0,241, *p = .000 and trait anger, D* (56) = 0,167, *p* = .000. As a result, in analysing these variables the corresponding non-parametric tests were used.

Different types of analyses were performed with the data obtained by the participants in the pretest, posttest and follow-up measurements, as described below:

1. Descriptive analyses (mean scores and standard deviations in quantitative variables, and frequencies/percentages in qualitative variables).

2. In addition, the following analyses were used to characterise the sample (demographic variables, FM-associated diagnoses, medication) and verify the homogeneity of the experimental and control groups in these variables and the study variables: a) for qualitative variables, the chi-square test and Fisher’s exact test; and b) for quantitative variables, Student’s t test –for normally distributed variables–, and the Mann-Whitney U test (with its z values) for variables that did not meet the assumption of normality. Bonferroni correction was used when pair-wise comparisons were performed. In all cases it was decided to use the *r* to estimate effect size, as being more recommendable in the case of non-parametric tests (Field, 2013).
3. Spearman's Correlation Coefficients were calculated to explore the relations between the variables used for the experimental assessment.
4. To compare the experimental and control groups in the different study variables (intergroup comparison) at posttest and at the 3-month follow-up, covariance analyses (ANCOVA) were used for variables that met the assumption of normality, and a non-parametric analysis of covariance (Quade's test) for all others. In all cases the pretest score for each test was used as a covariable to minimise the effect of pre-treatment differences.
5. To analyse intragroup differences the t-test was used for related samples in the case of variables that met the assumption of normality. For all others the Wilcoxon signed-rank test for related samples was used (the non-parametric equivalent).
6. Finally, the Reliable Change Index (RCI) was used for determining clinically significant changes in each of the participants in the study, in order to overcome the limitations of statistical significance in the clinical area by virtue of being based on group averages. Clinical significance refers to the importance of the change in the patient occurring as the result of psychotherapeutic treatment. Jacobson and Truax (1991) propose RCI as a procedure for determining clinically significant changes that provide an additional means of analysis to comparisons of group averages. The RCI for each individual is calculated based on pre-treatment scores (Xpre), post-treatment scores (Xpost) and standard error between the differences in the two scores (Sdiff), so that:

$$\mathrm{RCI} = \frac{\mathrm{Xpost} - \mathrm{Xpre}}{\mathrm{Sdiff}}$$

   The cut-off points are established in 4 categories: recovered (>1.96), improved (1 - 1.96), unchanged (0.1 – 1) and deteriorated (< 0). When a person has a score of over 1.96 it is reasonable to assume that they have recovered (Ogles, Lumen and Bonesteel, 2001).

   The term *recovered* is used because it is faithful to the original terminology. It does not suggest that the patient is considered to have definitively recovered from this chronic illness (FM), but refers to an absence of the symptom during that period of time.

4.5.2. MISSING VALUES

The following process was used to deal with missing values in the statistical analyses:

- *Participant 14.* Posttest material PWS and all follow-up analysis were missing. The missing value was replaced using the average posttest score for this variable in the experimental group, and the individual was included only in the pre-post analyses.
- *Participant 35.*STAI, ST/DEP and STAXI in posttest were missing. The missing values were replaced using the control group's posttest average, and the individual was included in all analyses.
- *Participants 20 and 24* missed the follow-up, and were therefore included only in the pre-post analyses.
- Finally, *Participant 37* missed the entire pretest measurement and was therefore excluded from the analyses.

4.6. ETHICAL ASPECTS

This research was passed by the Ethical Committee of the School of Humanities of the University of Aalborg, (Denmark) (Human Research Ethics Boards), as shown in Appendix E.

CHAPTER 5. RESULTS

The results of this research study are presented in six sections. The first section offers a detailed description of participants' demographic characteristics, comorbidity (diagnoses associated with FM) and medication. The second section analyses the pretest scores obtained in the different study variables by the subjects. The aim of these two sections is twofold: a) to characterise the sample in as much detail as possible, and b) to ensure the homogeneity of the experimental and control conditions with regard to these variables. The third section sets out the results of the correlational analyses showing the relations between the different study variables. The fourth sections presents the results of the comparative analysis of the two groups (intergroup analyses) and the intragroup comparison for the different assessments (pretest, posttest and follow-up). The fifth section shows the results for clinical change in each individual subject. The sixth and last section describes the results of the assessment questionnaire, showing the change perceived by participants receiving GrpMI treatment.

5.1. DEMOGRAPHIC CHARACTERISTICS, COMORBIDITY AND MEDICATION OF PARTICIPANTS

As Table 9 shows, the mean age of the women taking part in the study was 51.34. On average 10.6 years had elapsed since they were diagnosed as having FM.

As can be seen in Figure 15, 48.2% of participants had completed their education up to secondary level, 42% to primary level and only 8.7% had completed tertiary education. As for their working status, Figure 16 shows that 23.6% of those sampled had had a disability or a *not fit for work* certificate, 21.8% were working outside the home and the same proportion were unemployed. Only 12.7% of participants described themselves as unremunerated housewives. With regard to marital status (see Figure 17), 69.6% were married, 14.3% single, 10.7% separated or divorced and 4.3% widowed. 85.5% of the participants have a child (*M* = 1.72, *SD* = 0.74, *range 1* - 4). There was no difference in the number of children between the experimental group (*M* = 1.68, *SD* = 0.67) and the control group (*M* = 1.79, *SD* = 0.86), *t* (45) = -0.50, *p* = .621. Similarly, there were no statistically significant differences in the other variables between the two groups assessed.

However, there were differences, albeit not statistically significant, both in the level of education and in employment situation. The proportion of women with primary studies was bigger in the experimental group. Similarly, a larger percentage in the experimental group was unemployed or had a disability or *not fit for work* certificate.

Table 9. Demographic characteristics of the study sample.

	Experimental					Control					Total					
	N	%	*M*	*(SD)*	Range	*n*	%	*M*	*(SD)*	Range	*n*	%	***M***	*(SD)*	Range	*p*
Age	33		50.97	(8.26)	37-62	23		51.87	(6.02)	35-60	56		**51.34**	(7.37)	35-62	NS [a]
Diagnosis of FM in years	30		10.77	(7.26)	1-38	20		10.40	(5.75)	1-20	50		**10.62**	(6.64)	1-38	NS [a]
Marital status																
Married	21	63.6				18	78.3				39	69.6				NS[b]
Divorced	4	12.1				2	8.7				6	10.7				
Widowed	1	3.0				2	8.7				3	5.4				
Single	7	21.2				1	4.3				8	14.3				
Children																
Yes	5	15.2				3	13.6				8	14.5				NS [c]
No	28	84.8				19	86.4				47	85.5				
Education																
Elemental	17	51.5				7	30.4				24	42.9				NS[b]
High School	13	39.4				14	60.9				27	48.2				
University	3	9.1				2	8.7				5	8.9				
Labour status																
Active	6	18.2				6	27.3				12	21.8				NS[b]
Unemployed	8	24.2				4	18.2				12	21.8				
Pensioner	3	9.1				1	4.5				4	7.3				
On leave	4	12.1				3	13.6				7	12.7				
Permanent incapacity	9	27.3				4	18.2				13	23.6				
Housewife	3	9.1				4	18.2				7	12.7				

[a] *t*-test

[b] Chi-square

[c] Fisher´s exact test

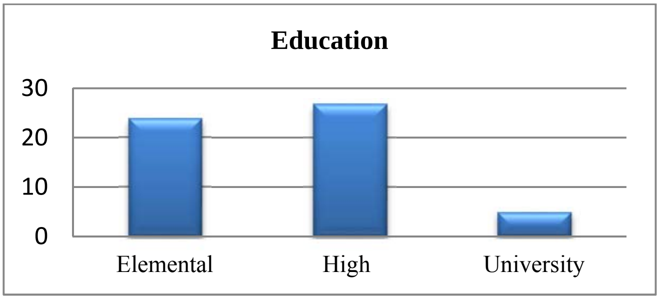


Figure 15. Educational attainment of total participants in the study (%).

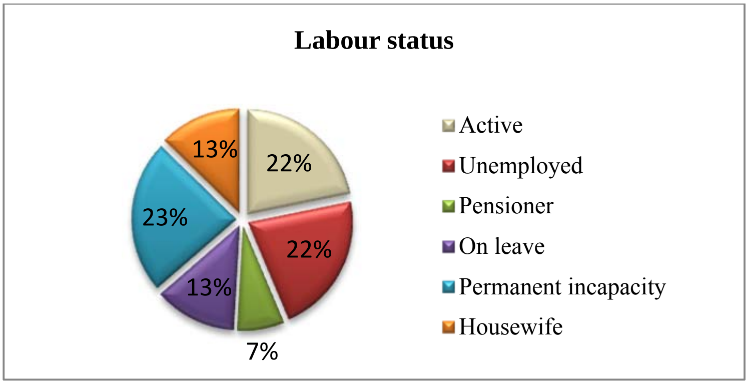


Figure 16. Labour status of total participants in the study (%).

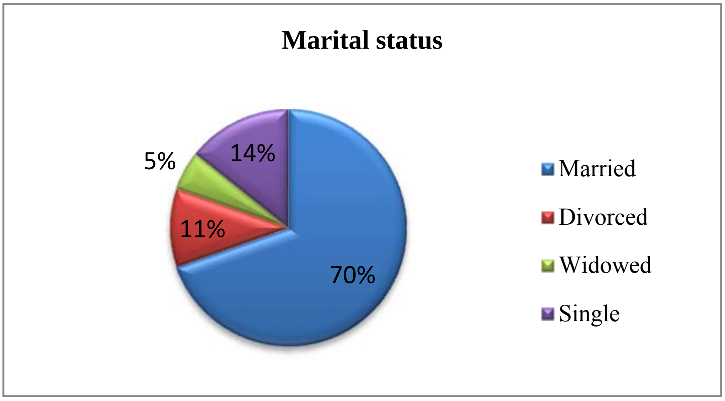


Figure 17. Marital status of total participants in the study (%).

5.1.1. PARTICIPANT COMORBIDITY

As Table 10 shows, 79.6% of participants have at least one FM-associated diagnosis. Here, there is a significant difference between the experimental group and the control group (93.8% and 59.1% respectively; p = .004). Based on the Relative Risk (RR), the probability of the participants in the experimental group having at least one FM-associated diagnosis is therefore 1.59 times bigger than those in the control group.

By categories, the most common diagnoses are osteo-articular disorders (53.7%), chronic fatigue syndrome (24.1%) and chronic dysthymia and depression (20.4%). The only significant difference between experimental and control groups by diagnostic category can be seen in the case of osteo-articular disorders, $\chi^2 = 4.49, p = .034, RR = 1.83$.

Table 10. Diagnostics associated with fibromyalgia in participants in the study.

	Experimental (n = 32)		Control (n = 22)		Total (n = 54)		
	n	%	*n*	%	*n*	%	*P*
Participants with other diagnoses	30	93.8	13	59.1	43	79.6	.004 [b]
Diagnostic categories							
Osteo-articular disorders	21	65.6	8	36.4	29	53.7	.034 [a]
Chronic fatigue syndrome	8	25.0	5	22.7	13	24.1	NS [a]
Chronic dysthymia and depression	9	28.1	2	9.1	11	20.4	NS [b]
Anxiety	4	12.9	2	9.1	6	11.3	NS [b]
Endocrine diseases	2	6.2	4	18.2	6	11.1	NS [b]
Cardiac disorders	3	9.4	0	0.0	3	5.6	NS [b]
Cancer	2	6.2	0	0.0	2	3.7	NS [b]
Irritable bowel syndrome	2	6.2	0	0.0	2	3.7	NS [b]
Myalgic encephalomyelitis	1	3.1	0	0	1	1.9	NS [b]

[a] Chi-square

[b] Fisher´s exact test

5.1.1.1 Multi-comorbidity or polypathology

At the same time, it is worth noting that 35.2% of participants have two or more FM-associated diagnoses (see Figure 18), with no significant differences between the experimental and control groups, $\chi^2 (1) = 2.53, p = .112$.

When there are two or more associated diagnoses, the most frequent case is that the same participant presents diagnoses of osteo-articular disorders and chronic dysthymia/depression (*42%* of participants with 2, 3 or 4 associated diagnoses).

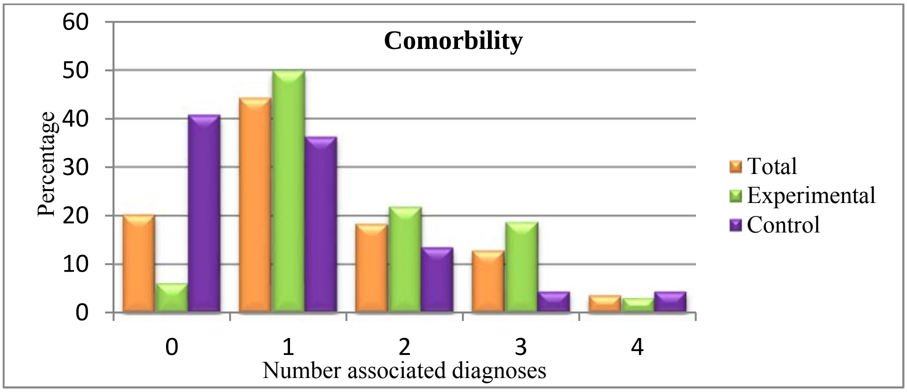


Figure 18. Percentage of participants in the study with FM-associated diagnoses.

5.1.2. MEDICATION USED BY PARTICIPANTS

As can be seen in Table 11, 92.5% of participants are on some form of medication. The most common are analgesics (57.7%) and anti-depressants (52.8%). No significant differences were found between the two groups in this regard.

Table 11. Medication used by participants in the study.

	Experimental (n = 31)		Control (n = 22)		Total (n = 53)		
	n	%	N	%	n	%	*p*
Participants on medication	29	93.5	20	90.9	49	92.5	NS [b]
Type of medication							
Analgesics	17	56.7	13	59.1	30	57.7	NS [a]
Anti-depressants	19	61.3	9	40.9	28	52.8	NS [a]
Anti-inflammatories	9	29.0	8	36.4	17	32.1	NS [a]
Anxiolytics	10	32.3	5	22.7	15	28.3	NS [a]
Neuropathic pain	8	25.8	4	18.2	12	22.6	NS [b]
Hypnotics	5	16.1	6	27.3	11	20.8	NS [b]
Muscle relaxant	4	12.9	2	9.1	6	11.3	NS [b]
Thyroid diseases	0	0.0	2	9.1	2	3.8	NS [b]
Local anaesthetics	1	3.2	0	0	1	1.9	NS [b]

[a] Chi-square

[b] Fisher ´s exact test

It is worth noting that 69.8% of participants are habitually using pharmaceuticals from two or more of the above categories (see Figure 19), with no significant difference in this regard between experimental and control groups, $\chi^2(1) = 0.68$, $p = .409$.

Among those taking two or more types of medication, the most common combination was analgesics and anti-depressants (34% of cases).

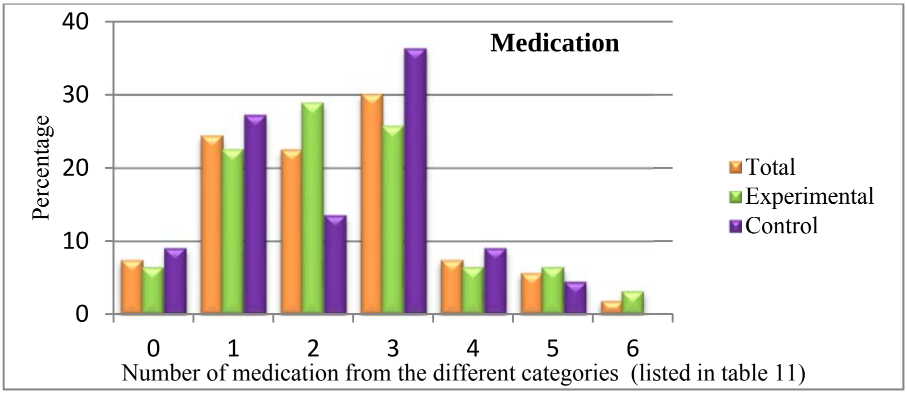


Figure 19. Percentage of participants from the different categories listed in table 12.

5.2. PARTICIPANT CHARACTERISTICS IN RELATION TO STUDY VARIABLES

Table 12 shows the pretest scores obtained by participants in the different study variables. Comparing the total scores with the percentiles for normative samples used for Spanish adaptation and typing of different instruments (reference tables for the general adult female population), one is struck by the low score in *subjective psychological wellbeing* (15th percentile) and the high scores in *state depression* (90th percentile) and *trait depression* (90th percentile) and *trait anxiety* (80th percentile).

Table 12. Participant pretest scores for study variables, comparison with reference tables, and differences between experimental and control groups.

		Total (n = 56)			**Experimental** (n = 33)		**Control** (n = 23)					
Variable	Scale Range	*M*	*SD*	Percentile	*M*	*SD*	*M*	*SD*	*t(54)*	*Z*	*p*	*r*
PWS	30-150	78.18	22.07	15	76.42	24.37	80.70	18.52	-0.71		NS	.10
FIQ	1-100	71.46	14.23	-	**74.79**	13.79	**66.70**	13.76	2.16		**.035**	**.28**
PPI	0-5	2.79	1.00	-	2.88	1.02	2.65	0.98		-0.79	NS	.11
VAS	0-10	6.54	2.02	-	6.79	1.93	6.17	2.13		-0.98	NS	.13
STAI-S	0-60	29.46	12.49	70	31.33	12.88	26.78	11.66	1.35		NS	.18
STAI-T	0-60	36.20	10.32	80	37.03	11.61	35.00	8.24	0.72		NS	.10
ST/DEP-S	10-40	25.66	7.76	90	26.73	8.58	24.13	6.28	1.31		NS	.18
ST/DEP-T	10-40	26.80	6.83	90	27.82	7.65	25.35	5.26	1.34		NS	.18
STAXI-S	15-60	22.82	11.10	60	25.18	12.78	19.43	7.10		-1.63	NS	.22
STAXI-T	10-40	22.09	6.35	65	23.06	7.15	20.70	4.79		-0.91	NS	.12
AEI	0-72	29.45	10.65	45	30.85	11.38	27.43	9.40	1.18		NS	.16

Shaded variables were not normally distributed, so for analysis non-parametric tests were used.

M = mean pre-test; *SD* = standard deviation *t* = Student's t-test; *z* = Mann-Whitney U-test Effect size *r* = .10 (small), *r* = .30, (medium) *r* = .50 (large);

Notes: PWS: Psychological Wellbeing Scale; FIQ: Fibromyalgia Impact Questionnaire; PPI: Present Pain Intensity; VAS: Visual Analogue Scale; STAI-S/T: State/Trait Anxiety; ST/DEP-S/T: State/Trait Depression; STAXI S/T: State/Trait Anger; AEI: Anger Expression Index.

The scores obtained by the experimental group in *impact of FM on functional capacity and health (M* = 74.79*)* indicate severe impact (> 70; in a range of 0 to 100). However, the control group had a lower mean (*M* = 66.70), in a moderate level, (FIQ between 50 < 70, in a range of 0 to 100). 100), showing significant differences for this variable between the experimental and control groups, *t (54)* = 2.16*, p* = .035, albeit the effect size is small *(r* =.28).

A comparison between the scores for the sample used in this study (see Table 13), and the population reference tables used for adaptation (50 women and 4 men, with an average age of 44.2, diagnosed with FM following the criteria of the ACR shows no significant differences.

Table 13. Comparison between scores of the sample and those of the reference population used for Spanish adaptation of questionnaire to assess overall FM impact (FIQ), present pain intensity (PPI), and pain intensity recorded on a visual analogue scale (VAS).

	Reference population			Total sample (*n* = 56)		
Variable	*N*	*M*	*SD*	*M*	*SD*	*r*
FIQ	54	70.50	11.80	71.46	14.23	.04
PPI	279	2.80	1.23	2.79	1.00	.00
VAS	279	5.32	2.54	6.54	2.02	**.24**

M = mean pre-test; *SD* = standard deviation

Effect size *r* = .10 (small), *r* = .30, (medium), *r* = .50 (large)

Notes: FIQ: Fibromyalgia Impact Questionnaire; PPI: Present Pain Intensity; VAS: Visual Analogue Scale

The scores for pain intensity show an above-average *perception of present pain*, at *M* = 6.54 on a scale of 0 to 10 on the visual analogue scale (VAS), and *M* = 2.79 in present pain intensity on a scale of 0 to 5. The Spanish adaptation of the MPQ does not have reference scales, but if it is compared to the reference group of 273 patients with chronic pain or acute pain, it can be seen (Table 13), that the average score obtained by the participants in this study is practically the same as that of the reference group for *present pain intensity* whereas for *pain intensity* measured on the *visual analogue scale* it is somewhat higher (*M* = 6.54) than the reference group (*M* = 5.32), albeit the effect size is small (*r* = .24).

5.3. CORRELATIONS BETWEEN DIFFERENT STUDY VARIABLES

This section discusses the correlational analyses performed to highlight any relation between the different variables assessed in the pretest phase. The results of Spearman's correlation analyses conducted with the variables used for the experimental assessment are shown in Table 14.

The psychological wellbeing variable shows significant negative relations with impact of FM on functional capacity and health, and with the different variables indicating psychological distress such as pain (present pain intensity and pain intensity measured on a visual analogue scale*);* anxiety (state and trait), depression (state and trait), and experience, expression and control of anger. In the case of the correlation between subjective wellbeing and the anger expression index, the result is negative, though not significant.

There is a significant positive correlation between the impact of FM on functional capacity and health, perception of pain, and the different indicators of psychological distress (anxiety, depression and anger). Only the correlations between state of health and functional capacity with trait anger and the anger expression index were not significant. The same can be said of perceived pain, where the correlation is not significant with trait anger and the anger expression index.

Table 14. Spearman’s correlation coefficients between the different study variables

Variables	FIQ	PWS	STAI-S	STAI-T	ST/DEP-S	ST/DEP-T	PPI	VAS	STAXI-S	STAXI-T
PWS	**-.54*****									
STAI-S	**.54*****	**-.61*****								
STAI-T	**.62*****	**-.78*****	**.65*****							
ST/DEP-S	**.57*****	**-.77*****	**.68*****	**.78*****						
ST/DEP-T	**.54*****	**-.81*****	**.52*****	**.77*****	**.83*****					
PPI	**.61*****	**-.49*****	**.53*****	**.55*****	**.64*****	**.53*****				
VAS	**.59*****	**-.55*****	**.46*****	**.55*****	**.71*****	**.61*****	**.84*****			
STAXI-S	**.29***	**-.54*****	**.63*****	**.53*****	**.70*****	**.46*****	**.50*****	**.45*****		
STAXI-T	.20	-**.28***	**.31***	**.40****	**.42*****	**.32***	.19	.24	**.30***	
AEI	.22	-.26	**.32***	**.32***	**.28***	.13	.15	.21	**.30***	**.61*****

Notes: PWS: Psychological Wellbeing Scale; FIQ: Fibromyalgia Impact Questionnaire; PPI: Present Pain Intensity; VAS: Visual Analogue Scale; STAI-S/T: State/Trait Anxiety; ST/DEP-S/T: State/Trait Depression; STAXI S/T: State/Trait Anger; AEI: Anger Expression Index.

* $p < .05$ ** $p < .01$ *** $p < .001$

5.4. EFFECTIVENESS OF TREATMENT

5.4.1. INTERGROUP ANALYSIS RESULTS

As discussed above, in order to compare the different study variables in the experimental and control groups (intergroup comparison) in posttest and in the 3-month follow-up, analyses of covariance (ANCOVAs) have been used in the case of variables that fulfil the assumption of normality, and a non-parametric analysis of covariance (Quade's test) in the others. In all cases the corresponding pretest score was used as a covariable to minimise the effect of pre-treatment differences.

The results of the analyses (see Table 15) show that, following treatment, the members of the experiment group experienced improvements in *subjective psychological wellbeing*, with scores that were significantly higher than those of the control group, F (1.53) = 6.89, p = .011*,* who experienced deterioration; the effect size was medium (r = .34). Whereas in the experimental group an improvement was observed following treatment, the members of the control deteriorated in comparison to their initial situation.

At the same time, the experimental subjects’ scores for *state anxiety* were significantly lower than those of the control group, F (1.53) = 4.71, p = .035, with a small-medium effect size (r = .29). The state anxiety of the experimental group decreased following treatment, while the anxiety of the control group increased.

It is also worth noting the tendentially significant differences observed between the two conditions for a number of variables (with a small effect size in all cases). The experimental participants recorded tendentially lower scores than those of the control group in *impact of FM on functional capacity and health,* F (1.53) = 3.69, p = .060, *trait anxiety*, F (1.53) = 3.83, p =.056 and *present pain intensity*, F (1.54) = 4.00, p = .051.

Finally, the score for *state anger* was tendentially higher than that of the control group, F (1.54) = 3.76*,* p = .058, although it is important to note that whereas the experimental group experienced a decrease in state anger after treatment, the control subjects remained unchanged from the pretest situation.

Table 15. Mean and standard deviations scores in experimental and control subjects at pretest and posttest, and results of the analyses of covariance in posttest, taking the pretest scores as a covariable.

	Pretest				Posttest							
	Experimental (n = 33)		Control (n = 23)		Experimental (n = 33)		Control (n = 23)		Ancova Posttest	Quade Test[a]		
Variables	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F* (1, 53)	*F* (1, 54)	*p*	*r*
PWS	76.42	24.37	80.70	18.52	**83.67**	22.96	**76.13**	21.40	6.89*		.011	.34
FIQ	74.79	13.79	66.70	13.76	**63.58**	17.97	**65.96**	16.86	3.69+		.060	.25
PPI	2.88	1.02	2.65	0.98	**2.27**	1.15	**2.61**	0.83		4.00+	.051	.27
VAS	6.79	1.93	6.17	2.13	5.33	2.91	5.83	2.23		2,58	NS	.22
STAI-S	31.33	12.88	26.78	11.66	**22.70**	13.24	**27.91**	13.21	4.71*		.035	.29
STAI-T	37.03	11.61	35.00	8.24	**29.39**	10.57	**32.26**	9.34	3.83+		.056	.26
ST/DEP-S	26.73	8.58	24.13	6.28	22.97	7.69	24.17	6.62	2.67		NS	.22
ST/DEP-T	27.82	7.65	25.35	5.26	23.64	7.93	23.00	6.37	0.87		NS	.13
STAXI-S	25.18	12.78	19.43	7.10	**20.15**	9.36	**19.43**	6.22		3.76+	.058	.26
STAXI-T	23.06	7.15	20.70	4.79	20.33	6.83	19.39	4.55		0.04	NS	.03
AEI	30.85	11.38	27.43	9.40	31.09	9.00	26.65	9.70	1.82		NS	.18

a. Non-parametric analysis of covariance + $p < .10$ * $p < .05$ Effect size $r = .10$ (small) $r = .30$ (medium) $r = .50$ (large) *M* = mean pretest; *SD* = standard deviation.

Notes: SPW: Psychological Wellbeing Scale; FIQ: Fibromyalgia Impact Questionnaire; PPI: Present Pain Intensity; VAS: Visual Analogue Scale; STAI-S/T: State/Trait Anxiety; ST/DEP-S/T: State/Trait Depression; STAXI S/T: State/Trait Anger; AEI: Anger Expression Index.

With regard to the differences between groups at the 3-month follow-up (see Table 16), the results of the analysis of covariance show significant differences between experimental and control subjects only in *state anger,* *F* (1.47) = 5.65, *p* = .022, with a medium effect size (*r* = .35). Although members of the experimental group had a slightly higher state of anger in the follow-up assessment (*M* = 20.76) than the control group (*M* = 20.05), this level was below the one recorded in the pretest assessment, whereas in the control group, state anger increased between pretest and follow-up.

Table 16. Mean and standard deviations in experimental and control subjects in pretest and follow-up, and results of analyses of covariance in follow-up, taking pretest scores as a covariable.

	Pretest				Follow-up							
	Experimental ($n = 29$)		Control ($n = 20$)		Experimental ($n = 29$)		Control ($n = 20$)		Ancova Follow-up.	Quade Test[a]		
Variables	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F* (1,46)	*F* (1,47)	*p*	*r*
PWS	75.83	23.17	80.70	16.09	79.48	24.81	79.40	18.32	0.83		NS	.13
FIQ	73.28	13.90	67.95	13.65	64.10	17.70	67.70	17.16	1.93		NS	.20
PPI	2.86	1.06	2.65	0.99	2.52	1.06	2.40	1.05		0.00	NS	.00
VAS	6.83	1.98	6.30	2.20	5.76	2.97	5.70	2.25		0.04	NS	.03
STAI-S	30.03	12.28	25.40	10.13	26.86	13.36	29.60	12.39	2.02		NS	.20
STAI-T	36.90	10.81	35.00	7.76	32.45	11.83	32.05	10.77	0.10		NS	.04
ST/DEP-S	26.83	8.38	23.65	6.37	24.59	8.10	24.55	5.66	1.26		NS	.16
ST/DEP-T	28.07	7.66	25.20	5.29	25.00	7.93	25.05	6.42	2.59		NS	.23
STAXI-S	25.83	13.32	18.45	6.73	**20.76**	7.03	**20.05**	4.57		5.65*	.022	.35
STAXI-T	23.14	6.87	20.10	4.59	21.00	9.84	20.80	7.03		1.84	NS	.20
AEI	31.07	11.51	27.25	9.80	31.34	10.05	27.40	9.57	0.81		NS	.13

a. non parametric analysis of covariance + $p < .10$ * $p < .05$ Effect size $r = .10$ (small) $r = .30$ (medium) $r = .50$ (large)

Notes: PWS: Psychological Wellbeing Scale ; FIQ: Fibromyalgia Impact Questionnaire; PPI: Present Pain Intensity; VAS: Visual Analogue Scale; STAI S-T: State /Trait Anxiety Inventory; ST/DEP S-T: State /Trait Depression Inventory; STAXI-2 S-T: State /Trait Anger Expression Inventory; AEI: Anger Expression Index

5.4.1.1 Intergroup trends in the different study variables.

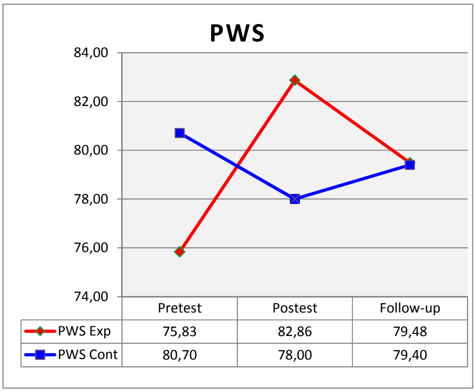


Figure 20. Trends in experimental group and control group in subjective perception of psychological wellbeing.

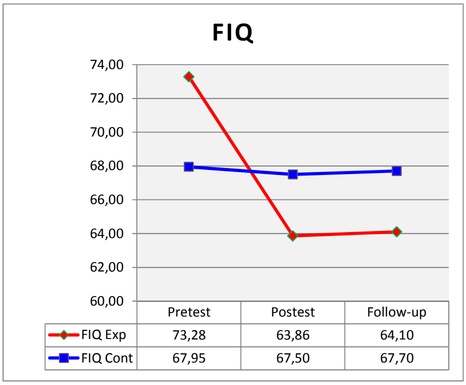
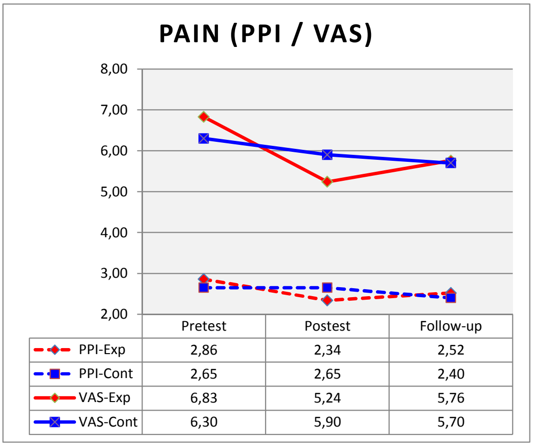
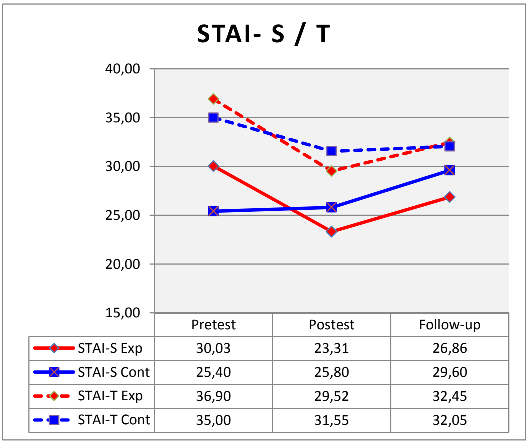


Figure 21. Trends in experimental group and control group in impact of FM on functional capacity and health.



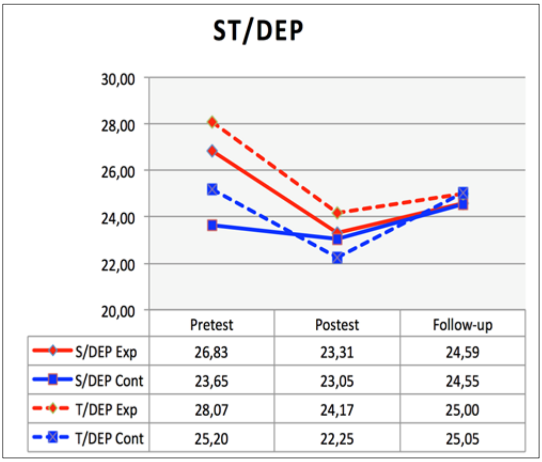
	Pretest	Postest	Follow-up
PPI-Exp	2,86	2,34	2,52
PPI-Cont	2,65	2,65	2,40
VAS-Exp	6,83	5,24	5,76
VAS-Cont	6,30	5,90	5,70

Figure 22. Trends in experimental group and control group in intensity of perceived pain in present situation.



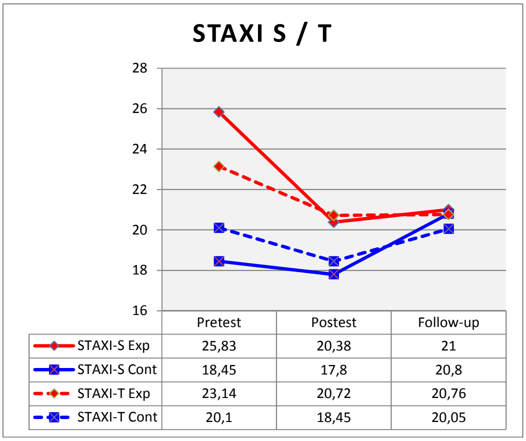
	Pretest	Postest	Follow-up
STAI-S Exp	30,03	23,31	26,86
STAI-S Cont	25,40	25,80	29,60
STAI-T Exp	36,90	29,52	32,45
STAI-T Cont	35,00	31,55	32,05

Figure 23. Trends in experimental group and control group in state anxiety and trait anxiety.



	Pretest	Postest	Follow-up
S/DEP Exp	26,83	23,31	24,59
S/DEP Cont	23,65	23,05	24,55
T/DEP Exp	28,07	24,17	25,00
T/DEP Cont	25,20	22,25	25,05

Figure 24. Trends in experimental group and control group in state depression and trait depression.



	Pretest	Postest	Follow-up
STAXI-S Exp	25,83	20,38	21
STAXI-S Cont	18,45	17,8	20,8
STAXI-T Exp	23,14	20,72	20,76
STAXI-T Cont	20,1	18,45	20,05

Figure 25. Trends in experimental group and control group in state anger and trait anger.

5.4.2. INTRAGROUP ANALYSIS RESULTS

5.4.2.1 Trends in experimental group.

As Table 17 shows, there was a statistically significant increase in *subjective psychological wellbeing* following treatment (pre-post*) t (28*) = 2.14, *p* = .041, and an equally significant reduction in *impact of FM on functional capacity and health, t(28)* = -2.80, *p* = .009, *state anxiety*, *t (28)* = -2.50, *p* = .018, *trait anxiety*, *t (28*) = -3.83, *p* = .001, *state depression*, *t (28*) = -2.48, *p* = .020, *trait depression*, *t (28*) = -3.61, *p* = .001, *present pain intensity*, *z* = 2.30, *p* = .021, *pain intensity on visual analogue scale, z* = 3.45, *p* = .001, *state anger*, *z* = 2.37, *p* = .018, and *trait anger*, *z* = 2.20, *p* = .028. In all cases, the effect size is medium-large.

In the 3-month follow-up assessment (post-follow up) the results remain unchanged, with a significant increase only in *state anxiety*, *t (28)* = 2.22, *p* = .035, and *trait anxiety*, *t (28)* = 2.17, *p* = .039, with a medium effect size in both cases.

Between the pretest and follow-up, there are significant differences in *impact of FM on functional capacity and health t (28)* = -2.71, *p* = .011, *trait anxiety, t (28)* = -2.15, *p* = .041, *trait depression*, *t (28)* = -3.07, *p* = .005, *present pain intensity*, *z* = 2.00, *p* = .045, *pain intensity on visual analogue scale, z* = 2.61, *p* = .009*, state anger*, *z* = 2.14, *p* = .032, and *trait anger*, *z* = 2.00, *p* = .045. In all cases there are significant reductions in the scores for these variables, with a medium-large effect size.

Table 17. Trends in experimental group for study variables.

	Experimental Group (n = 29)																				
	Pretest		Posttest		Follow-up		Differences Pre-Post					Differences Post-Follow-up					Differences Pre-Follow-up				
Variables	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*t* (28)	*z*	*p*	*r*	*M*	*t* (28)	*z*	*p*	*r*	*M*	*t* (28)	*z*	*p*	*r*
PWS	75.83	23.17	82.86	23.40	79.48	24.81	**7.03**	2.14		.041	.37	-3.38	-1.95		NS	.35	3.66	1.11		NS	.20
FIQ	73.28	13.90	63.86	19.03	64.10	17.70	**-9.41**	-2.80		.009	.47	0.24	0.10		NS	.02	**-9.17**	-2.71		.011	.46
PPI	2.86	1.06	2.34	1.20	2.52	1.06	**-0.52**		2.30	.021	.43	0.17		-0.85	NS	-.16	**-0.35**		2.00	.045	.37
VAS	6.83	1.98	5.24	2.97	5.76	2.97	**-1.59**		3.45	.001	.64	0.52		-1.15	NS	-.21	**-1.07**		2.61	.009	.48
STAI-S	30.03	12.28	23.31	13.87	26.86	13.36	**-6.72**	-2.50		.018	.43	**3.55**	2.22		.035	.39	-3.17	-1.15		NS	.21
STAI-T	36.90	10.81	29.52	10.89	32.45	11.83	**-7.38**	-3.83		.001	.59	**2.93**	2.17		.039	.38	**-4.45**	-2.15		.041	.38
ST/DEP-S	26.83	8.38	23.31	8.01	24.59	8.10	**-3.52**	-2.48		.020	.42	1.28	1.02		NS	.19	-2.24	-1.56		NS	.28
ST/DEP-T	28.07	7.66	24.17	8.10	25.00	7.93	**-3.90**	-3.61		.001	.56	0.83	0.86		NS	.16	**-3.07**	-3.07		.005	.50
STAXI-S	25.83	13.32	20.38	9.77	21.00	9.84	**-5.44**		2.37	.018	.44	0.62		-0.08	NS	-.01	**-4.83**		2.14	.032	.40
STAXI-T	23.14	6.87	20.72	7.01	20.76	7.03	**-2.41**		2.20	.028	.41	0.03		0.23	NS	.04	**-2.38**		2.00	.045	.37
AEI	31.07	11.51	30.38	8.86	31.34	10.05	-0.69	-0.33		NS	.06	0.97	0.45		NS	.08	0.28	0.13		NS	.02

M: mean; SD: Standard Deviation; *t*: paired samples *t*-test; *z*: Wilcoxon signed rank test;

Effect size *r* = .10 (small) *r* =.30 (medium) *r* = .50 (large)

Notes: PWS: Psychological Wellbeing Scale; FIQ = Fibromyalgia Impact Questionnaire; PPI = Present Pain Intensity; VAS = Visual Analogue Scale; STAI-S/T = State/Trait Anxiety; ST/DEP-S/T = State/Trait Depression; STAXI S/T = State/Trait Anger; STAXI-AEI = Anger Expression Index.

Trends in experimental group for study variables.

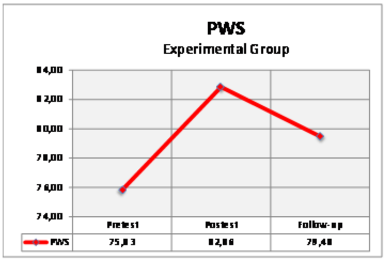


Figure 26. Trends in experimental group for perception of subjective psychological wellbeing.

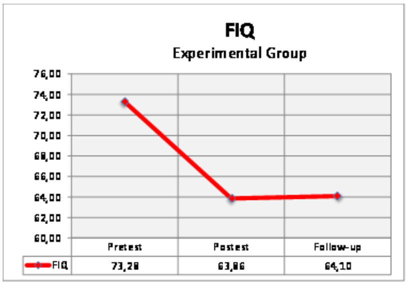


Figure 27. Trends in experimental group for impact of FM on functional capacity and health.

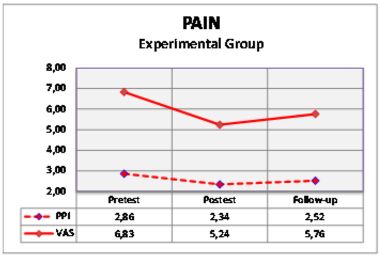


Figure 28. Trends in experimental group for perceived present pain intensity.

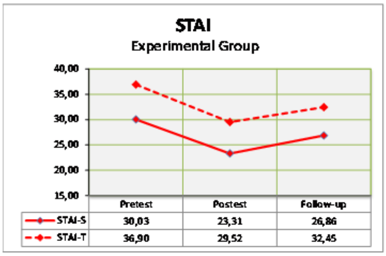


Figure 29. Trends in experimental group for state anxiety and trait anxiety.

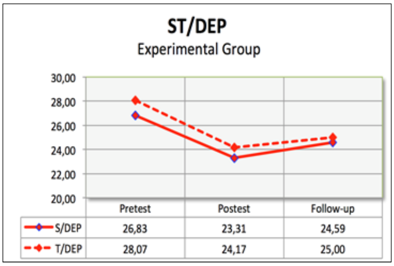


Figure 30. Trends in experimental group for state depression and trait depression.

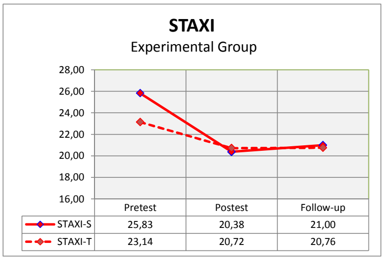


Figure 31. Trends in experimental group for state anger and trait anger.

5.4.2.2 Trends in control group.

Table 18 shows the scores obtained by the control group in the pretest, posttest and 3-month follow-up assessments. Between the pretest and posttest scores, there is a significant reduction only in the scores for *trait anxiety*, t (19) = -3.07, p = .006, and *trait depression*, t (19) = -2.82, p = .011, with a large effect size in both cases.

Between the posttest and the follow-up assessment, the score for *trait depression* rises significantly, t (19) = 3.10, p = .006, to practically the same level as in the pretest assessment. *State anger* also rises significantly, z = -2.63, p = .009, with even higher scores than those observed in the pretest assessment (in both cases the effect size is large). Indeed, when one compares the results obtained in the pretest and follow-up assessments no significant changes are observed, except for *state anger*, where there is a statistically significant increase, z = -2.14, p = .003, r = -.48.

In general terms, these results show that the mere passage of time does not have any effect, other than a significant increase in *state anger*.

Table 18. Trends in control group for study variables.

	Control Group (n = 20)																				
	Pretest		Posttest		Follow-up		Differences Pre-Post					Differences Post-Follow-up					Differences Pre-Follow-up				
Variables	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*t* (19)	*z*	*p*	*r*	*M*	t (19)	*z*	*p*	*r*	*M*	*t* (19)	*z*	*p*	*r*
PWS	80.70	16.09	78.00	20.74	79.40	18.32	-2.70	-0.92		NS	.21	1.40	0.40		NS	.09	-1.30	-0.52		NS	.12
FIQ	67.95	13.65	67.50	16.60	67.70	17.16	-0.45	-0.19		NS	.04	0.20	0.09		NS	.02	-0.25	-0.08		NS	.02
PPI	2.65	0.99	2.65	0.88	2.40	1.05	0.00		-0.07	NS	-.02	-0.25		1.39	NS	.31	-0.25		1.25	NS	.28
VAS	6.30	2.20	5.90	2.29	5.70	2.25	-0.40		0.67	NS	.15	-0.20		0.99	NS	.22	-0.60		1.21	NS	.27
STAI-S	25.40	10.13	25.80	12.36	29.60	12.39	0.40	0.19		NS	.04	3.80	1.84		NS	.39	4.20	1.85		NS	.39
STAI-T	35.00	7.76	31.55	9.54	32.05	10.77	**-3.45**	-3.07		.006	.58	0.50	0.31		NS	.07	-2.95	-1.66		NS	.36
ST/DEP-S	23.65	6.37	23.05	6.08	24.55	5.66	-0.60	-0.58		NS	.13	1.50	1.98		NS	.41	0.90	1.18		NS	.26
ST/DEP-T	25.20	5.29	22.25	6.34	25.05	6.42	**-2.95**	-2.82		.011	.54	**2.80**	3.10		.006	.58	-0.15	-0.15		NS	.03
STAXI-S	18.45	6.73	17.80	3.22	20.80	7.03	-0.65		-0.35	NS	-.08	**3.00**		-2.63	.009	-.59	**2.35**		-2.14	.003	-.48
STAXI-T	20.10	4.59	18.45	3.69	20.05	4.57	-1.65		1.61	NS	.36	1.60		-1.60	NS	-.36	-0.05		0.22	NS	.05
AEI	27.25	9.80	24.75	8.32	27.40	9.57	-2.50	-1.37		NS	.30	2.65	1.51		NS	.33	0.15	0.07		NS	.02

t: paired samples t-test; *z*: Wilcoxon signed rank test; Effect size *r* = .10 (small) *r* = .30 (medium) *r* = .50 (large)

M: Mean; *SD*: Standard Deviation;

Notes: PWS: Psychological Wellbeing Scale; FIQ: Fibromyalgia Impact Questionnaire; PPI: Present Pain Intensity; VAS: Visual Analogue Scale; STAI-S/T: State/Trait Anxiety; ST/DEP-S/T: State/Trait Depression; STAXI S/T: State/Trait Anger; STAXI-AEI: Anger Expression Index

Trends in control group for the different study variables.

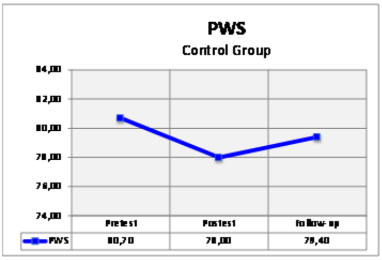


Figure 32. Trends in control group for perception of subjective psychological wellbeing

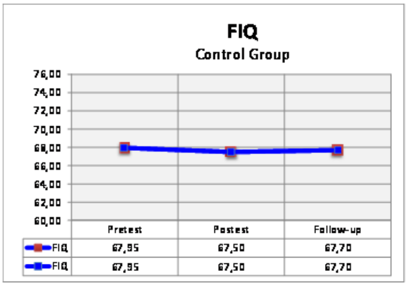


Figure 33. Trends in control group for impact of FM on functional capacity and health.

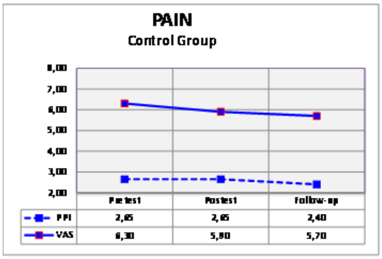


Figure 34. Trends in experimental group for perceived present pain intensity.

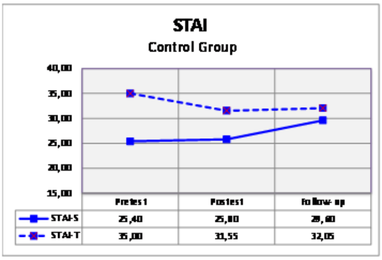


Figure 35. Trends in control group for state anxiety and trait anxiety.

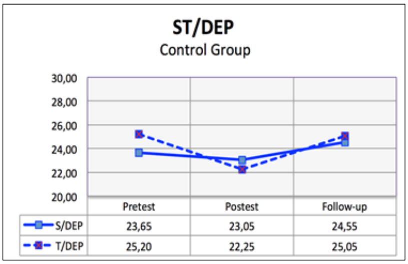


Figure 36. Trends in control group for state depression and trait depression.

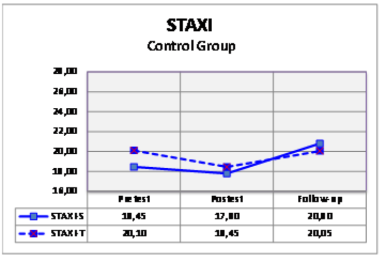


Figure 37. Trends in control group for state anger and trait anger.

5.5. CLINICALLY SIGNIFICANT CHANGE

As discussed above, this study uses the Reliable Change Index (RCI) to determine clinically significant changes for each of the participants in the study. This helps overcome the limitations that statistical significance exposes in the clinical area because it is based on group means.

5.5.1. RELIABLE CHANGE INDEX IN PARTICIPANTS IN THE EXPERIMENTAL GROUP

Table 19 shows the results obtained by each of the participants in the experimental group for some of the key measurements in the study, (perception of subjective wellbeing, impact of FM on functional capacity and health, intensity of pain and state of anxiety, depression and anger) and changes in these figures.

One indicator of a clinically significant change between pretest and posttest assessments could be when a subject has registered an improvement and/or recovery in at least three of the six variables considered without experiencing any deterioration. Participants who do not have two or more deteriorations in the follow-up assessment could also be considered to have maintained the improvement attained in the posttest assessment.

Between the pretest and the posttest, one can see that 21.2% (7 subjects, coded 2, 3, 15, 20, 21, 26 and 70) registered an improvement or recovery in three or more of the six variables, without experiencing any deterioration. Other participants also achieved the same number of improvements or recoveries, but experienced a deterioration in one (8 subjects, 24.2%, coded 1, 4, 5, 11, 16, 19, 32, 7 and 57) two (3 subjects, 9.1%, coded 6, 7 and 22) or even three variables (1 subject, 3%, code 13). Of the seven subjects who met the criteria for clinically significant change between pretest and posttest, three did not complete the follow-up assessment, and the rest registered a deterioration during this period in three or more of the ‘recovered’ or ‘improved’ variables.

Table 19. Reliable Change Index (RCI) in the experimental group.

	Pre-post						Post-Follow up					
P.	PWS	FIQ	VAS	STAI-S	ST/DEP-S	STAXI-S	PWS	FIQ	VAS	STAI-S	ST/DEP-S	STAXI-S
1	I	R	R	R	I	D	D	S	D	D	D	D
2	R	R	R	R	R	S	---	---	---	---	---	---
3	S	I	S	I	S	I	D	D	S	D	D	D
4	R	R	I	R	I	D	D	D	D	D	D	D
5	S	R	I	I	S	D	D	D	D	S	D	D
6	I	I	D	I	D	S	D	S	I	R	I	S
7	I	D	R	R	S	D	D	D	D	D	D	D
8	D	D	I	D	D	D	S	D	D	D	D	S
11	S	D	S	R	I	R	D	S	D	D	D	D
12	D	S	I	D	D	D	D	S	I	R	I	S
13	R	R	I	D	D	D	D	D	D	D	I	D
14	D	R	D	R	D	S	---	---	---	---	---	---
15	I	R	I	I	S	S	D	D	D	D	D	D
16	D	I	I	I	I	R	D	S	I	S	D	I
17	I	D	D	D	R	D	D	D	D	D	D	S
19	S	D	I	R	I	S	D	R	D	D	D	D
20	R	R	I	R	R	S	---	---	---	---	---	---
21	R	R	R	R	R	R	S	R	D	D	S	D
22	S	D	D	R	R	R	D	D	S	D	D	S
24	D	I	D	I	S	D	---	---	---	---	---	---
25	D	D	D	D	D	D	I	R	D	S	S	D
26	R	R	S	R	R	R	D	D	D	D	D	D
27	D	I	D	D	S	D	D	S	I	D	S	R
29	S	I	I	S	S	S	D	D	D	D	R	D
30	S	S	D	D	D	D	D	D	D	S	S	D
32	D	S	S	R	R	R	R	D	D	D	D	S
57	S	R	I	S	I	D	D	D	D	D	S	D
58	S	S	I	D	I	D	S	D	S	D	D	S
59	S	D	I	D	D	I	R	R	D	I	R	S
64	I	S	S	D	I	D	D	S	D	D	S	S
65	D	I	D	S	I	D	S	D	D	D	S	D
68	I	D	D	D	D	S	S	S	D	D	S	D
70	S	R	R	R	R	R	D	D	D	D	D	D

Recovered (R) > 1.96; Improved (I) 1 – 1.96; / Same (S) 0 – 0.99; Deteriorated (D) < 0.

PWS: Psychological Wellbeing Scale; FIQ: Fibromyalgia Impact Questionnaire; VAS: Visual Analogue Scale; STAI-S: State Anxiety; ST/DEP-S: State Depression; STAXI S: State Anger

5.5.2. RELIABLE CHANGE INDEX IN PARTICIPANTS IN THE CONTROL GROUP

In the case of the control subjects (see Table 20) two participants (8.7%) achieved three or more improvements between the pretest and posttest, but during the same time deteriorated in some of the other variables (Subjects 44 and 46). These participants deteriorated significantly in the follow-up assessment (six deteriorations in the case of Subject 44 and five in the case of Subject 46).

Table 20. Reliable Change Index (RCI) in the control group.

	Pre-Posttest						**Post-Follow up**					
Sub	PSW	FIQ	VAS	STAI-S	ST/DEP-S	STAXI-S	PSW	FIQ	VAS	STAI-S	ST/DEP-S	STAXI-S
33	D	S	S	R	S	I	---	---	---	---	---	---
34	D	D	D	I	D	I	---	---	---	---	---	---
35	S	D	D	S	S	D	R	D	D	D	D	D
36	D	D	D	D	R	R	D	S	S	I	D	D
38	S	R	S	D	D	S	S	S	D	S	D	D
42	D	D	D	D	D	D	D	D	S	D	D	D
43	S	S	D	D	D	D	I	D	S	R	I	D
44	R	R	I	I	R	D	D	D	D	D	D	D
45	D	D	D	D	D	D	D	S	S	D	D	D
46	R	D	D	R	R	I	D	D	D	S	D	D
48	D	D	D	S	S	D	R	S	S	R	D	D
49	D	S	I	S	R	D	I	S	D	D	D	D
50	S	D	D	D	D	R	D	D	S	D	R	D
51	D	S	D	D	S	D	I	I	S	D	D	D
52	S	R	D	S	D	D	D	D	D	D	D	I
53	I	D	D	D	S	D	S	D	D	R	S	D
54	D	S	D	R	D	D	R	D	D	D	I	D
55	D	S	D	D	D	D	---	---	---	---	---	---
56	D	D	D	D	D	D	R	S	D	R	S	D
60	D	S	I	I	D	D	D	R	D	D	D	D
62	D	D	S	I	I	D	D	S	S	D	D	D
66	S	S	S	D	D	D	S	D	D	D	D	D
67	D	S	R	S	I	D	S	S	D	D	D	D

Notes: Recovered (R) >1.96; Improved (I) 1 – 1.96; Same (S) 0 – 0.99; Deteriorated (D) < 0.

PWS: Psychological Wellbeing Scale; FIQ: Fibromyalgia Impact Questionnaire; VAS: Visual Analogue Scale; STAI-S: State Anxiety; ST/DEP-S: State Depression; STAXI S: State Anger.

5.5.3. COMPARISON BETWEEN THE TWO CONDITIONS

As indicated in the previous section, in the posttest assessment 19 participants from the experimental group (57.6%) achieved the category of improved and/or recovered in at least three of the six study variables, as opposed to only 2 participants (8.7%) from the control group. This difference is statistically significant, χ^2 (1) = 13.82, p = .000, RR = 6.44 (see Figure 38).

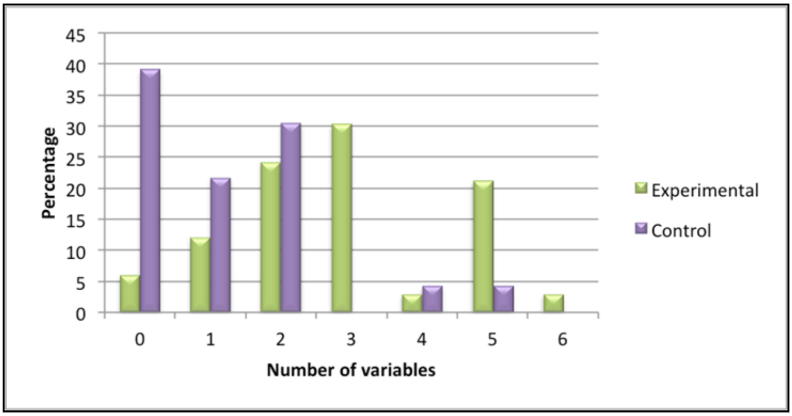


Figure 38. Comparison between experimental and control groups according to the number of variables recovered and/or improved by its participant on the posttest RCI.

It is also interesting to compare for each variable the percentages of experimental and control participants who improved or recovered, showed no change and deteriorated in the posttest assessment. As can be seen in Table 21, compared to the control participants a significantly higher percentage of experimental subjects registered improvements or recovery in *impact of FM on functional capacity and health,* χ^2 (1) = 11.27, p = .001, RR = 4.46, *subjective psychological wellbeing*, χ^2 (1) = 4.61, p = .032, RR = 3.00, *state anxiety*, χ^2 (1) = 4.01, p = .045, RR = 1.93, and *pain intensity* on visual analogue scale, χ^2 (1) = 7.84, p = .005, RR = 3.18. The percentages of improvement or recovery in *state depression* and *state anger* are also higher in the case of the experimental participants, albeit not to a statistically significant degree. In similar terms, it is worth noting that the percentages of experimental subjects registering deterioration in the different variables were lower in all cases than the percentages of control participants. These differences are statistically significant in *subjective psychological wellbeing*, χ^2 (1) = 6.32, p = .012, RR = 2.26, and *pain intensity* on visual analogue scale, χ^2 (1) = 6.69, p = .010, RR = 2.17.

Table 21. Number and percentage of participants who in the pretest-posttest assessment showed recovery or improvement, no change, or deterioration in the different variables according to the Reliable Change Index (RCI).

	Experimental (*n*=33)		Control (*n*=23)		
	n	%	*n*	%	*p*
PWS					
Recovery or improvement	13	**39.4**	3	**13.0**	.032 a
Remains same	11	33.3	6	26.1	NS a
Deteriorated	9	**27.3**	14	**60.9**	.012 a
FIQ					
Recovery or improvement	19	**57.6**	3	**13.0**	.001 a
Remains same	5	15.2	9	39.1	NS a
Deteriorated	9	27.3	11	47.8	NS a
PAIN/VAS					
Recovery or improvement	18	**54.5**	4	**17.4**	.005 a
Remains same	5	15.2	4	17.4	NS b
Deteriorated	10	**30.3**	15	**65.2**	.010 a
STAI-S					
Recovery or improvement	19	**57.6**	7	**30.4**	.045 a
Remains same	3	9.1	5	21.7	NS b
Deteriorated	11	33.3	11	47.8	NS a
ST/DEP-S					
Recovery or improvement	17	51.5	6	26.1	NS a
Remains same	7	21.2	5	21.7	NS b
Deteriorated	9	27.3	12	52.2	NS a
STAXI-S					
Recovery or improvement	9	27.3	5	21.7	NS a
Remains same	8	24.2	1	4.3	NS b
Deteriorated	16	48.5	17	73.9	NS a

a Chi-square; b Fisher´s exact test

Notes: PWS: Psychological Wellbeing Scale; FIQ: Fibromyalgia Impact Questionnaire; AS: Visual Analogue Scale; STAI-S: State Anxiety; ST/DEP-S: State Depression; STAXI S: State Anger.

Finally, Table 22 shows the percentages of participants who in the pretest-posttest assessment show a recovery or improvement in the different variables, and who maintain or increase it in the follow-up. Although the percentage remaining the same is lower in the experimental group, it is still above that of the control group, in which only one participant (Subject 38) shows a recovery in *impact of FM on functional capacity and health* in the pretest-posttest assessment and remains unchanged at three months.

Table 22. Number and percentage of participants who registered recoveries or improvements in the pretest-posttest assessment, and who maintained or increased on these at follow-up.

	Experimental (*n* = 29)		Control (*n* = 20)		
	N	%	*n*	%	*p*
PWS	2	6.9	0	0.0	NS b
FIQ	5	17.2	1	5.0	NS b
VAS	3	10.3	0	0.0	NS b
STAI-S	3	10.3	0	0.0	NS b
ST/DEP-S	2	6.9	0	0.0	NS b
STAXI-S	4	13.8	0	0.0	NS b

a Chi-square; b Fisher ´s exact test

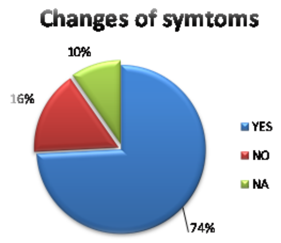
Notes: PWS: Psychological Wellbeing Scale; FIQ: Fibromyalgia Impact Questionnaire; VAS: Visual Analogue Scale; STAI-S: State Anxiety; ST/DEP-S: State Depression; STAXI S: State Anger.

5.6. PARTICIPANT EVALUATION OF TREATMENT

In order to evaluate the impact of the MI treatment, members of the experimental group completed assessment scales upon finishing the treatment. Of the 33 participants in the experimental group, 31 filled out the scales. The following aspects of the scales are assessed: 1) perceived change in intensity of some of the symptoms most frequently associated with the disease: pain, fatigue, sleep, concentration and mood, and whether these changes bear any relationship with the treatment; 2) perceived change in everyday life: at work, in relations with partner, with children, in social life and in their perception of themselves or self-assessment, and whether these changes are related to GrpMI process. In addition, a further item was also assessed: 3) suggestions and interest in continuing treatment, as a measure of satisfaction with the treatment.

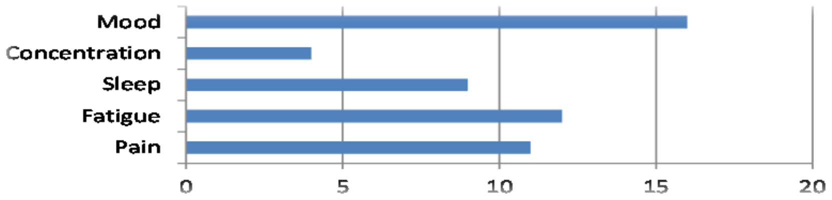
Participants gave a positive assessment of their participation, mentioning some of the positive changes perceived in several areas, as Table 23 shows. 74% of participants say they have noticed changes in the intensity of the symptoms, especially highlighting perceived changes in mood (16 participants). They also mention changes in pain (11 participants), tiredness (12 participants), and sleep disorders (9 participants). A smaller number (4 participants) also mentioned changes in concentration (see Table 24). 18 of the participants completing the scales considered these changes to be related to the GrpMI treatment, highlighting a more positive attitude towards the disease and towards themselves (see Table 25).

Table 23. Percentage of changes perceived by participants in intensity of FM symptoms following GrpMI treatment.



	Changes of symtoms
YES	23
NO	5
NA	3

Table 24. Changes in different FM symptoms perceived by participants following GrpMI treatment (percentage).



	Changes of intensity of the symtoms
Pain	11
Fatigue	12
Sleep	9
Concentration	4
Mood	16

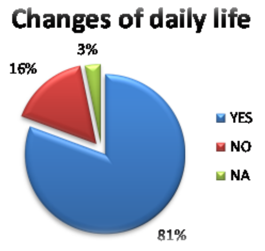
Table 25. Examples of participants' answers regarding perceived changes in the intensity of symptoms and their relation to GrpMI treatment

Changes in intensity of symptoms and relation to GrpMI
(5) I came out more positive; (2) coping better with situations which I hadn't previously controlled; (1) less flagging and with a smile on my face.
(3) I feel calmer.
(1) It's helped me relax, sometimes making me feel less tired.
(1) On some occasions it's increased the intensity of the pain, by stirring up feelings for example. Eventually, though, it reduces other symptoms like tiredness and improves my mood.

With regard to changes perceived in everyday life during or after the treatment, as can be seen in Table 26 and Table 27, 25 participants say they have seen some change, mostly often mentioning a change in their self-appreciation and self-assessment (18 subjects; 58.1%), although they also mention changes in family relations, (16 subjects; 51.6%), relations with their partners (11 people; 35.5%) and in the case of 11 participants, relations with their children; 10 participants (32.3%) mentioned changes in their social life. Only 4 participants (12.9%) mentioned changes in their working life.

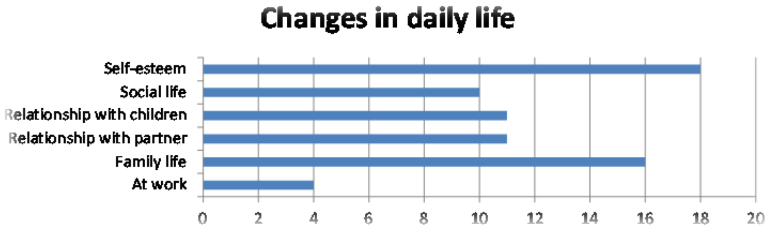
All of them considered these changes to be related to the treatment, and particularly emphasised aspects relating to their self-assessment, where they value themselves more highly and, consequently, feel stronger and more secure in their relations with others (see Table 28).

Table 26. Percentage of changes perceived by participants in aspects of everyday life after GrpMI treatment.



	Changes of daily life
YES	25
NO	5
NA	1

Table 27. Percentage of changes in different areas of everyday life.



	Changes in daily life
At work	4
Family life	16
Relationship with partner	11
Relationship with children	11
Social life	10
Self-esteem	18

Table 28. Examples of answers from participants on changes perceived in everyday life after GrpMI, especially in the area of self-assessment.

Answers regarding perceived changes in everyday life after GrpMI: Self-assessment
(6) I value myself more; (5) and I place greater value on the things around me. (2) I enjoy the little things; (1) I value my own inner strength more, despite the obstacles.
(6) I feel stronger and more secure in myself; (1) I am more capable of coping with problems; (1) I feel more vitality and more strength for resolving conflicts; (1) stronger in defending my opinion; (1) I am more secure and more comfortable.
(3)I am calmer and more patient.
(3) I dare to socialise more and am less reluctant to do so; I feel more comfortable in relations, less afraid.
(3) I see my life with a more positive future; I live for the moment; I'm more positive, enjoying every situation, facing my future with the disease more positively, trying to understand myself; By reinforcing my self-esteem, it has opened up new paths for me
(2) A change in my attitude towards myself: I *accept what I have, without feeling guilty about it; (1) I love myself more; (2) I establish more limits.*
(2) I am more relaxed; I don't feel as tired; I know how to pace myself and stop and rest.
(2) I listen to my body and myself; (1) It has been a release of feelings.
(1) Openness to greater creativity

(n) number of times answered with the same or very similar words.

In answer to an open question as to how GrpMI treatment has helped them, participants said it had been useful for: listening to themselves, knowing themselves, understand and respecting themselves more; gaining confidence, security and strength to express their feelings and accept their disease, finding empathy, support and respect within the group (see Table 29).

Table 29. Examples of answers from participants on the usefulness of GrpMI.

Answer on the usefulness of GrpMI
(6) I felt encouragement and support from the group. (3) I felt listened to and loved. (4) We shared many common aspects, but there were also differences. (3) To learn from each of them.
(5) To express and share my feelings; (3) with greater security; (3) and without shame.
(3) To know myself a bit better, (2) and understand myself. (1) I heard myself; (1) As if had been born again or found the little girl that was trodden on; (1) To look inside myself and find memories
(1) To look after myself more; To value what I have and to ask others for help.
(1) To know different points of view and see connections with other aspects, and not only the pain.(1) To accept more (with more patience and understanding).
(1) To find the peace I needed. (1) I came out of it relaxed, happier

(n) number of times answered with the same or very similar words.

In the suggestions section, participants were asked if they would have liked to continue with the treatment. Of the total number who answered, 27 (87.1%) said they would; they suggested that the sessions should be longer (7), that the treatment should have lasted for more sessions (10), in order to express more intimate aspects or that it should have dealt in greater depth with components such as relaxation (3). Only 2 people expressed a preference for individual therapy.

5.7. SUMMARY

An analysis of the data shows that:

The sample group comprised 56 participants, all women, with an equivalent age distribution (51.34 years) and an average of 10.6 years living with the disease. There is a predominance of married women and women with children. The majority have primary and secondary-level education. A much smaller percentage has completed tertiary education. 23.6% of the total have a disability or *not fit for work* certificate, while 21.8% work outside the home and the same percentage are unemployed.

A large percentage of the women have some associated diagnosis (79.6%), the most common of which are osteo-articular disorders and depression. The probability of having an associated diagnosis is higher in the experimental group. A large proportion of the sample group (69.8%) habitually take medication.

With regard to the study variables, the participants are characterised by low levels of *subjective psychological wellbeing*, high in *impact of FM on functional capacity and health*, and high levels of *state* and *trait depression* and *trait anxiety*. They also have an above-average perception of *present pain intensity*.

Significant differences can be seen between the experimental and control subjects in *impact of FM on functional capacity and health*; the impact of the disease is higher in the experimental group.

The correlational analyses show a significant positive correlation between in *impact of FM on functional capacity and health,* and *perception of present pain intensity, anxiety, depression* and *anger*. Similarly, *subjective psychological wellbeing* shows a significant negative correlation with *impact of FM on functional capacity and health* and the other variables (perception of pain, anxiety, depression and anger).

The results of the analyses of covariance, performed to assess the effect of GrpMI treatment by comparing the experimental and control conditions, show positive, statistically significant, effects in *subjective psychological wellbeing* and *state anxiety* after treatment, and tendentially significant in *impact of FM on functional capacity and health, intensity of pain, trait anxiety* and *state anger*, comparing the differences between the scores for the different study variables of the two groups after treatment. After three months, there were no statistically significant differences in these scores for any of the variables analysed, except *state anger*.

For the experimental group, an analysis of intragroup differences, performed to assess the evolution of each of the conditions, experimental and control, in each of the variables assessed, showed as follows:

- There is a statistically significant increase in *perception of subjective psychological wellbeing*; i.e. participants receiving GrpMI treatment are more satisfied and happier with their personal and material life, after the treatment.
- There is a statistically significant reduction in the *impact of FM on functional capacity and health*; i.e. participants receiving GrpMI treatment registered an improvement in functional capacity and perception of quality of life in relation to FM after treatment.
- There is a statistically significant reduction in the perception of *pain intensity* in participants after GrpMI treatment.
- There is a statistically significant reduction in *state anxiety*, and a tendentially significant reduction in *trait anxiety*; i.e. participants in GrpMI treatment saw a reduction in emotional state of attention, apprehension and hyperactivity at specific moments, and show less of a tendency to perceive situations as threatening.
- There is a statistically significant reduction in scores for degree of affectation *(state)* and frequency of occurrence *(trait*) of the emotional components of *depression* in participants receiving GrpMI treatment.
- There is a reduction on *anger* both at specific moments (state) and in the tendency to perceive situations as being annoying or frustrating (trait) after GrpMI treatment.

On the contrary, the control group did not register statistically significant changes in any of the variables analysed, except in *trait anxiety* and *trait depression*.

After three months, the experimental group continued to be better than before beginning treatment (pretest) in all aspects, although with no statistical significance, except in *state anxiety*, where the difference was statistically significant. The control group remained the same as before the experiment began, even registering some deterioration in some aspects.

RCI was used to determine clinically significant changes. It showed a significantly higher percentage of experimental subjects registering improvement or recovery in at least three of the variables studied (57.6%), as compared to only 8.7% in the control group. The improvements, after three months, remained at 17.2% in the experimental group.

Finally, turning to the participants' subjective assessment made after GrpMI treatment, it is worth noting that 51.6% perceived changes in mood, saying that the changes have had a (positive) influence on their everyday life, and have essentially improved their self-assessment (58.1%). Most of the participants attributed these changes to the group treatment.

CHAPTER 6. DISCUSSION AND CONCLUSIONS

The principal objective of this study was to evaluate the effectiveness of GrpMI on a group of women with fibromyalgia (FM). Hence, the general hypothesis behind this research study was that GrpMI will improve participants' subjective perception of their psychological wellbeing, whereas, impact of FM on functional capacity and health, pain perception, depression and anxiety will decrease significantly, as well as their experience, expression and control of anger. Additionally, I wanted to examine the demographic characteristics of the sample, to see whether correlation exists between study variables, and to assess whether the therapeutic results remained after three months.

What follows is the discussion drawn from the specific objectives mentioned above and the hypotheses formulated from them (as presented in Chapter 3) and from the results as presented in chapter 5. Furthermore, the findings were compared with some of the most relevant research studies published in recent years. Finally, the contributions arising from this research, the limitations of the study, as well as recommendations for possible research based on the results of this present study are reported.

6.1. DISCUSSION

In this study it was decided to examine a group of women with FM because of the higher prevalence of the disease in women (EPISER, 2001).

6.1.1. DEMOGRAPHIC, CLINICAL AND COMORBIDITY PROFILE

The first specific aim of this study was to **examine the demographic, clinical and comorbidity profile of the sample of women suffering from FM, who took part in this research.**

Women taking part in the study had a mean age of 51.34 and had been suffering from FM for an average of 10.6 years. As for their education; 42.9% had primary education; 8.9% university education and a significant 48.2% secondary education. 23.6% had a disability or a *not fit for work* certificate, a similar proportion (21.3%) were unemployed, and only 12.7% of women stated that they were full-time housewives.

These results are similar to the education profile described by other authors (Martín, Luque, Solé, Mengual, & Granados, 2000; Tobo Medina, 2007) in their studies. Yet in this study, unlike what some others authors found (Wolfe et al., 2010), there is a significant percentage of women (48.2%) with secondary education.

A comparative analysis between the two groups highlights socio-educational and employment profile differences between women allocated to the experimental group and those allocated to the control group, although these differences are not statistically significant. In the experimental group there is a higher percentage of women with primary studies (51.5%) than in the control group (30.4%) and also these women are in a worse employment situation than the control group as a whole. This poor educational and working situation of the experimental group may be related to the results in the *impact of FM on functional capacity and health* variable where (as reflected in the FIQ) they obtain lower scores than the control group. This relation is pointed out by Murray & Murray (2006), who claim that educational level and employment status may be predictors of the severity of FM.

The study shows that FM is highly comorbid with: other osteo-articular diseases (53.7%), Chronic Fatigue Syndrome (24.1%) and endocrine diseases (11.1%). These results are consistent with the results of other studies (Junyent Priu et al., 2005; Lera, 2006; Pérez-Pareja, Sesé, González-Ordi, & Palmer, 2010; Uguz et al., 2010), who have also shown a high level of comorbidity with these and other diseases. In her descriptive, comparative and cross-sectional study of 190 women with FM, Govillard Garmendia (2011) also underscores high comorbidity with other diseases, pointing out the following diseases as the most frequent: Chronic Fatigue Syndrome (70.7%), Irritable Bowel Syndrome (61.3%), rheumatic arthritis (46.4%) and thyroidism (17.2%). However, she also describes the presence of other diseases, which our study did not find (restless leg, irritable bladder or night-time apnea syndromes). As has been shown in numerous studies, FM shares clinical manifestations with other diseases, which is precisely what makes diagnosis difficult (Clauw, 2009). Additionally, some of these diseases, such as Chronic Fatigue Syndrome and Irritable Bowel Syndrome may share common symptoms (Aaron et al., 2000) or have a common aetiology (Hudson, Goldenberg, Pope, Keck, & Schlesinger, 1992; Schur et al., 2007), which, according to several authors, may be related to alterations of central processing mechanisms (Aaron et al., 2000; Clauw et al., 1997).

The fact that a significant percentage of participants had depression (20.4%) and anxiety (11.3%) disorders is in line with other studies that have underscored the high comorbidity of FM with both these pathologies (Sicras-Mainar et al., 2009). However, their unequal incidence should also be noted together with studies highlighting that they are independent of FM (Vallejo Pareja, Comeche Moreno, Ortega Pardo, Rodríguez Muñoz, & Díaz García 2009). The high percentage of people that were found to have a depression disorder, since this is the disorder most commonly associated with FM (42% of people with several associated disorders have depression), matches other studies, that found a high presence of depression amongst people suffering from FM (Carta et al., 2006; De Felipe García-Bardón et al., 2006; Aguglia et al., 2011). However, fewer cases of anxiety disorders were found in this study (11.3%) when comparing with others studies, where between 58 and 66% of people affected by FM had an anxiety disorder (De Felipe García-Bardón et al., 2006). These results may be due to the fact, that the anxiety-depressive symptomatology frequently associated with FM is not necessarily diagnosed as a differentiated psychiatric disorder. In fact, anxiety and depression symptoms, together with stressful life events and psychological trauma in childhood, are characteristics, commonly associated with FM and other syndromes with symptoms lacking an identified organic cause (Afari et al., 2014).

Whatever the associated diseases are, the higher the level of comorbidity and the higher the probability of the disease becoming permanent, the more patients seek health services (Clauw & Crofford, 2003). This often contributes to deterioration in their quality of life and their level of activity. Such a high level of comorbidity makes it even more important to look into a coordinated, interdisciplinary approach to care and therapy that covers the whole range of patients' medical, psychological and social conditions.

In this study, once again differences were found between the control and experimental group with regard to the presence of associated diagnoses (79.6% for the control group and 93.8% for the experimental group); thus the latter having a 1.59 higher probability of having some associated diagnosis. From this data we can deduce that the experimental group was more vulnerable than the control group at the beginning of the treatment, because they had a higher number of associated pathologies. Despite having made a random, blind allocation after having carried out the initial tests, the differences between the two groups emerged and seem to be down to chance. Or they could be down to mistakes in the design of the sample selection protocol, which may not have been sufficient discriminatory (because of the tremendous variety of FM associated symptoms and diagnoses) or not sufficient thorough, since no medical certification of diagnoses was asked for.

As for medication, the majority of patients were on medication (92.5%), with analgesics and antidepressants being the most widely used. However, the percentage of women habitually taking two or more drugs (68%) was higher than the percentage described in other studies, in which only 18% of people suffering from FM were taking 2 drugs and just 10% were taking 3 (Cascada, Kasai, Inhalan & Schwartz, 2008). In FM treatment drugs to treat fibromyalgia are widely used and occasionally are the only treatment patients receive, despite the fact that no combination of drugs have proven effectiveness in treating all FM symptoms together (Abeles et al., 2008; López-Chicheri, 2012).

The first hypothesis is formulated taking into consideration the characteristics of the sample, specifically with regard to the study variables:

Hypothesis 1. The women in the sample will show higher levels of impact of FM on functional capacity and health, pain, anxiety, depressive symptoms, and anger than the general population, whereas the subjective psychological wellbeing of the sample will be lower than amongst women who do not suffer FM.

In the results of this study participants showed a lower *perception of subjective psychological wellbeing* than the general population (15th percentile on a range of 1-100).

Furthermore, they also displayed a severe level of *functional incapacity* in comparison to the general population (*M* = 71.46) (Bennett, 2005; Casanueva, 2007), which is consistent with other studies, that emphasized moderate and high functional limitation levels and negative impact on health amongst people suffering from FM (De Felipe García-Bardón et al., 2006; Govillard Garmendia, 2011; Iverson, Le Page, Koehler, Shojania, & Badii 2007; Sayar et al., 2004).

A Visual Analogue Scale (VAS) ranging between 0 and 10 produced higher than average *pain intensity* scores (*M* = 6.54) for these women, which is similar to the results given on a Perception of Pain Intensity (PPI) scale ranging from 0 to 5 (M = 2.79). These scores are similar to those recorded for patients suffering acute or chronic pain. However, participants scored slightly higher on the VAS scale than the reference population, although the effect size is small. This difference may be related to the fact that the scores used for comparison with the VAS scale were measured on people, whose pain was principally (50.5%) related to rheumatic disorders. Many studies have pointed out differences in pain perception between people suffering from FM and those with other pain-related diseases. White et al., (2002) emphasize, that FM patients display higher pain intensity than those with rheumatoid arthritis as well as higher overall severity of FM, functional incapacity, fatigue and less health satisfaction.

Furthermore, when comparing the scores from the whole of the sample with score ranges in the general population, the study shows high scores for *state and trait depression* (90th percentile in both). These figures confirm the symptomatic characteristics, which other studies on FM have shown with a prevalence of depression or depressive states amongst this population (Aaron et al., 1996; Bigatti et al., 2008; Jensen et al., 2010; Palomino et al., 2007; Rehm et al., 2010; White et al., 2002).

High levels of *state and trait anxiety* (70th and 80th percentiles respectively) are consistent with other studies that mention the presence of anxiety symptoms in patients with FM (Aaron et al., 1996; Malt et al., 2002; Martin et al., 2000; Pagano, Matsutani, Ferreira, Marques, & Pereira 2004; Pérez-Pareja et al., 2004; White et al., 2002). High scores in *trait anxiety* (80th percentile) is similar to what other research studies have observed, when they compared 1) patients suffering pain, but not from FM, using a control group (Pérez-Pareja et al., 2004), or they compared 2) patients with rheumatoid arthritis using healthy control groups (Besteiro González et al., 2008), or they compared 3) group treatment programmes for patients with FM (Camino Vallhonrat et al., 2009). Besteiro González et al. (2008) interpreted the high neuroticism scores (anxiety, hostility, depression, social anxiety and vulnerability) as an attempt to adapt to a chronic disease, and to a general subjective unease dimension to it (including moodiness, anger, annoyance, nervousness, fear or depression), which can lead to negative or threatening interpretations of different stimuli.

Lastly, the study also finds the presence of *anger experience*, both in *state anger* and *trait anger* above 60th percentile, although this was not considered pathological (pathological levels are those above 75th percentile) (Miguel-Tobal et al., 2001). These results coincide with other studies indicating the presence of this emotion in people suffering from FM (Okifuji et al., 1999; Sayar et al., 2004).

To conclude, these results allow us to confirm entirely the first hypothesis, because higher levels *of impact of FM on functional capacity and health, pain, anxiety* and *anger,* and lower *subjective psychological wellbeing* are observed in this group when comparing than with those of general population.

However, it should be pointed out that not all people with FM show symptoms of anxiety, depression or anger. Some authors have actually suggested that anxiety and depression levels are variables that differentiate the impact of FM on functional capacity and health (Aaron et al., 1996; Calandre et al., 2011; De Souza et al., 2009; Giesecke et al., 2003). These authors defend the existence of subgroups within FM, considering that there are differential characteristics such as sensitivity to pain, anxiety and depression and cognitive coping abilities. They also reflect on applying different therapeutic approaches in treatment work with each subtype of FM patients. It has not been possible to determine, whether the diverse psychological symptoms are the causes or the factor that predispose or precipitate the disease or if they are the consequences of the disease. The presence of diverse psychological symptoms worsening the discomfort of people with FM, justifies following treatment interventions that take a biopsychosocial perspective, which concentrate on the person as a whole, dealing with all their dimensions. This can give back these people the ability to change or to adapt to the situation (Keller, Gracia, & Cladellas, 2011; Lledó et al., 2010).

An analysis of the scores of the two groups shows differences between them, with a bigger deterioration in all variables in the experimental group, showing a significant difference in the score for the *impact of FM on functional capacity and health* (FIQ) for this group (*M* = 74.79, as opposed to *M* = 66.70 for the control group). These results are in line with the differences noted in demographic variables, where the experimental group was also identified as being in a worse condition. These results suggest that one could relate worse levels of functional capacity to worse sociocultural and employment levels, something which has been mooted in other studies (Bergman et al., 2001; Brekke, Hjortdahl, & Kvien, 2001; Dobkin, De Civita, Abrahamowicz, Baron, & Bernatsky 2006). In this study such correlation has been worked out.

Even though an analysis of covariance has been carried out using corresponding pretest scores as the covariable, this initial difference in the impact of FM on functional capacity and health on the two groups may have influenced the results of the intergroup analysis.

6.1.2. CORRELATION BETWEEN VARIABLES

The second specific objective of this study was to **analyse the association between the different study variables**. To do so the following hypothesis was formulated.

Hypothesis 2: A significant positive correlation will be found between the impact of FM on functional capacity and health, pain perception and the different indicators of psychological distress evaluated (anxiety, depression and anger), whereas the relationship between all these variables and the indicators of subjective psychological wellbeing will be negative.

The results show a statistically significant positive correlation between *the impact of FM on functional capacity and health, pain perception* and the different indicators of psychological distress, namely *anxiety*, *depression* and *anger*. In other words they confirm the tendency to feel more *pain perception, anxiety*, *depression* and *anger*. The higher the impact of FM on functional capacity and health, the higher the tendency is to feel more pain perception, anxiety, depression and anger. The results also confirm significant negative correlations between *subjective psychological wellbeing* and the *impact of FM on functional capacity and health*, *pain*, *anxiety*, *depression* and *anger*. In other words, when physical and psychological symptoms worsen there is evidence of a reduction in perception of quality of life and subjective psychological wellbeing. Thus, it can be concluded that the data corroborate virtually the whole of the second hypothesis.

These results are consistent with other studies showing that the incapacitating effects or impact of FM on functional capacity and health (when measured using FIQ) predict a higher degree of emotional disturbance (Bigatti et al., 2008; Huber, Suman, Biasi, & Carli, 2008; Pagano et al., 2004; White et al., 2002), and higher pain intensity (Jensen et al., 2010; Perrot, Bouhassira, & Fermanian, 2010). In other studies the relation between these dimensions is expressed by highlighting, that emotional symptoms (especially anxiety and depression) predict state of health (Epstein et al., 1999; Lledó et al., 2010; White et al., 2002) and the impact of FM on daily life (Dobkin et al., 2006; Goldenberg et al., 1994; Verbunt, Pernot, & Smeets, 2008; White et al., 2002).

However, the results of this study are different to those of Jensen et al. (2010), who observed no relationship between symptoms of pain related to anxiety or depression, although this may be because the results are drawn from a study in which pain was induced experimentally and hence the perception of pain may not share the same characteristics as the perception of pain of FM. Other studies provide opposite results, more in line with the results of this study, where a relationship between pain intensity and anxiety was found (Fietta et al., 2007; Kurtze & Svebak, 2001; Wilson, Robinson, & Turk, 2009).

The only area where insufficient statistical significance was found was in the correlation of *impact of FM on functional capacity and health* with *trait anger* and the *anger expression index*. Even so there was positive correlation between *state anger*, health, functional capacity and the remaining dimensions, namely depression, anxiety and pain. This means the worse a person perceives state of health and lower functional capacity, the higher the tendency to feel anger. Furthermore, when state anger increases, pain, anxiety and depression do so too. These results may be related to an adaptive tendency towards pain. When patients increase their level of attention towards bodily sensations, it may lead them to respond to discomfort with negative moods such as agitation, fear, anger and despondency (Besteiro González et al., 2008).

6.1.3. EFFECTIVENESS OF TREATMENT

6.1.3.1 Effectiveness of treatment after intervention

The main aim of this study is **to assess the effectiveness of GrpMI on the one hand, by comparing subjects receiving treatment with a control group of similar characteristics who do not receive treatment (intergroup analysis). On the other hand, by taking into consideration the development of participant according to each of the study variables (intragroup analysis**).

Below you find a discussion of the results obtained for this third objective consisting of: 1) the intergroup comparison, 2) the intragroup development of each variable, 3) clinical significant changes (RCI) 4) evaluation of the participants´ self-recorded questionnaires. All these results are discussed according to each of the hypotheses.

Hypothesis 3: GrpMI will significantly increase the subjective psychological wellbeing of the women receiving treatment.

Study results from the intragroup comparison indicate that the experimental group had a statistically significant increase (with a medium effect size) in their *perception of subjective psychological wellbeing* compared to the control group. Consistent with this finding, the intragroup comparison results also show (with statistical significance) that the experimental group had improved levels of *subjective psychological wellbeing* at the end of treatment, whilst the control group felt worse in comparison to their original situation. Along the same lines, results obtained from the Reliable Change Index (RCI) confirm that the experimental group had a 39.4% recovery at the end of treatment, whilst in the control group only 13% had an increase in *subjective psychological wellbeing*, with 60.9% (14 out of 23 people) declaring a worsening of this variable.

Based on these results, hypothesis three is entirely confirmed and GrpMI treatment is shown to be effective at increasing the subjective wellbeing of people with FM.

These results are similar to results from a study finding positive changes to the subjective wellbeing and quality of life of cancer patients after applying GIM (Burns, 2001) and to Jacobi & Eisenberg’s (2002) study. They used the SCL-90 scale for measurement and also indicated an improvement of the psychological distress in the 27 patients with rheumatoid arthritis.

If we compare these results with those obtained using the same assessment tool with FM patients receiving other treatments (in this case cognitive-behavioural treatment), they are consistent with the results described by Govillard Garmendia (2011). She found improvement in psychological wellbeing when applying individual treatment (*n* = 33) with electromyogram feedback and group treatment (*n* = 33) without biofeedback, and she found that the subjective psychological wellbeing of the control group (*n* = 22) decreased.

Subjective wellbeing is related to an increase in positive emotions and a decrease in negative emotions. According to the evaluation of the participants´ self-recorded questionnaire, the participants refer to an increase in positive emotions (joy, satisfaction, affection), and a reduction in negative emotions (sadness, anxiety, anger, blame and shame). Furthermore, it should be pointed out that 18 participants noted positive change in the way they perceived themselves, which is a real relevant dimension, when referring to perception of wellbeing. Some studies describe the following issues that help increase subjective wellbeing: a) participating in a group and feeling the support of this group, b) keeping oneself active despite pain or fatigue, c) finding satisfaction in small things, d) setting priorities and rationing effort, e) adapting the pace of activities and f) increase in self-confidence (Juuso, Skär, Olsson, & Söderberg, 2011; Sallinen, Kukkurainen, & Peltokallio, 2011; Söderberg, Lundman, & Norberg, 1999). These many aspects, mentioned by other authors were also described subjectively and individually by participants in GrpMI treatment as being for them the most positive part of this treatment. Descriptions of similar noteworthy aspects after GIM therapy have also been described in the literature (Blake & Bishop, 1994; Maack & Nolan, 1999; Murphy, 2008; Skaggs, 1997).

The GIM method focuses mainly on recognising and expressing emotions (both pleasant and “negative” ones) and it has been found to be more effective to express emotions than not expressing them, both in the case of FM and concerning other chronic diseases (Geenen, van Ooijen-van der Linden, Lumley, Bijlsma & van Middendorp, 2012; van Middendorp et al., 2008).

Hypothesis 4: After treatment, there will be a significant reduction of the impact FM has on functional capacity and health of the women receiving treatment.

The data obtained from comparing the *impact of FM on functional capacity and health* of subjects in intergroup analysis (experimental and control) show a tendentially significant difference between them. But it is worth noting that improvements were observed in FIQ scores in the experimental group with a difference of 11.21 between pretest and posttest scores, in comparison to virtually no change in the FIQ scores of the control group. If scores obtained from intragroup analysis are examined, there is in the experimental group a statistically significant reduction of the *impact of FM on the functional capacity and health* after receiving GrpMI sessions, whilst in the control group the pretest-posttest differences are not significant. Consistent with these results, the RCI analysis confirms a significantly higher percentage of experimental subjects (57.6%), who show improvement in this variable. In the control group, only 3 subjects (13.0%) showed improvement.

Therefore it can be concluded that the data obtained confirm virtually the whole hypothesis 4 and they highlight the reduction of the impact of FM on the functional capacity and health of participants receiving GrpMI treatment.

The results of this study, showing the positive effects of GrpMI treatment on the *overall impact of FM on functional capacity and health* of women with FM are similar to those obtained by Menzies et al. (2006), who noted a reduction in the FIQ scores of people suffering from FM after treatment using visualisation or guided, pleasant pre-recorded images, when the scores were compared with those of a control group. However, Verkaik et al. (2014) did not find any significant effects when they applied the same techniques.

Taken together, results from this study suggest that GrpMI treatment helps reduce *the impact of FM on functional capacity and health* more significantly and positively than using other techniques with only one part of the components of this method, be it music-listening, relaxation or guided visualisation (Baranowsky et al., 2009; Glombiewski et al., 2010; Sim & Adams, 2002).

Furthermore, this treatment requires the support and accompaniment of an educated therapist (Dileo & Bradt, 2005), and in this case results are comparable to those obtained from applying group cognitive-behavioural therapy (Anderson & Wincker, 2007; Glombiewski et al., 2010).

Hypothesis 5: As a result of treatment, women taking part in the study will experience a significant decrease in pain perception as expressed in current pain intensity.

When results from the PPI (Present Pain Intensity) scale are used to describe *pain perception,* there is a decrease in scores given by women in the experimental group but not in the control group. However, no differences were found between the two groups in the intergroup analysis in measurements recorded on the Visual Analogue Scale (VAS). These results contrast with data obtained from the intragroup analysis, where participants receiving GrpMI (those in the experimental group) showed a statistically significant decrease in *pain perception* on both the VAS and PPI subscales, whilst the control group showed no significant differences between pretest and posttest scores on these same scales used to measure pain perception. Similarly the RCI analysis showed that 54.5% of participants receiving treatment (in the experimental group) experienced improvement or recovery in *pain perception* as opposed to 17.4% in the control group, where, in fact, 62.5% of the participants worsened.

Therefore, these data confirm practically the whole of hypothesis 5.

These results are consistent with those obtained by Jacobi & Eisenberg (2002) in their study of 10 sessions of individual GIM treatment given to 27 patients with rheumatoid arthritis, who scored significant reduction of pain perception on the PPI scale of the MPQ test. Other research studies have also highlighted pain reduction amongst people suffering from FM, when treatments using music listening (Garza-Villarreal et al., 2104; Guétin et al., 2012; Onieva-Zafra et al., 2103), relaxation (Field et al. 2002; Keel et al., 1998; Kravitz et al, 2006; Rucco et al, 1995; van Santen et al, 2002), visualisation (Castel, Pérez, Sala, Padrol, & Rull 2007; Hammon & Freeman, 2006) or guided imagery (Bjellånes, 1998; Fors et al., 2002) are offered. In contrast, other studies did not find significant differences when applying treatments using only guided imagery (Menzies et al., 2006; Verkaik et al., 2014) or relaxation (Hassett et al., 2007).

The intragroup analysis of this study suggests that GrpMI treatment has a positive influence on those participants who receive it, in that it reduces pain (with a medium-large effect size) in a way comparable to other multi-component cognitive-behavioural treatments. This contrasts with the results of the meta-analysis of Glombiewski et al. (2010), who showed a small effect size in pain reduction when psychological treatments were used.

The quality and intensity of the changes that patients experienced could be related to aspects underscored in other studies such as: a) changes to images of pain (Bjellånes, 1998); b) an increase in energy and coping capacity (Jacobi & Eisenberg, 2002); c) distraction from concentration on pain with greater focus on relaxation, active strategies and social relations (Torre et al., 2008); d) embracing positive pain coping strategies (Govillard Garmendia, 2011); e) pain acceptance (Cuevas Toro, 2010; González-Menéndez et al., 2010; McCracken & Eccleston, 2003; McCracken, Carson et al., 2004; McCracken, Vowles et al., 2004) or f) the intrinsic positive factors of group psychotherapy (Anderson & Wincker, 2007).

GrpMI therapy contributes to better pain acceptance by dealing with the many physiological, emotional, cognitive and behavioural variables involved in *pain perception*. GrpMI therapy can be used to incorporate positive breathing, self-control and relaxation strategies, and it can help patients focus on pleasant images. It can also help in reflecting on the personal meanings given to pain and its relationship to other psychological and emotional states. All of these elements assist patients in: a) developing greater self-confidence, b) makes it possible for them to express and regulate emotions, and c) find an identity that is not only defined by pain and disease.

Hypothesis 6: After treatment, state and trait anxiety will be significantly reduced in the group receiving treatment.

When looking at the effects obtained on *anxiety* and comparing the experimental group with the control group, a statistically significant reduction of *state anxiety* was seen in the experimental group, coupled with a tendentially significant reduction in *trait anxiety*. Equally, an intragroup analysis showed that the group receiving treatment displayed a statistically significant reduction both in *state and trait anxiety* (with a medium-large effect size). However, in the control group there was no significant change to pretest and posttest results for *state anxiety*, although there was a statistically significant reduction in *trait anxiety* at posttest. Finally, the RCI analysis showed that 57.6% (19 out of 33 participants) of the experimental group experienced an improvement in their *state anxiety* after receiving treatment, as opposed to 30.4% (7 out of 23 subjects), who showed improvement in this variable in the control group. 47.8% of this same control group actually experiencing a worsening of this variable.

Based on these results it can be said that the data observed confirm practically the whole of hypothesis 6 since *state anxiety* was reduced in the group receiving treatment (to a statistically significant level). However, the changes to *trait anxiety* were not statistically significant in the experimental group. *Trait anxiety* is a personality characteristic, which is relatively stable over time and in different situations, but, depending on the person's specific situation at the precise moment of the test, it may be influenced by past experiences (Spielberger et al. 1970).

One conclusion that this study draws on *anxiety* is consistent with those described by Camino Vallhonrat et al. (2009) who, using the STAI test as a means of assessment, measured the effect of 10 group treatment sessions given to patients with FM on the anxiety variable. They considered the *anxiety* variable "the reactive response to pain, as well as a generator and intensifier of pain" (p. 207). In their results they indicate: 1) a high prevalence of *state and trait anxiety*, with the latter being higher at the beginning of treatment; 2) a significant reduction *in state anxiety* and a slight (non-significant) reduction in *trait anxiety*. These authors interpret that *trait anxiety* "is generated by structural personality aspects and by the social-family context that require family intervention and a longer period of treatment" (p. 214). Several studies of research coincide in highlighting, that GIM treatment leads to a positive reduction of *anxiety* in cancer survival patients (Bonde, 2005; Burn, 2001; McKinney & Clark, 2003), and in people suffering from work-related stress (Beck 2012). Other studies also indicate how treatment, focusing on one of the components of GrpMI, such as relaxation (Field et al., 2002); relaxation, music and guided imagery (Hammer, 1996); relaxation and pleasant visualisation (Fors & Götestam, 2000); and music listening (Garza-Villarreal et al., 2014) also have this same effect of positive anxiety reduction. There are also many research studies that provide a reduction in anxiety after the application of a cognitive-behavioural programme (Camino Vallhonrat, et al., 2009; Collado et al., 2002; Comeche Moreno et al., 2010; Gelman, Lera, Caballero, & López, 2002; Govillard Garmendia, 2011; Moioli & Merayo, 2005; Vázquez-Rivera et al., 2009).

The positive effects of treatment on *state anxiety* can be interpreted in different ways and from several perspectives. Some authors maintain that learning breathing and relaxation techniques can contribute to reduce hypervigilance, reduce being alert to and anticipating situations of pain. Other authors maintain that the use of distraction strategies (with or without music and images) can reduce fear and avoidance of certain situations. GrpMI therapy helps a person become more familiar with experiences of bodily tension. It incorporates relaxation strategies and, through the use of music, offers support, structure and containment. On the other hand, the use of music, by adding stronger dynamics and more tension to the music progressively, encourages the person to explore the imagery of uncomfortable situations, and invites the person to face the conflicts that lie beneath her/his distress. In fact, in GrpMI some participants may not feel comfortable, and may not experience pleasant visualisations, rather quite the opposite~~.~~ At times, they may feel higher anxiety, stress or distress because during relaxation they are not always in control. With the help of music listening, thoughts and feelings that they had hoped to be able to ignore or to suppress, come to the surface in images. By working on consciousness of previous (or current), unpleasant conflicts and emotions, these people can: 1) improve their respect towards and conscious attention of their own intimate perception, 2) increase their self-assurance and self-confidence, and 3) reduce the impact of conflicts on the current moment. In other group therapy (such as brief, group psychoanalysis) the focus is on naming and expressing conflicts or on a symptom's symbolic value (De Felipe García-Bardón, 2012; De Felipe García-Bardón et al., 2007). They have shown similar results in *anxiety* reduction.

Hypothesis 7: After treatment, the affective component of state and trait depression will be significantly reduced in the women receiving treatment.

When assessed through the State-Trait Depression Questionnaire (ST/DEP) tool, scores for affective components of depression improve both in *state depression* and *trait depression* after GrpMI treatment in the experimental group, although they are not statistically significant when compared to the control group. Thus the scores for the group receiving treatment (who initially had worse depression levels than the control group) go down in the frequency (trait) and intensity (state) of depressive symptoms, whilst in the control group they stay virtually the same, without any changes to pretest and posttest scores. Consistent with these results, when analysing intragroup scores, the difference in pretest and posttest scores of the experimental group are statistically significant. Although, there are no significant differences to *state depression* in the control group, there is a statistically significant reduction to *trait depression* in this group. The RCI analysis showed that *state depression* improved in 17 women (51%), in the experimental group, whilst in the control group only 6 participants (26%) underwent an improvement in mood, whoever 12 (52.2%) were actually worsening in this dimension.

These results mean that practically the whole hypothesis 7 is confirmed since there is a statistically significant reduction in *state and trait depression* in the experimental group, although this significance is not corroborated when compared with the control group. Even so, except for *trait depression*, the control group did not show any significant changes in this variable.

The results of this study are consistent with others studies in which GIM treatment has proved to be beneficial in reducing depressive mood in people with rheumatoid arthritis (Jacobi & Einsenberg, 2002), cancer (Bonde, 2005), workplace stress (Beck, 2012), and healthy adults (McKinney et al., 1997). These results are also endorsed by research studies that use one or some of the parts of comprehensive GrpMI treatment. Onieva-Zafra et al. (2015) reports a significant reduction in depression after treatment using music and guided imagery. Studies that used meditation and mindfulness techniques also confirm a reduction in depressive symptoms (Astin, et al., 2003; Quintana & Rincón Fernández, 2011; Sephton et al., 2007; Smith, Harris, & Clauw, 2011). Specifically, these kinds of studies promote self-observation, reflection on and acceptance of pain and promote encouragement of patients to observe life and symptoms from new viewpoints. So these viewpoints acquire higher meaning, become more comprehensible and therefore, more manageable (Sephton et al., 2007). GrpMI stimulates these aspects in a similar way by encouraging participants to *surrender /let go into* the musical experience and to allow spontaneous image creation in a non-ordinary state of consciousness.

As Bernardy, Füber, Köllner & Häuser (2010) and Glombiewski et al., (2010) have highlighted, cognitive-behavioural therapies are also effective at reducing the *depression* of people suffering FM. The treatments referred to by these authors use strategies, which underlie the GrpMI method, such as strengthening positive skills, facing up to problems and opening up to new perspectives. Authors such as Comeche Moreno et al., (2010), Govillard Garmendia (2011), and Moioli & Merayo (2005) obtain similar results for reducing affective components of depression as the results obtained in this study by applying group cognitive-behavioural treatments.

These positive changes in the reduction of affective symptoms of *depression* using GrpMI treatment suggest that a depressed mood can be improved when people who suffer from FM can a) find a place to be listened to, b) are given the possibility of expressing their mood, c) experience a series of sensations, emotions or thoughts, d) process them all in their own way, e) observe improvements to other symptoms of their disease, and f) share this experience with other people. In their subjective evaluation of treatment, 16 participants in this study noted a better mood and recovery of their desire to live, fight and lead a “normalised” life, even if the pain and disease did not completely disappear. This is consistent with the study of Palomina et al. (2007) that highlights the influence of feelings of powerlessness and unmanageability on depressive symptoms.

However, the conclusions of this study on the effect of GrpMI treatment on *depression* show how difficult it is to evaluate fixed, stable conditions (trait) separately from specific one-off situations (state), a condition which is especially important to be aware off if progress should be done in ways of researching the differences in these conditions.

Hypothesis 8: After treatment, women will see a significant decrease in their experience, expression and control of anger.

When analysing results for *anger experience, expression and control* in this study, the experimental group showed a significant trend towards improvement in *state anger,* despite still obtaining lower scores than the control group. If we observe the scores of both groups before treatment, it can be seen that initially the experimental group was in a worse condition for *state anger* than the control group. However, posttest scores for the group receiving treatment were lower in *state anger,* whilst the scores of the control group remained the same. In other words, perception of stress, anger, current irritation and frustration when facing difficult obstacles, went down in the experimental group after GrpMI treatment. This group also improved in *trait anger,* i.e. anger outbursts were less frequent and/or intense (although not statistically significant) when compared with the control group. These results are consistent with data from intragroup analysis, where the group receiving treatment recorded a statistically significant reduction in their score for *state* and *trait anger* after GrpMI treatment (with a medium-large effect size), whilst the control group hardly showed any changes to this variable. In the RCI analysis only 9 participants (27.3%) in the experimental group showed an improvement in their *state anger,* whilst 16 (48.5%) deteriorated. In the control group 17 of the 23 (73.9 %) people deteriorated in this dimension.

After examining the results it can be concluded that practically the whole hypothesis 8 has been confirmed since there has been a tendency for *state anger* to decrease in the group receiving GrpMI treatment and an improvement in *trait anger* and the *anger expression index* (although not statistically significant) when compared to the control group.

It has not been possible to compare the results of this study with other, similar ones applying GIM or GrpMI. Positive effects on anger-hostility (one of the six moods measured on the POMS scale) are found in a study by Burns (2001), who found an overall improvement in the mood of cancer survivors after GIM treatment. Wrangsjö & Körlin (1995) also noted a significant reduction in the hostility variable in a comparative study on the levels of psychiatric symptomology after GIM treatment.

Govillard Garmendia (2011) found a decrease in *anger (state, trait and anger expression index)* after applying group cognitive-behavioural treatment and using STAXI as an assessment method. The study of Camino Vallhonrat et al. (2009) also measured this variable and described significant scoring for feelings of anger and frustration amongst patients with FM *(trait anger*), and described lower levels on the *anger expression index* at pretest. However, posttest measurements did not show significant reductions in anger scores.

The positive effects of reducing *state anger* and, to a lesser extent reducing *trait anger* after GrpMI treatment may be related to an improvement in the tension-release relation. It may also be related to the possibility this treatment offers of dealing with painful emotions via been confronted with imageries and via a wide variety of additional strategies such as: 1) expression of what are considered “negative” emotions, 2) acceptance of emotions and thoughts of anger and the symbolic comprehension of these thoughts, together with 3) higher security and strength when managing these emotions in both an intra and interpersonal way. This was also stated in some of the comments appearing in the self-recorded questionnaires filled out after GrpMI treatment had finished.

As a conclusion, the results show the positive effect of GrpMI treatment on the emotional variable *anger*. As van Middendorp et al. (2010) say, this findings suggests the need to carry out further research into examining the emotion of anger in effective FM treatment, as *anger* can be another emotional indicator of physical discomfort in FM. GrpMI treatment can help facilitate anger expression and anger regulation in a calm, symbolic way.

6.1.3.2 Effectiveness of treatment in the follow up test

Finally, the fourth specific objective of this study addressed a **check on whether the therapeutic results remained three months after the end of treatment.**

Hypothesis 9: The effects of GrpMI therapy on people with FM will remain three months after the end of treatment.

The results of the intergroup analysis examined three months after end of treatment show, that improvements in *subjective wellbeing, impact of FM on functional capacity and health, state and trait anxiety, state and trait depression and current pain perception* (measured on a VAS scale) were maintained, despite not being statistically significant. As has already been mentioned above, when referring to the *state anger* variable it did improve, the experimental group did improve, despite the fact that initially this group scored worse than the control group for this variable. In the follow up test the scores for the control group actually deteriorated, but because of the initial differences between the two groups the follow up results do not mirror these changes.

According to the data, the results from the intragroup analysis show that the group which received GrpMI treatment maintained a statistically significant reduction in *impact of FM on functional capacity and health* (with a medium-large effect size), *current pain perception, trait anxiety and trait depression* and *state and trait anger* as well as in *state anxiety* (although in the state anxiety, it was not statistically significant). *Subjective wellbeing* also maintained its improvement (although once again, without statistical significance).

However, when intragroup progression of the control group was analysed, no significant differences were found after three months. Hence, it can be said that members of the control group did not perceive changes to their state of health and functional capacity nor did perceive changes to their subjective wellbeing. They even showed a degree of worsening in some symptoms such as *state anxiety* (not statistically significant) and *state anger* (statistically significant) (see Table 18).

Finally, the RCI analysis shows that only a few participants maintenance of recovery in the experimental group but still these scores are better than scores of the participants of the control. In the control group, only one participant maintained the recovery in *impact of FM on functional capacity and health.*

These results partially confirm hypothesis 9 since it can be seen that the experimental group maintains its positive increase in *subjective psychological wellbeing* and also maintains its reduction *in impact of FM on functional capacity and health*, *state* and *trait anxiety*, *state* and *trait depression*, *pain perception* and especially *state anger*. No members of the experimental group returned to the state of deterioration they were in before GrpMI treatment.

The significant differences in *state anger* scores in the intergroup analysis could be related to the treatment process, because participants in the experimental group received GrpMI treatment and experienced therapeutic relationships in the group, which brought about changes in their symptoms. Furthermore, there were also changes in the relationships among the members of the group, where participants experienced increased feelings of being understood and supported by the other members, as friendships were growing. Unlike the experimental group, the members of the control group may have experienced frustration or feelings of unfairness, because they did not share feelings with other group members, nor did they receive treatment.

Conclusions drawn from these results may also be influenced by the frequently mentioned reduction of the effect of therapy over time. Many authors recommend that maintenance or “booster” sessions be programmed at the end of treatment. In this vein, virtually all those who participated in treatment said that they would like to have continued with GrpMI and they expressed an interest in carrying on participating in these kinds of activities. They expressed these wishes although some studies show difficulties in getting these patients to comply with and commit to treatment.

6.2. CONCLUSION

The results of this study reveal a higher level of psychopathology in people with FM than will be found in the general population including: a higher perception of pain, anxiety, depression and anger and lower perception of subjective wellbeing. This confirms the heavy physical and emotional malaise suffered by people with FM. The women who took part in this study share psycho-socio-demographic characteristics of women in other research studies on the FM population. The fact, that this group is different to the general population, justifies that different, interdisciplinary treatment possibilities should be offered.

In the study, both groups (experimental and control) had a homogenous distribution in age, marital status and in the amount of time they had been suffering from the disease. However, there were differences between subjects in the experimental group and those in the control group. In the experimental group (although these differences were not statistically significant) a greater proportion of women had primary studies, their employment situation was worse and they had higher comorbidity with other diseases. This high level of patient diversity makes it even more important to take a biopsychosocial perspective on this disease and to look into person-centred therapy approaches that take care of the whole range of the patients' medical, psychological and social symptoms.

The results also reveal correlation between study variables, reflecting a relation between *the impact of FM on functional capacity and health* - and *pain intensity, anxious* and *depressive states* and *anger*. This relation shows that as *perceived pain*, *anxiety*, *depression* or *anger* increase, and *subjective psychological wellbeing* decrease. Although it is not an indication of a cause-effect relationship, the results show that any treatment, which work with and influence one or all of these emotional aspects, will also have an effect on a person´s state of health, quality of life and subjective wellbeing.

As for the effectiveness of this GrpMI treatment, it should be highlighted that the results of this study reveal that women who received 12 treatment sessions were shown to have a statistically significant increase (with a medium effect size) in *subjective wellbeing and state anxiety* when compared with the control group. The results also demonstrated a decrease in the *impact of FM on functional capacity and health* and in *trait anxiety, state anger and current pain intensity*, although with lower statistical significance and a smaller effect size.

The progress data recorded from each of the two groups (control and experimental) at different evaluation moments, reveal that the experimental group obtained a statistically significant positive effect in all variables after treatment, whilst the mean scores for the control group remained virtually unchanged at posttest evaluation. Furthermore, when comparing treatment effects on the individual clinical progress of each participant (RCI), 19 participants (57%) in the experimental group showed improvement in at least three variables after GrpMI treatment whilst just 2 participants (8.7%) in the control group obtained improvement in at least three variables, at the same time as the same participants felt worse in at least one other variable.

At the follow-up test the positive effects of GrpMI treatment were maintained, although it was not found to be statistically significant at the intergroup analysis. However if reflecting on the intragroup analysis, differences in the experimental group between pretest and follow-up test are significant in the *impact of FM on functional capacity and health, pain intensity, trait anxiety,* and *depression* and in *state* and *trait anger.* In other words, improvements in the experimental group are maintained after three months. On the other hand, there are no significant changes between pretest and follow-up test for the control group – even if there were worsening of some variables, such as with *state anger*. The RCI analysis shows a low percentage of maintenance/perpetuation at follow up test for the experimental group, although the level is still higher than that of the control group, and there are no variables returning to pretest - levels. The general tendency that benefits are reduced over time makes it advisable that treatment is offered for a longer period, even if the treatment consists only of booster sessions, to secure the maintenance of the benefits.

The positive changes observed in the participants can be interpreted to be due to the positive effect of GrpMI treatment and not due the passing of time or due to other reasons. Nevertheless, the therapeutic improvement might simply be due to the beneficial results of taking part in treatment. Authors such as Allen, Escobar, Leher, Gara & Woolfolk (2002) hypothesize that expectations of improvement and attention from a healthcare professional or the stimulus of returning to healthy functioning may be the elements that positively influence the outcome of treatment for people with disorders that have multiple, unexplained physical symptoms (Sánchez-García, 2014). Undoubtedly, having regular group meetings with a specific aim enables cohesion and interpersonal support and this, in its turn, helps to reduce the social isolation, and the tendency to a passive lifestyle that many people suffering from FM present. They claim that pain is what limits them in this way (Quintana & Rincón Fernández, 2011). Thus the task of encouraging and motivating this population to continually and systematically participate in programmes, treatment and sessions that encourage social interaction, is very important.

Group psychotherapy models mostly achieve positive psychological and functional effects (Anderson & Winkler, 2007) because group work facilitates emotional expression and sharing of feelings and thoughts and allows participants to observe and practice different illness coping strategies (Anderson & Winkler, 2007). It also alleviates feelings of desperation, powerlessness, depression and anxiety, fostering a reduction in physical discomfort (Allen et al., 2002; Sánchez-García, 2014). The women who received GrpMI treatment emphasized the positive effects of this group relationship in the answers to the self-reported questionnaires.

The conclusions of this study coincide with data published on the effectiveness of the GIM and/or GrpMI methods, when used with medical patients suffering from pain. These methods are shown to be more effective than treatment focussing exclusively on just *one* of the elements in the methods as relaxation, guided imagery or music. The effects are comparable to other multi-component cognitive-behavioural group therapies.

The study validates the benefits of the therapeutic care that GrpMI offers - a method that simultaneously deals with the different areas of needs of the person as a whole, and respects the person's state of being and respects the personal definitions. The study encourages a search for new, individual perspectives in treatment of FM patients and GrpMI should be considered as an alternative, complementary therapy in treatment of people suffering from FM.

6.3. CONTRIBUTIONS AND LIMITATIONS OF THE STUDY

6.3.1. CONTRIBUTIONS

Data from this empirical study provide evidence of how GrpMI treatment fosters positive changes in the different symptoms from which people with FM suffer. GrpMI reduces perceived pain perception; intensity or state anxiety, intensity of the affective components of depression, and the experience, expression and control of anger. GrpMI also increases the subjective wellbeing, functional capacity and health of the women with FM participating in the study. Thus it provides empirical evidence, that this kind of treatment can be considered beneficial when dealing with FM, and that short and medium term effects of this treatment are comparable to those of other psychological treatments.

This medium-sized study (70 participants) used quantitative methodology and a controlled, randomised design with a control group. The variables were evaluated with proven, valid and reliable tools, and measurements were scored at three different moments. This means the study has objective elements that can be compared with similar pieces of research. It also means that the work of music therapists and more specifically GrpMI therapists, has gained clinical relevance and specificity amongst the healthcare community, even if these methods still are quite unknown and even if they first now are emerging as a form of treatment in the healthcare system. This study can be used as an example and as a means to motivation for further research studies in this field for music therapists and GIM therapists interested in FM and in other populations of similar characteristics.

The study illustrates the correlation between the impact of FM on functional capacity and health (and hence its impact on quality of life), and the malaise caused by variables such as pain, anxiety, depression and (with a less statistical significance) anger. Opposite, subjective wellbeing is *negatively* influenced by the symptoms analysed in the study, namely: impact of FM on functional capacity and health, intensity of perceived pain, anxiety, depression and anger. This corroborates the results of other studies, which suggest a link between the mutual influence of physical and emotional factors on illnesses such as FM, where a range of medical and psychological disorders come together.

The demographic characteristics of a sample of 70 women with FM have been described in line with those indicated in other, similar studies focussing on this population. The results show how women with FM, despite sharing some characteristics, present at the same much variety in their perception of intensity, quantity and degree of their wide range of symptoms. This corroborates the difficulty of diagnoses and of choice of treatment.

The positive results in this study with GrpMI treatment helps to contribute to a broader perspective on FM. This method is based on a humanistic, person-centred approach it considers the person from a biopsychosocial perspective. The method focuses on the internal strengths of the patient and the capacity to accept her responsibility for change. In this perspective the patient is taken care of in a global context in which the patient is able to cope with, adapt to or to modify the effects of the disease, because she encounters a professional care setting, that offers respect and recognition to the individual and to the group as well as care and improvement strategies. So, bearing in mind the conclusions of this study, GrpMI therapy can be considered a recommended, effective therapy alternative, which can be used in treatment of FM patients in different contexts such as in the health system or in addition to those commonly offered by associations of patients and their families.

The conclusions of this study show how favourable results can be achieved, when a comprehensive therapeutic treatment is applied such as GrpMI, in which relaxation, music and images are used together. GrpMI includes a therapist who can 1) provide support as a specialised therapist, 2) do psycho-education about the disease for the patient, and 3) work from an emphasize on the influence of both emotional, cognitive and social factors on the appearance and perpetuation of symptoms. Thus, this study demonstrates the effectiveness of a treatment that aims at developing acceptance of and adaptation to pain in addition to broaching other psychological aspects, with the support and structure of music as a co-therapist.

6.3.2. LIMITATIONS

Despite all the positive results and arguments stated above, this study does have its limitations, some of which will be presented below.

The study results may have been influenced and therefore limited by the protocol followed during sample selection. The sample of women was taken from members of FM associations, who were contacted by letter. Just by joining an association a person demonstrates an active, responsible and constructive attitude towards the disease, possibly different to those who do not join an association. Furthermore, since participants were informed about the study by letter, their decision to participate was an active one. Their motivation to take part may have been driven by positive (or negative) expectations, making the experimental group different to the whole FM population in Spain. Other women suffering from FM may only use hospital or medical settings to cope with their disease or, once they have received diagnosis, may withdraw from any kind of clinical contact. A lack of comparison with other women, who do not belong to an association, may limit the scope of the results and any generalisation of them amongst the whole population affected by FM. Additionally, although inclusion criteria were clearly explained, the women, who accepted to take part in the study, were referred by the association’s secretary, without the researcher asking for any verified, broader, external information about diagnosis or symptom development. Sample inclusion and exclusion criteria would have been more thorough, had a more detailed inclusion protocol of the women's clinical characteristics been followed, or had the selection criteria been coordinated with medical staff or somebody from an interdisciplinary team in charge of diagnosing and monitoring the disease. This would have produced more solid clinical and follow-up information.

I would like to underscore though, that given the variety of health professionals who diagnose the disease of FM, and given the flexibility in the way criteria established by the ARC are used, even though these criteria are regulated in protocols for action, diagnosing FM always has been and still is controversial. The clinical manifestations of FM are multiform and varied and a bias concerning diagnosis and treatment exists. It was decided to treat a sample exclusively of women, because FM appears mainly in women, but this could represent an inequality bias with the population as a whole. Equally, the age range covered by the sample (which is the range in which there is greatest prevalence of people with FM), may have influenced the increased chronic nature and severity of FM symptoms, which in its turn could have influenced the higher scores that were found, when characterising the sample. Higher symptom chronicity may also have influenced the effects of GrpMI treatment. In future research it could be worth bearing in mind the possible variability in the effects of the treatment if GrpMI is offered to a population without such deeply-rooted dysfunctional physical, emotional, behavioural and cognitive responses to the disease.

Differences in some of the demographic characteristics in the two sample groups (even though they were not statistically significant) may be a limitation for the generalisation of these results in such a diverse population as the FM population. This is especially true for the FM population, in which socio-cultural and employment situations have been shown to influence symptoms (Bergman et al., 2001; Brekke et al., 2001). In future studies it would be helpful to ensure that these demographic variables are less different by using samples with similar characteristics, which can confirm or disprove the results obtained.

Furthermore, despite the fact that at pretest assessment the only statistically significant differences between the experimental and control groups in the study variables were in impact of FM on functional capacity and health (with higher scores found in the experimental group), the experimental group also scored higher than the control group in all the other study variables assessed. To minimise these pre-treatment differences an analysis of covariance was used (with the pretest score as the covariable) during intergroup comparison. These pretest differences may explain the low levels of significance found in the results of the intergroup analysis carried out after the intervention (especially if intragroup analyses reveal very positive progress of virtually all the variables assessed in the experimental group, with statistically significant differences and medium-large effect size).

These basic differences between the experimental and the control groups may be due to: a lack of thoroughness during the selection process and/or the variety of diagnostic criteria mentioned in the previous paragraph. It may simply also be due to the many, diverse and non-uniform symptoms of FM, that make it very difficult to be clear about *pre*-treatment or *pre*-psychological assessment, which will be influenced by the individual symptomatic circumstances of people with FM. In this sense, if a person-centred treatment model, coupled with a biopsychosocial understanding of the disease, was truly the approach applied, the diagnosis process would take into consideration the person's overall state of health, and it would make it possible to pinpoint subgroups that could benefit from specific kinds of interventions. This has already been suggested by several studies (Glombiewski et al., 2010; Goldemberg, Burckhardt, & Crofford, 2004; Hardy-Pickering, Adams, Sim, Roe, & Wallymahmed, 2007; Lemstra & Olszynski, 2005; Montoya et al., 2010). Some of the intergroup differences could have possibly been avoided, if the following procedures had been carried out: 1) initial selection following classification criteria more in line with the variability of FM symptoms where the existence of subgroups were taken into consideration as suggested by Giesecke et al. (2003) in the Interdisciplinary Consensus Document for the Treatment of Fibromyalgia (Montoya et al., 2010); 2) randomisation after a correction of the pretest assessment tools and after the establishment of well-defined cut-off points. If this approach had been carried out, treatment could have been modified or even offered according to the specific characteristics of each FM subgroup with a greater precision in planning the objectives of GrpMI treatment.

Another limitation to the study is the fact that self-reported questionnaire were used to assess all the variables, with the possible risk of social desirability bias (specially in this case, because maybe some participants would like to please the researcher, who was also the therapist). Furthermore, despite the fact that some evaluation tools, such as the FIQ test, the STAI and VAS scale have been widely used in similar studies to measure pain, other evaluation tools have been less used. For example the Beck Depression Inventory (BDI) and the Hospital Anxiety and Depression Scale (HADS) are more commonly used to measure depressive state; and so is the Quality of Life Scale (QoL) and Short Form-36 Health Survey (SF-36) as indicators of perceived health state and quality of life. As for the Individual Treatment Evaluation Questionnaire (ITEQ), specifically designed for this intervention and based on participants' self-reports, there may have been a high degree of subjective bias in the replies, if participants have not reflected their assessment of change accurately. Another issue, that could be considered a limitation of the method in the study, is the fact that the Individual Assessment Scale was filled in by the participants alone, without them having any external, specialist accompaniment or guidance. In the future it might be worth considering: 1) modifying the content of the questionnaire and using numerical scores, rather than descriptions to define each item; 2) using existing questionnaires to observe changes after GIM therapy (Bonny, 1980; Weiss, 1994, quoted in Bruscia, 2000), especially the Guided Imagery and Music Responsiveness Scale (GIMR; Bruscia, 1998), which Meadows (2000) evaluated as having sufficient validity and reliability. In a similar way, as used by Moe et al. (2000), it might also be worth considering to the use semi-structured interviews to add the nuance of the client´s opinion to the treatment process, to the evaluation of this and to the actual research study. These self-reporting measurements could be complemented by other, more objective measurements, related to the routines of daily life for example. In short, exclusive use of self-reported questionnaires could be considered a limitation in this study and, in general, in evaluation of FM symptoms. Exclusive use of self-reported questionnaires and a variety of different questionnaire formats and modes of assessment tests can end up being even more biased with the unclear complex symptoms of this disease. Furthermore, the conclusions of this study may be limited by not having used specific assessment questionnaires or tools for this specific therapy method GrpMI. Having done that might have increased the objectiveness, validity, reliability and consistency of the conclusions of this work and the therapeutic effects of the GrpMI method.

Another possible limitation that needs to be mentioned comes from the complexity of the GrpMI method itself, in which multiple components and dimensions intervene in an integrated way. GrpMI treatment has been shown to be effective in this study since, to a greater or lesser degree of statistical significance, it has improved the health of the participants in all variables included in the study. And yet due to the very nature of the treatment, the conclusions of the study can be said to be insufficient, as they do not differentiate or define, which of the component parts of the GrpMI method had the greatest influence on the improvement of health. The positive results may be due to the power of self-generated images, the specific emotional activation of the music or the effect of experiencing therapy in a group. This is not identified as part of the analysis.

Although promising results have been found in this study, regarding the effectiveness of group treatment, in future studies it will be necessary to separate the effects of each component of GrpMI from the effects of group treatment in general. By offering care, support and opportunities for trying out different social relational strategies, the structure of the group process and its dynamic forces may provide specific benefits from group work, no matter which therapeutic method is applied, although some authors assume that this may be a placebo rather than a therapeutic effect (Allen et al., 2002).

Finally, the fact, that the same person was both the therapist and the researcher throughout the whole process, may have influenced the study. Accompanying the therapeutic process of the experimental group and being involved in the dynamics behind all the therapy processes, at the same time as observing, analysing and dealing in details with facts and data through the distant view of a person by observing this person in an experimental situation, may have been a limitation to the conclusions of the study. In future research studies it would be helpful to work with the assistance of teams of practitioners from different fields, thus increasing research objectivity.

6.4. FUTURE AREAS OF RESEARCH

The results obtained suggest some other areas that future research studies might look into in greater detail.

As mentioned above, in this study, I was both the therapist and the researcher. In future research studies it would be helpful to work with the assistance of a research team, where different specialists are doing the clinical work, data collection and statistical analysis, thus increasing research objectivity.

This study has attempted to address the whole complexity of FM, and in the study several variables have been observed and analysed. In the future, the effects of GrpMI could be analysed separately for each of the variables in different empirical situations. This could be done with a more in-depth exploration of the effect of GrpMI together with other working hypotheses related to the most frequent psychological symptoms. In this vein new research might be aimed at reducing, broadening and modernising both the number of variables and their interrelatedness. It might be particularly relevant to study the progress of a variable such as stress, where more “medical” evaluation tools could be used. Recent studies about the effects of GIM on stress could be used to compare differential treatment effects, and could also be used to encourage the medical doctors to participate, together with specialists in music therapy and GIM, in interdisciplinary studies.

New experimental situations could be considered, in which some of the differences of the clinical characteristics within the FM population might be explored, thus looking at the symptom diversity of these people by monitoring specific categories or sub-groups (as different studies have suggested). As has already been discussed previously, by making such a differentiation at the beginning of the sample could also lead to a different way of approaching, developing and offering GrpMI therapy. Given the high prevalence of early traumatic situations in the FM population, it might be of special interest for future research studies to examine the effects of applying either GIM or GrpMI treatment on a subgroup of the FM population characterized by such traumatic situations, to see if this treatment proves to be beneficial.

As mentioned above the benefits of being in a group were not differentiated in this study from those of the GrpMI method itself. For future research studies it could be relevant to have a control group, in which participants only talk about their worries without GrpMI, in order to examine more accurately the effect of this method.

Other future research studies might take the direction of comparing individual and group therapy, or a possible combination of both approaches. It is possible that some participants might have experienced increased benefits, if they had been able to continue their treatment with individual GIM sessions.

In this same vein, future experimental treatment designs might consider including more GrpMI sessions, thus more firm *cementing* the psychological changes and strategies acquired during the twelve GrpMI sessions offered in this study. They might also consider, during the sessions, to better meet the participant interests and/or the possible difficulties involved in trying to use the different strategies, taught individually, in everyday life – and in this way reducing the natural limitations of generalisation.

Equally, future studies might opt for more long-term post-treatment follow-up periods. In this way it would be possible to check, whether in the medium and long term periods treatment effects are lasting, and whether people suffering from FM are able to internalise changes and receive positive feedback from their environment to reinforce these changes. For this reason it would be good to include booster sessions, that could highlight the positive effects (and possibility of recovery) of this treatment model, and where these positive effects could be followed in the longer term.

Bearing in mind the complexity of the GIM method and the unique nature of the therapeutic process, this quantitative study could have been supplemented by other, qualitative or mixed studies, which could have analysed or described the phenomena that occurred in the dynamic processes of this therapy. This may have added relevant information about the way; this complex illness in general is understood and treated. In line with this, self-reporting tools and/or semi-structured interviews could have been designed that could have reflected the subject's viewpoints, which then again could have been compared with the viewpoints of other subjects and populations.

This study attempts to demonstrate the effectiveness of GrpMI treatment on people with FM. A quantitative design was used on a medium-sized group of participants and positive effects, that were either statistically or tendentially significant in relevant variables of their symptoms such as: pain, anxiety, depression, anger and perception of psychological wellbeing were obtained. These results open the way to further use of music therapy and especially Guided Imagery and Music for treating FM. The results also pave the way for more research into the usefulness and effectiveness of GrpMI on other populations who, like FM sufferers, experience chronic pain.

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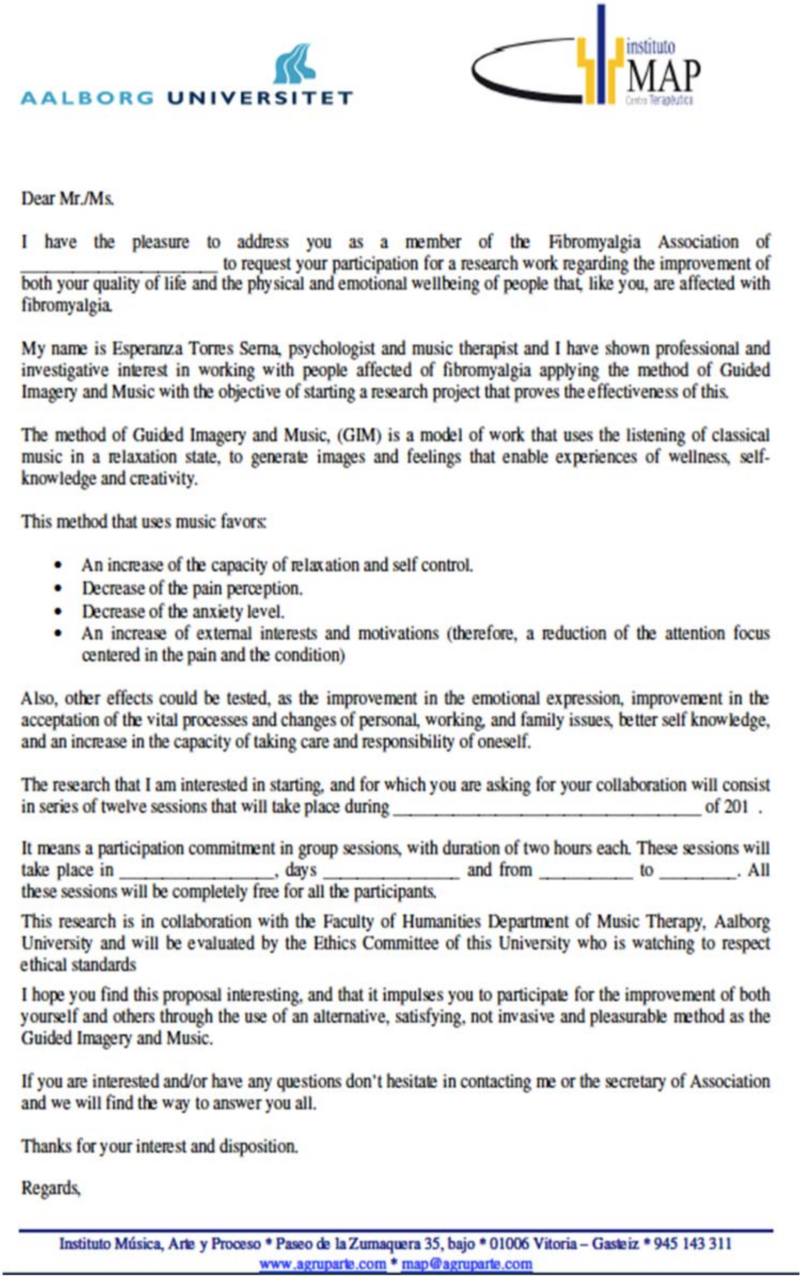
APPENDICES

Appendix A. Information Sheet to Members of FM Associations.



AALBORG UNIVERSITET

instituto
MAP
Centro Terapéutico

Dear Mr./Ms.

I have the pleasure to address you as a member of the Fibromyalgia Association of ____________________ to request your participation for a research work regarding the improvement of both your quality of life and the physical and emotional wellbeing of people that, like you, are affected with fibromyalgia.

My name is Esperanza Torres Serna, psychologist and music therapist and I have shown professional and investigative interest in working with people affected of fibromyalgia applying the method of Guided Imagery and Music with the objective of starting a research project that proves the effectiveness of this.

The method of Guided Imagery and Music, (GIM) is a model of work that uses the listening of classical music in a relaxation state, to generate images and feelings that enable experiences of wellness, self-knowledge and creativity.

This method that uses music favors:

- An increase of the capacity of relaxation and self control.
- Decrease of the pain perception.
- Decrease of the anxiety level.
- An increase of external interests and motivations (therefore, a reduction of the attention focus centered in the pain and the condition)

Also, other effects could be tested, as the improvement in the emotional expression, improvement in the acceptation of the vital processes and changes of personal, working, and family issues, better self knowledge, and an increase in the capacity of taking care and responsibility of oneself.

The research that I am interested in starting, and for which you are asking for your collaboration will consist in series of twelve sessions that will take place during ________________________________ of 201 .

It means a participation commitment in group sessions, with duration of two hours each. These sessions will take place in ________________, days ______________ and from __________ to ________. All these sessions will be completely free for all the participants.

This research is in collaboration with the Faculty of Humanities Department of Music Therapy, Aalborg University and will be evaluated by the Ethics Committee of this University who is watching to respect ethical standards

I hope you find this proposal interesting, and that it impulses you to participate for the improvement of both yourself and others through the use of an alternative, satisfying, not invasive and pleasurable method as the Guided Imagery and Music.

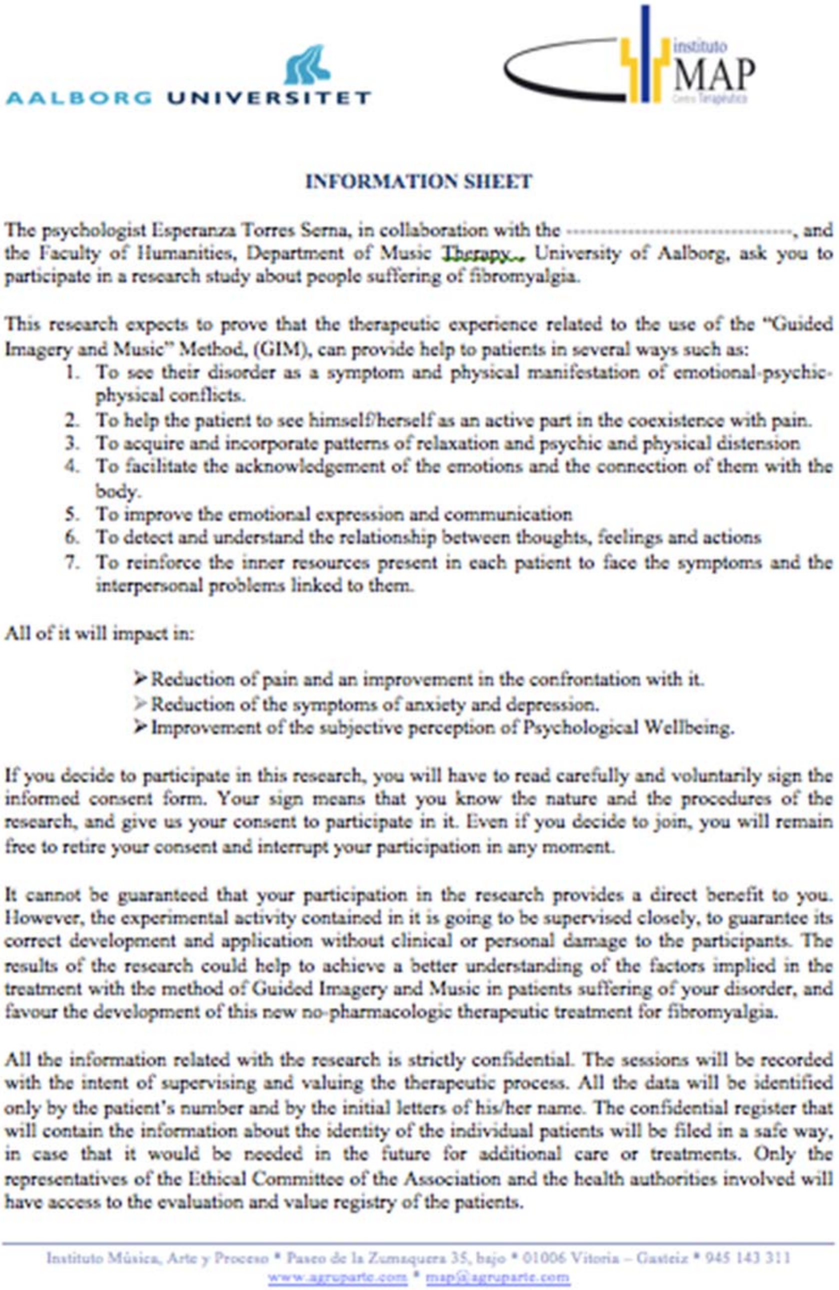
If you are interested and/or have any questions don't hesitate in contacting me or the secretary of Association and we will find the way to answer you all.

Thanks for your interest and disposition.

Regards,

Instituto Música, Arte y Proceso * Paseo de la Zumaquera 35, bajo * 01006 Vitoria – Gasteiz * 945 143 311
www.agruparte.com * map@agruparte.com

Appendix B. Participant Consent Form.



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INFORMATION SHEET

The psychologist Esperanza Torres Serna, in collaboration with the ...., and the Faculty of Humanities, Department of Music Therapy., University of Aalborg, ask you to participate in a research study about people suffering of fibromyalgia.

This research expects to prove that the therapeutic experience related to the use of the "Guided Imagery and Music" Method, (GIM), can provide help to patients in several ways such as:

1. To see their disorder as a symptom and physical manifestation of emotional-psychic-physical conflicts.
2. To help the patient to see himself/herself as an active part in the coexistence with pain.
3. To acquire and incorporate patterns of relaxation and psychic and physical distension
4. To facilitate the acknowledgement of the emotions and the connection of them with the body.
5. To improve the emotional expression and communication
6. To detect and understand the relationship between thoughts, feelings and actions
7. To reinforce the inner resources present in each patient to face the symptoms and the interpersonal problems linked to them.

All of it will impact in:

- Reduction of pain and an improvement in the confrontation with it.
- Reduction of the symptoms of anxiety and depression.
- Improvement of the subjective perception of Psychological Wellbeing.

If you decide to participate in this research, you will have to read carefully and voluntarily sign the informed consent form. Your sign means that you know the nature and the procedures of the research, and give us your consent to participate in it. Even if you decide to join, you will remain free to retire your consent and interrupt your participation in any moment.

It cannot be guaranteed that your participation in the research provides a direct benefit to you. However, the experimental activity contained in it is going to be supervised closely, to guarantee its correct development and application without clinical or personal damage to the participants. The results of the research could help to achieve a better understanding of the factors implied in the treatment with the method of Guided Imagery and Music in patients suffering of your disorder, and favour the development of this new no-pharmacologic therapeutic treatment for fibromyalgia.

All the information related with the research is strictly confidential. The sessions will be recorded with the intent of supervising and valuing the therapeutic process. All the data will be identified only by the patient's number and by the initial letters of his/her name. The confidential register that will contain the information about the identity of the individual patients will be filed in a safe way, in case that it would be needed in the future for additional care or treatments. Only the representatives of the Ethical Committee of the Association and the health authorities involved will have access to the evaluation and value registry of the patients.

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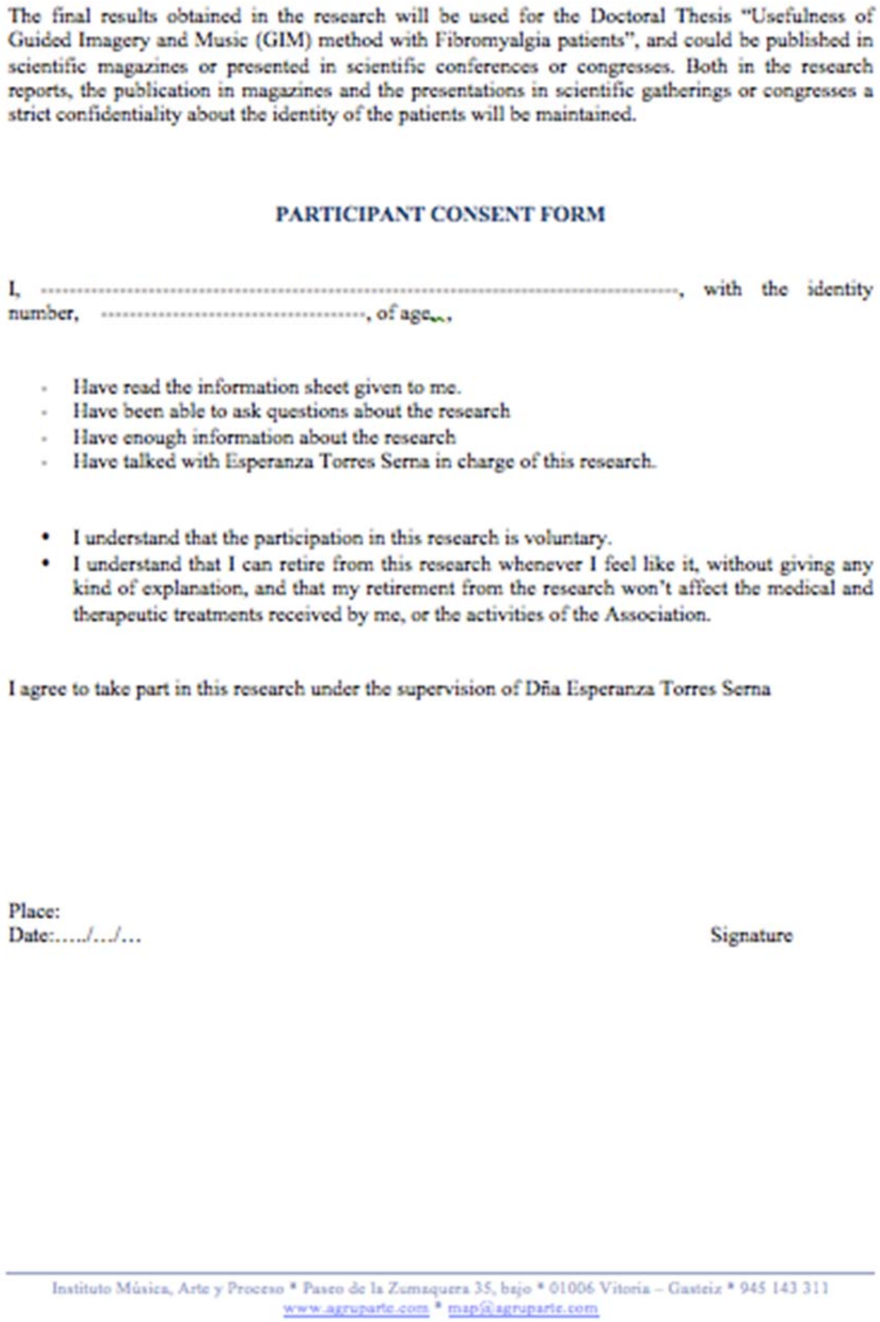

The final results obtained in the research will be used for the Doctoral Thesis "Usefulness of Guided Imagery and Music (GIM) method with Fibromyalgia patients", and could be published in scientific magazines or presented in scientific conferences or congresses. Both in the research reports, the publication in magazines and the presentations in scientific gatherings or congresses a strict confidentiality about the identity of the patients will be maintained.

PARTICIPANT CONSENT FORM

I, ……………………………………………………………………………, with the identity number, ……………………………………, of age…,

- Have read the information sheet given to me.
- Have been able to ask questions about the research
- Have enough information about the research
- Have talked with Esperanza Torres Serna in charge of this research.

- I understand that the participation in this research is voluntary.
- I understand that I can retire from this research whenever I feel like it, without giving any kind of explanation, and that my retirement from the research won't affect the medical and therapeutic treatments received by me, or the activities of the Association.

I agree to take part in this research under the supervision of Dña Esperanza Torres Serna

Place:
Date:…../…/…

Signature

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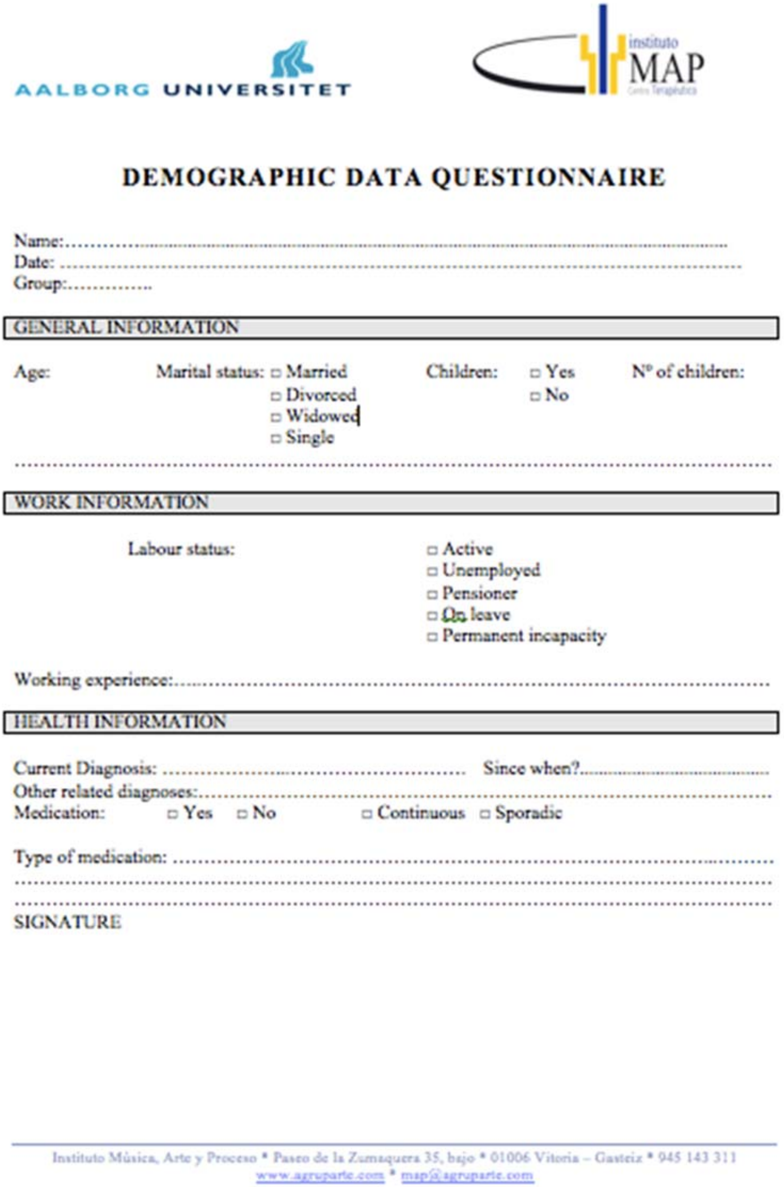
Appendix C. Demographic Data Questionnaire.



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DEMOGRAPHIC DATA QUESTIONNAIRE

Name:……………………………………………………………………………………

Date: ……………………………………………………………………………………

Group:…………..

GENERAL INFORMATION

Age:

Marital status: ☐ Married
☐ Divorced
☐ Widowed
☐ Single

Children: ☐ Yes
☐ No

Nº of children:

……………………………………………………………………………………………

WORK INFORMATION

Labour status:
☐ Active
☐ Unemployed
☐ Pensioner
☐ On leave
☐ Permanent incapacity

Working experience:……………………………………………………………………………

HEALTH INFORMATION

Current Diagnosis: ……………………………………… Since when?…………………………

Other related diagnoses:………………………………………………………………………

Medication: ☐ Yes ☐ No ☐ Continuous ☐ Sporadic

Type of medication: ……………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………

SIGNATURE

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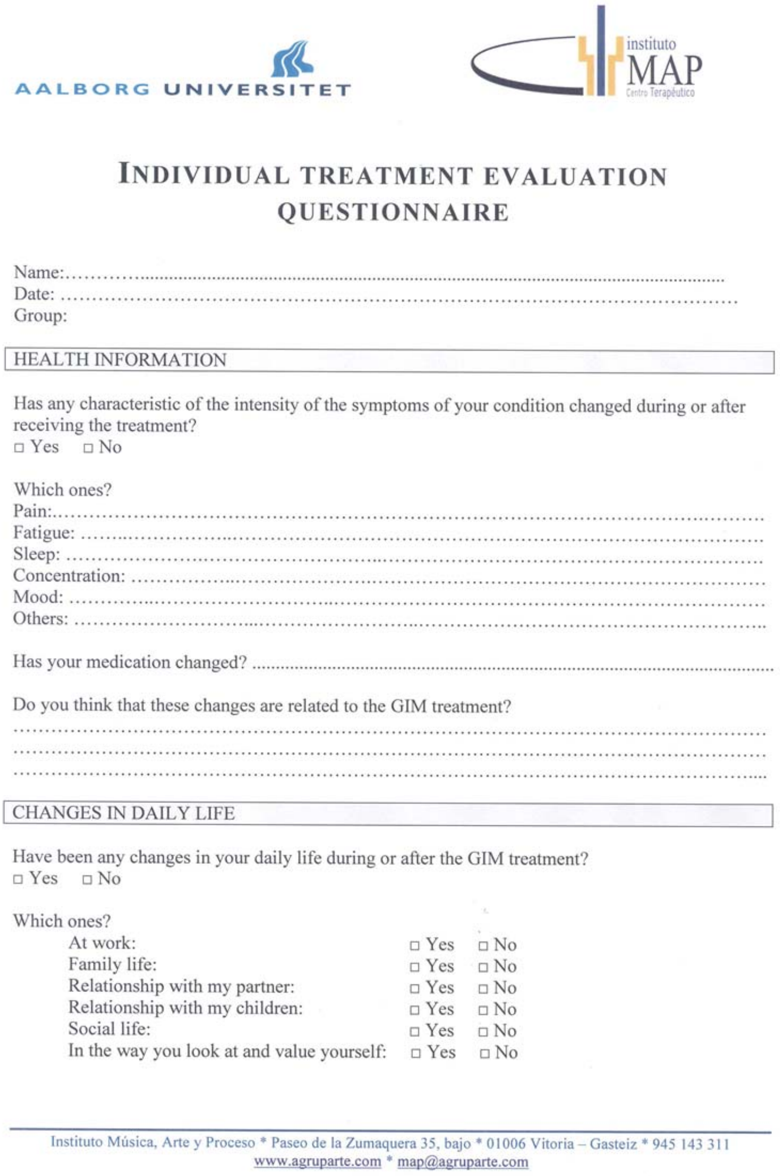
Appendix D. Individual Treatment Evaluation Questionnaire



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INDIVIDUAL TREATMENT EVALUATION QUESTIONNAIRE

Name:……………………………………………………………………………………
Date: ……………………………………………………………………………………
Group:

HEALTH INFORMATION

Has any characteristic of the intensity of the symptoms of your condition changed during or after receiving the treatment?
☐ Yes ☐ No

Which ones?
Pain:……………………………………………………………………………………
Fatigue: ………………………………………………………………………………
Sleep: …………………………………………………………………………………
Concentration: ………………………………………………………………………
Mood: …………………………………………………………………………………
Others: ………………………………………………………………………………

Has your medication changed? ………………………………………………………

Do you think that these changes are related to the GIM treatment?
……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………

CHANGES IN DAILY LIFE

Have been any changes in your daily life during or after the GIM treatment?
☐ Yes ☐ No

Which ones?

At work:	☐ Yes	☐ No
Family life:	☐ Yes	☐ No
Relationship with my partner:	☐ Yes	☐ No
Relationship with my children:	☐ Yes	☐ No
Social life:	☐ Yes	☐ No
In the way you look at and value yourself:	☐ Yes	☐ No

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Do you think that these changes are related to the GIM treatment?
□ Yes □ No
How?
……………………………………………………………………………………………………
……………………………………………………………………………………………………
……………………………………………………………………………………………………

INFORMATION REGARDING THE GIM TREATMENT

Is there own **significative image** that you specially remember from the GIM sessions?
□ Yes □ No
Which one?
……………………………………………………………………………………………………
……………………………………………………………………………………………………
……………………………………………………………………………………………………
Describe it:
……………………………………………………………………………………………………
……………………………………………………………………………………………………
……………………………………………………………………………………………………
Do you specially remember any **image from the other participants**? Did you feel surprised by any of them?
□ Yes □ No

Which one?
……………………………………………………………………………………………………
……………………………………………………………………………………………………
……………………………………………………………………………………………………

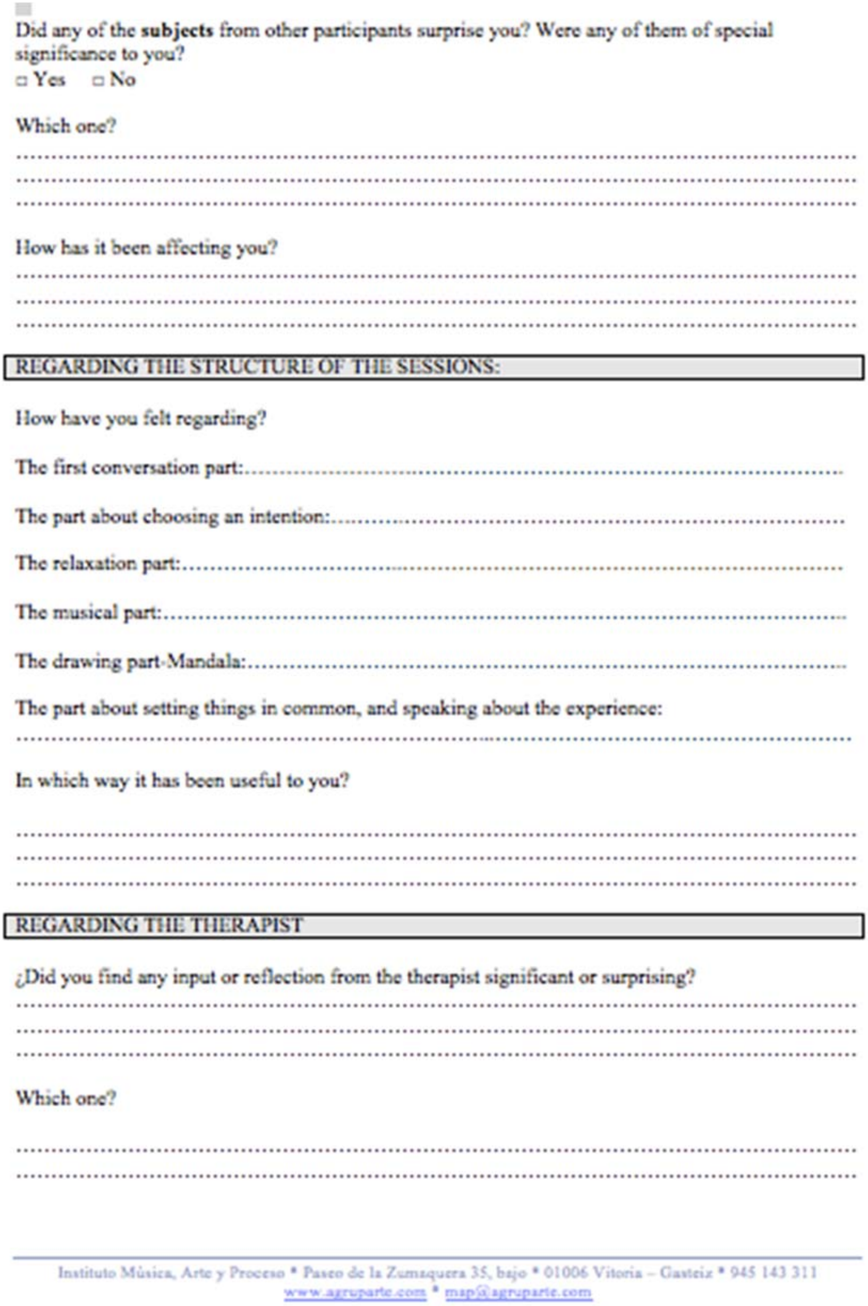
Describe it:
……………………………………………………………………………………………………
……………………………………………………………………………………………………
……………………………………………………………………………………………………

Is there any **musical selection** that you specially remember from the GIM sessions?
□ Yes □ No

Which sessions?
……………………………………………………………………………………………………
……………………………………………………………………………………………………
……………………………………………………………………………………………………

Did any of your **subjects** surprise you**?**
□ Yes □ No

Which one?
……………………………………………………………………………………………………
……………………………………………………………………………………………………
……………………………………………………………………………………………………
How has it been affecting you?
……………………………………………………………………………………………………
……………………………………………………………………………………………………



Did any of the **subjects** from other participants surprise you? Were any of them of special significance to you?

☐ Yes ☐ No

Which one?

....

....

....

How has it been affecting you?

....

....

....

REGARDING THE STRUCTURE OF THE SESSIONS:

How have you felt regarding?

The first conversation part:..

The part about choosing an intention:..

The relaxation part:...

The musical part:...

The drawing part-Mandala:..

The part about setting things in common, and speaking about the experience:

....

In which way it has been useful to you?

....

....

....

REGARDING THE THERAPIST

¿Did you find any input or reflection from the therapist significant or surprising?

....

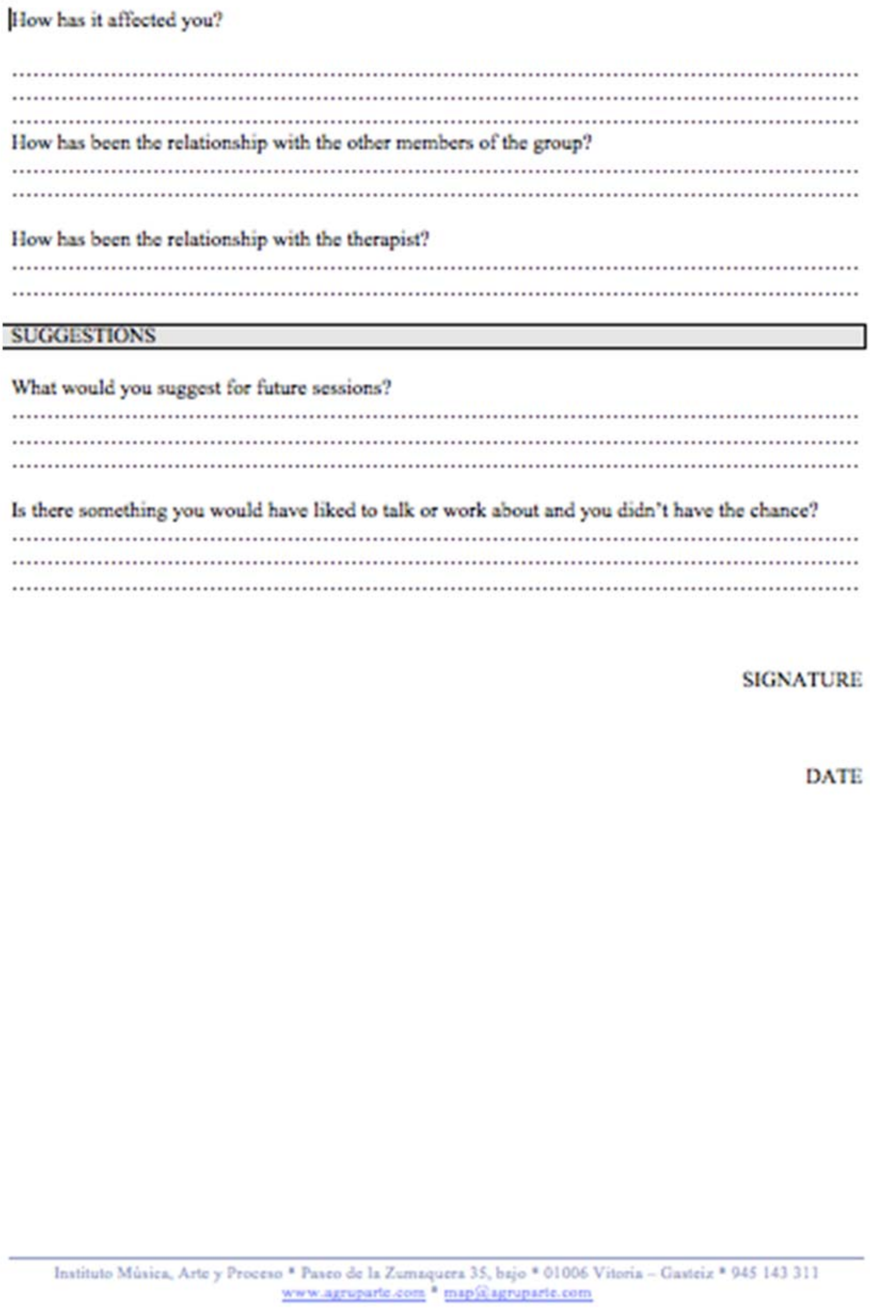
....

....

Which one?

....

....



How has it affected you?

....
....
....

How has been the relationship with the other members of the group?

....
....

How has been the relationship with the therapist?

....
....

SUGGESTIONS

What would you suggest for future sessions?

....
....
....

Is there something you would have liked to talk or work about and you didn't have the chance?

....
....
....

SIGNATURE

DATE

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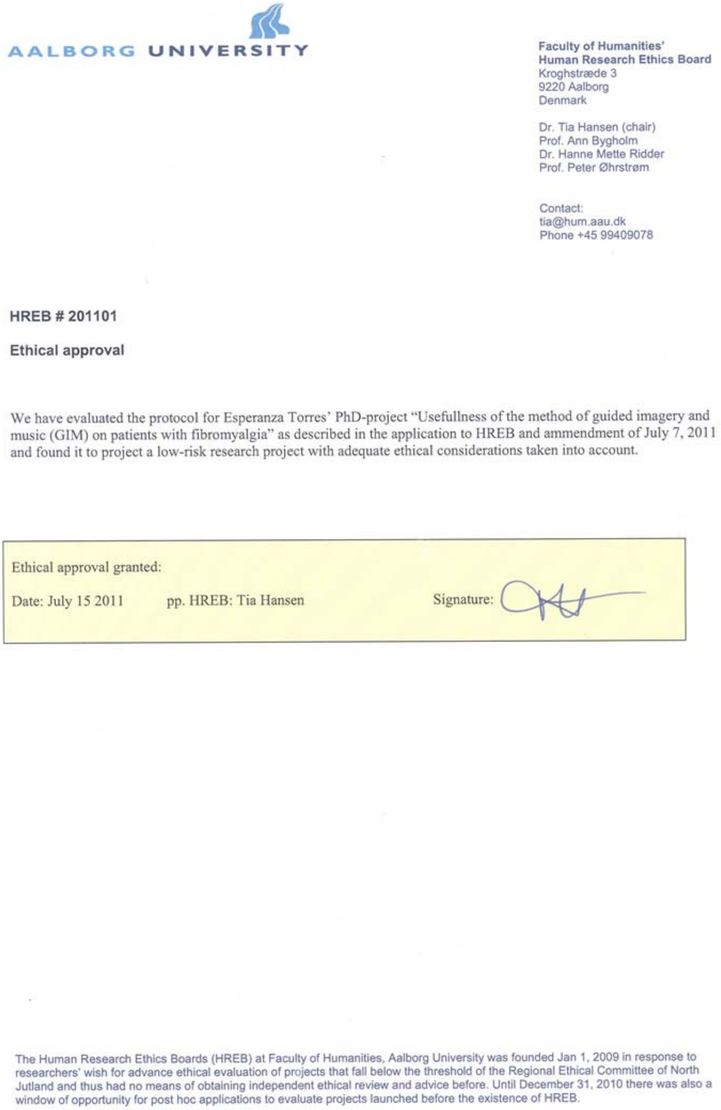
Appendix E. Ethical Approval



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Faculty of Humanities'
Human Research Ethics Board
Kroghstræde 3
9220 Aalborg
Denmark

Dr. Tia Hansen (chair)
Prof. Ann Bygholm
Dr. Hanne Mette Ridder
Prof. Peter Øhrstrøm

Contact:
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Phone +45 99409078

HREB # 201101

Ethical approval

We have evaluated the protocol for Esperanza Torres' PhD-project "Usefullness of the method of guided imagery and music (GIM) on patients with fibromyalgia" as described in the application to HREB and ammendment of July 7, 2011 and found it to project a low-risk research project with adequate ethical considerations taken into account.

Ethical approval granted:

Date: July 15 2011 pp. HREB: Tia Hansen Signature:

The Human Research Ethics Boards (HREB) at Faculty of Humanities, Aalborg University was founded Jan 1, 2009 in response to researchers' wish for advance ethical evaluation of projects that fall below the threshold of the Regional Ethical Committee of North Jutland and thus had no means of obtaining independent ethical review and advice before. Until December 31, 2010 there was also a window of opportunity for post hoc applications to evaluate projects launched before the existence of HREB.

SUMMARY

This study attempts to demonstrate the effectiveness of Group Music and Imagery (GrpMI) with women suffering from fibromyalgia (FM). It uses a randomized controlled trial, with a pretest-posttest control group design, and a three month follow-up.

The results show statistically or tendentially significant positive effects for the following relevant variables of the symptoms of fibromyalgia: pain, anxiety, depression, anger, impact of FM on functional capacity and health, and perception of psychological wellbeing,

The effectiveness of GrpMI intervention with women suffering from FM suggests that it is advisable to use music therapy and especially Group Imagery and Music for FM treatment. The results obtained open the way for further research studies focussing on the usefulness of GrpMI in other populations that, like FM sufferers, experience chronic pain.

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