

ORIGINAL ARTICLE

Group Medical Visits Using an Empowerment-based Model as Treatment for Women With Chronic Pain in an Underserved Community

小组医疗访视使用一种赋权模型治疗缺医少药社区的慢性疼痛女性患者

Visitas médicas grupales utilizando un modelo basado en la habilitación como tratamiento para mujeres con dolor crónico en una comunidad marginada

Jeffrey S. Geller MD, *United States*; Jill Kulla, TUSM, *United States*; Alena Shoemaker, MD, *United States*

ABSTRACT

Background: Over the past decade, group medical visits have become more prevalent. Group medical visits may have some advantages in treating chronic illnesses such as chronic pain as they can be more patient centered. The empowerment model is a novel approach used to provide support, education, and healthy activities guided by participants.

Objective: To evaluate the early stages of a chronic pain group medical visit program based on the empowerment model.

Methods: This prospective cohort study recruited 60 female participants to participate between October 2004 and May 2005. All enrolled participants completed the SF-36 questionnaire, which was administered at baseline and again after 6 months of participation. Data from chart review included age, race, weight, height, chronic illness, chronic pain diagnosis, and degree of participation. Chronic pain diagnoses included back pain, osteoarthritis, fibromyalgia, rheumatoid/inflammatory arthritis, and other/unknown.

Results: Forty-two participants were enrolled in the program for 6 months. Their average Charlson Comorbidity Index score was 3.1 (SD=1.5). Statistically significant changes ($P<0.05$) were seen in the following SF-36 categories: Role-Physical, Bodily Pain, General Health, Social Function, and Mental Health. All factors trended toward improvement, with the largest improvements seen in Role-Physical and Role-Emotional.

Conclusion: Participants in the chronic pain group medical visit program had a high degree of comorbidity and poor health related quality of life in regards to functioning. There was improvement in many domains of health-related quality of life.

摘要

背景: 过去的十年里, 小组医疗访视越来越流行。小组医疗访视在慢性疾病(如慢性疼痛)的治疗中可能有一些优势, 因为这种方式更可能以患者为中心。赋权模型是一种新方法, 用于提供以参与者为导向的支持、教育和健康活动。

目的: 基于赋权模型评价慢性疼痛小组医疗访视计划的早期阶段。

方法: 此项前瞻性队列研究招募了60名女性参与者来参加2004年10月至2005年5月的研究。所有纳入的参加者分别在基线时和参加研究6个月后完成了SF-36问卷。病历审查的数据包括年龄、种族、体重、身高、慢性疾病、慢性疼痛诊断和参与程度。慢性疼痛诊断包括背痛、骨关节炎、纤维肌痛、类风湿/炎性关节炎和其他/未知。

结果: 本项目纳入了42名参与者, 持续时间为6个月。这些参与者的平均Charlson发病率指标分数为3.1 (SD=1.5)。SF-36问卷的下列方面可见统计学显著性变化($P<0.05$): 生理职能、躯体疼痛、一般健康状况、社会功能和精神健康。所有因素均趋向于改善, 其中观察到生理职能和情感职能改善程度最大。

结论: 慢性疼痛小组医疗访视计划的参与者共病程度高, 职能相关健康生命质量差。健康相关生命质量的多个方面都有所改善。

SINOPSIS

Antecedentes: durante la última década las visitas médicas grupales se han vuelto más predominantes. Las visitas médicas grupales pueden tener algunas ventajas en el tratamiento de enfermedades crónicas como el dolor crónico puesto que pueden centrarse más en el paciente. El modelo de habilitación es un enfoque novedoso adoptado para proporcionar apoyo, educación y actividades saludables guiadas por los participantes.

Objetivo: evaluar las fases tempranas del programa de visitas médicas grupales para el dolor crónico sobre la base del modelo de habilitación.

Métodos: este estudio prospectivo de cohortes incluyó a 60 mujeres participantes para participar entre octubre de 2004 y mayo de 2005. Todas las participantes inscritas realizaron el cuestionario SF-36, que se administró al inicio del estudio y de nuevo a los 6 meses de participación. Los datos de la revisión de historias clínicas incluyeron la edad, raza, peso, estatura, enfermedades crónicas, el diagnóstico de dolor crónico y el grado de participación. Los diagnósticos de dolor crónico incluyeron lumbalgia, osteoartritis, fibromialgia, artritis reumatoide/inflamatoria y otros/desconocidos.

Resultados: se incluyó un total de cuarenta y dos participantes en el programa durante 6 meses. La puntuación promedio del Índice comorbilidad de Charlson fue de 3,1 (DE = 1,5). Se observaron cambios estadísticamente significativos ($P < 0,05$) en las siguientes categorías del SF-36: rol físico, dolor corporal,

Author Affiliations

Greater Lawrence Family Health Center, Massachusetts (Dr Geller); Lawrence Family Practice Residency, Massachusetts (Drs Geller and Shoemaker); University of Massachusetts Medical School, Boston (Dr Geller); Tufts Medical School, Boston (Dr Geller and Ms Kulla).

Correspondence

Jeffrey S. Geller MD
JGeller@GLFHC.org

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salud general, función social y salud mental. Todos los factores mostraron una tendencia hacia la mejoría, observándose las mayores mejorías en el rol físico y el rol emocional.

Conclusión: los participantes del programa de visitas médicas grupales de dolor crónico tuvieron un alto grado de comorbilidad y una calidad de vida relacionada con la

salud mediocre en lo que respecta al funcionamiento. Se observó una mejoría en muchos dominios de la calidad de vida relacionada con la salud.

INTRODUCTION

The group medical visit model has emerged as a promising method to effectively manage chronic illnesses. Originally introduced in pediatric settings in the 1970s, group medical visits have since been used for a wide range of medical condition.¹ Some benefits of group visits include improved patient and provider satisfaction as well as decreased hospital admission.¹ They have also been shown to decrease emergency room, specialist, and overall medical utilization.¹ Many of these group models, however, are not empowerment based but more clinician or instructor driven. Our empowerment-based model has been under development at the Greater Lawrence Family Health Center (GLFHC), Massachusetts, since 1997. It originated as a treatment for loneliness but was found to have other health and quality of life benefits specifically in our diabetic patients.² As these groups were designed as a treatment for loneliness, participants met consistently and frequently to build relationships, check-in discussions were longer, and curricula were participant driven. These relational aspects, in addition to the efficiencies that group visits can offer, have since been applied to a variety of conditions at our health center, including obesity, heart disease, chronic pain, asthma, addiction, diabetes, and prenatal care.

The typical format of an empowerment group visit combines a group check-in, an educational session (which might include exercise, nutrition counseling, and group discussion), an activity (which is directed by the group and may involve art work, charity, yoga, or meditation), and an opportunity for an individual medical visit (IMV) with the physician at the request of the patient. A major focus of the groups is empowerment, defined in this setting as the ability to try new things and make lifestyle changes. This often includes overcoming such barriers to health as poverty. A sense of empowerment in an individual may come from strong relationships with others, building skills, and trying new things with success.² Also key to the group visit model is advocacy for group members, reciprocity, affiliation with others with similar life experiences, catharsis, and an understanding that self-healing can come as a result of helping others.³ Within groups, relationships are built both with the physician and other participants. From our experience, this cooperation typically results in patients feeling safer and feeling increased trust in their physician.

Chronic pain—in its many different forms—is a significant burden for the healthcare system. Chronic pain is experienced by approximately one-third of the population with half of those individuals reporting pain

on a daily basis.⁴ A 2012 study showed that the total cost of chronic pain (a combination of both healthcare costs and decreased productivity) ranged from \$560 billion to \$635 billion annually, an amount that exceeds the costs of heart disease, cancer, and diabetes combined.⁵ Chronic pain also places a devastating burden on patients' quality of life, with many suffering from depression and anxiety.⁶ A study of chronic pain in Europe found that 21% had been diagnosed with depression because of their pain, 13% had to change jobs, and 19% had lost their job because of pain.⁷

Though pharmacotherapy is typically considered as a first-line treatment for chronic pain, a number of other treatment modalities have also been found to be effective. In particular, interdisciplinary chronic pain rehabilitation programs—those in which all members of the team, including the patient, collaborate in forming a treatment plan—have proven successful.⁸ Most often these types of programs include some combination of physical and occupational therapy, group and/or individual psychotherapy, medication management, vocational rehabilitation, and chemical-dependency counseling when indicated. Exercise is effective in the treatment of chronic pain, though it is not entirely clear what particular types of exercise may result in these improvements.⁸ Complementary and integrative medicine (CIM), both skills and practices like yoga, tai chi, and mind-body practice, are also quite effective and are becoming increasingly popular for pain treatment.⁹ These evidence-based activities can be combined with group medical visits to amplify effect and have been shown to be a feasible approach.¹⁰

Empowerment group medical visits combine better access to clinicians and health services, increase educational time, provide opportunities for CIM, and encourage patient support and relationships. We believe these are elements that have made group visits work in our community. Though our groups started some time ago and others have started group visits across the country, there are no large outcome trials that have been reported. We also believe the empowerment model is unique in its patient-centeredness. Therefore, we hypothesize that the empowerment group visit model would improve health-related quality of life as measured by the SF-36 in our poor/underserved patients with chronic pain.

MATERIALS AND METHODS

Study Design and Setting

This prospective cohort study was funded by the Eileen Fisher Community Grants Program in September 2004. It was intended to be a pilot study to

recommend areas of future research. A rolling enrollment period commenced in October 2004 and lasted until December 2004. The University of Massachusetts Institutional Review Board approved this study.

The GLFHC is a federally qualified community health center located in one of the poorest cities in New England. Greater than 90% of the patients come from underserved populations, including low-income families, recent immigrants, elders, and those with disabilities. Approximately 70% of the patients are Caribbean Latino with most coming from the Dominican Republic. Group medical visits at the time of this study were located in a large group space which had been built attached to 1 of the 4 GLFHC clinical sites. This location was in a strip mall setting that had access to public transportation and parking.

Participant Recruitment

Participants were recruited to the group medical visit program through physician referral by their primary care providers at GLFHC using the standard health center referral process. Providers were made aware of the groups by an email that was sent to all clinicians at our clinic. Referrals were handled on a first-come, first-served basis. When a referral was received, patients were screened for inclusion criteria and then invited to the group space for intake. Inclusion criteria required participants to be aged more than 18 years, female, have at least 1 chronic pain diagnosis in the medical record, and be an active patient at GLFHC. Females were chosen exclusively as the grant funding was specified to help women in poverty. A group coordinator/receptionist received 60 referrals from this process and invited participants into a private room where she enrolled them into the program, collected baseline data, and administered the first SF-36 questionnaire. Enrollees with literacy issues had the questionnaire read to them by the same group coordinator. In all, 42 participants were enrolled. Participants' chronic pain diagnoses included osteoarthritis (15), back pain (14), fibromyalgia (6), rheumatoid/inflammatory arthritis (4), and other/unknown (3). Ethnicity was noted by self-report and extracted from the electronic medical record (EMR).

Intervention

The chronic pain groups were modeled and designed similarly to the empowerment group visit model already being used at GLFHC for the treatment of obesity and diabetes. The empowerment model is an open model with rolling admission and no set time table for conclusion or graduation. It engages participants to form a community of support and shared best practices surrounding the individual in the context of specific health issues. As such, the first 4 to 12 weekly visits by participants were facilitated 90-minute sessions that fostered a safe space, individual connectedness, and activities to serve as a needs assessment. These sessions were the basis for the services and

treatment for chronic pain that would be used by the group as curriculum.

After these initial visits, the curriculum was chosen by the group participants. The particular interest expressed by the group was in stress and pain reduction modalities with more frequent group visits. To accomplish this, a design was created that accommodated shorter visits that were more frequent. Participants had the opportunity to meet 3 days a week for 1 hour each session. The group visit was facilitated by a medical provider 1 day a week. In general, these groups had a 15-minute empowerment check-in to share about their lives, a 15-minute physician discussion about pain-related medical topics such as medications, CIM for pain treatment, or other group-directed suggestions. This would be followed by 45 minutes of low-impact chair yoga, tai chi, meditation, or light exercise instruction by our group coordinator and then a 15-minute check-out. During this time, participants could meet individually with the doctor at their discretion for private consultations regarding pain. This allowed more privacy for those more introverted and allowed for medication prescription or adjustment, testing, and referrals.

Attendance at the 2 additional weekly sessions lead by the group coordinator of low-impact chair yoga, tai chi, meditation, or light exercise instruction were optional. At each specific session, participants determined the daily activity. This started at month 3 of our program.

Measures

Participants completed the SF-36 questionnaires at baseline and at 6 months. The SF-36 pre and post questionnaire were the primary measure of ability and disability in regard to health-related quality of life. It is composed of 4 physical health subscales and 4 mental health subscales (Table 1). The SF-36 questionnaire is validated with Caribbean Latinos.¹¹ The scoring algorithm provided by the SF-36 Health Survey Manual and Interpretation Guide was followed for any missing questionnaire data points.¹¹ The Charlson Comorbidity Index (CCI) was used to predict the 10-year mortality for a patient with multiple medical conditions. We used this tool to compare our population to others that may be studied in the future. Participation data were collected by our reception staff at each chronic pain and yoga/relaxation activity visit. The participation roster had some missing attendance points due to staff availability and lost check in data on some days. Though attendance was partially incomplete, participants could be accurately grouped based on the data that were available. Subjects were categorized into those who participated 3 times a week, twice a week, and 1 time or less a week.

The EMR was reviewed to extract physical and demographic information including chronic illnesses, chronic pain diagnosis, age, body mass index (BMI), and race. Medical diagnoses were determined by chart

Table 1 Brief Description of Each SF-36 Factor

Health-related Quality of Life Measure	
Role-Emotional	Problems with work/daily activity as a result of emotional problems
Role-Physical	Problems with work/daily activity as a result of physical problems
Social Functioning	Interference with normal social activities due to physical or emotional problems
General Health	Evaluates personal health and perception of whether it will get worse or better
Mental Health	Amount of time with feelings of nervousness and depression vs peacefulness, happiness, and calm
Bodily Pain	Degree of limitations due to physical pain
Vitality	Feeling tired and worn out vs full of energy
Physical Functioning	Ability to perform all physical activities from bathing or dressing to vigorous workouts

review of Current Procedural Terminology (CPT) codes in the EMR over the time of patient participation in the group visit program.

Statistical Analysis

All participants who provided pre and post surveys at 6 months were included. SF-36 variables were normalized to US population norms and then analyzed using the pre and post values with a 2-tailed paired *t*-test to compare the means. Pre and post data collected from EMR were evaluated and presented similarly. Qualitative measures such as ethnicity and chronic pain diagnosis are presented as appropriate.

RESULTS

Participant baseline characteristics are shown in Table 2. Ethnicity of participants is as follows: 17 participants were Dominican, 14 Puerto Rican, 5 South American other, and 6 were other or unknown. The mean participant session attendance was 1.9 times per week (SD=1.4). Sixteen participants attended 3 times a week, 4 participants twice a week, and 22 participants once a week or less. Mean age was 51.0 years (SD=9.6). BMI at baseline was 33.8 (SD=9.1) and decreased to

Table 2 Baseline Characteristics of Study Participants

Baseline Data	Mean	SD
Age, y	51.0	9.6
Height, in	61.5	2.8
Weight, lb	181.0	47
Body mass index, kg/m ²	33.7	9.1
Ethnicity		
Dominican	17	40.5%
Puerto Rican	14	33.3%
South American	5	11.9%
Other/Unknown	6	14.3%
Primary Chronic Pain Diagnosis		
Osteoarthritis other than back	15	35.7%
Back pain	14	33.3%
Fibromyalgia	6	14.3%
Rheumatoid/inflammatory arthritis	4	9.5%
Other/Unknown	3	7.1%
Charlson Comorbidity Index	3.1	76% (10-y survival)

33.3 (SD=9.3) at the 6-month follow-up, $P=.46$. The mean CCI score was 3.1 (SD=1.5), which predicts a 76% 10-year survival rate.

Participant SF-36 results were far below US average scores for age-matched women and people with back pain who had the comorbidity hypertension.¹² Statistically significant changes ($P<.05$) were seen in the following SF-36 categories: Role-Physical, Bodily Pain, General Health, Social Function, and Mental Health (Table 3). All factors tended toward improvement with the largest improvements seen in Role-Physical and Role-Emotional. Change in Social Function was most significant ($P=.007$).

DISCUSSION

We conducted a group program for women with chronic pain in a poor community. Participants were largely Latino, had common chronic pain diagnosis, and had a low level of health-related quality of life. Subjects created and participated in groups that largely featured facilitated discussion, education surrounding chronic pain, and CIM activities. After 6 months of participation, we found statistically significant improvement in many of the SF-36 factors.

The SF-36 factors scored by group participants were well below US average scores seen for age-matched women.¹¹ Only 32% of participants could walk 1 block without a limitation based on Physical Functioning score. Based on General Health score, more than 66% rated their health as fair to poor.¹¹ Based on Chronic Pain score, about 60.8% felt they could not work due to pain.¹¹ Based on Mental Health score, approximately 45% would meet criteria for severe depression or "poor" mental health.¹¹ Another measure to confirm this was the CCI. The average CCI of 3.1 would indicate that participants had only a 76% 10-year survival compared to an expected 96% survival rate for those without chronic pain or illness at age 50 years old.^{13,14}

Pain is a very complicated problem. People have different tolerances and abilities to live with pain, so we would expect some variety of experiences. Pain therefore is not just of the body but also of the mind which is why there is good evidence that cognitive-behavioral therapy and pharmacological agents for mental illness such as antidepressants can be effective treatments for pain.^{15,16} These study results seem to

Table 3 Pre and Post Group Visit Intervention Changes in SF-36

SF-36 factor	Pre	SD	Post	SD	P value
Physical Function	44.9	23.4	47.7	22.2	.550
Role-Physical	5.3	15.3	13.5	23.9	.046
Bodily Pain	30.5	18.9	36.4	17.7	.048
General Health	34.2	19.0	41.7	17.7	.025
Vitality	35.6	16.9	40.3	17.0	.058
Social Function	42.2	19.3	50.3	21.4	.007
Role-Emotional	14.1	21.1	21.0	24.7	.170
Mental Health	41.1	19.9	45.8	15.6	.042

further confirm this complexity seen in the differences between Bodily Pain and Physical Function. From our data, the SF-36 factor with the least significant change was Physical Function. It appears therefore that improvement in the Bodily Pain factor happened without significantly perceived improvement in ability to use and move the body.

The preliminary data from this pilot study are encouraging and seem to show improved health-related quality of life over a 6-month period in our Latina population. Empowerment and self-efficacy as a method of improving health has become more popular and evident in healthcare since the time period this study was conducted. It has been most studied in the field of type 2 diabetes where group based diabetes self-management programs are having promising results.^{17,18} This change of perspective in the public health and medical community is what urged the presentation of this data and material now even though it was collected years ago. We have been practicing with different forms of empowerment groups since 1997, initially as a treatment for loneliness. Our evidence from that time indicates that when loneliness and depression improved as a result of group medical visits, there were also improvements in physical health in the form of weight loss and better diabetic control.²

Assessing effectiveness of our program was only possible due to grant funding for an evaluation. We continue to have these programs today and run them in a financially self-sustaining way. There is little extra financing, so group programs are limited to twice a week. Limited resources also reduce the time and ability to do more thorough evaluation and research.

Our 12-year experience has shown that the empowerment group visit model is one of constant improvement and change. The curriculum has included group support, nutrition and cooking, varying forms of exercise, field trips, forms of mindfulness, and exercise. We have observed improvement in physical ability with less focus on participant depression and loneliness. Perhaps this increases the participants' desires to try more exciting things and be more self-activated. As the participants have great input into the curriculum, it has become more adventurous: additions include walking groups, hiking, swimming at the beach, making movies, writing books, cooking meals, and many educational topics surrounding all forms of

health. It would be interesting to see the trajectory of changes over years, not just the first 6 months as presented in this article.

Limitations

As this is a pilot study and of small sample size, more studies are needed to verify these results. One of the larger problems also stems from the lack of a control group. Additionally, as the group had such low SF-36 scores, the improvement could also represent a regression towards the mean. As the sample population was exclusively Latino women in a poor inner-city setting, results cannot be generalized to other communities or populations. Another limitation to our empowerment-based model is that by design, the curriculum will be different in each community. In many ways, participant input is essential for the program; it ensures cultural competence, creates realistic curricula and ideas, informs activities, encourages high participation rates, and can reduce barriers to health. However, since curricula are driven by what is needed in each community and by each participant group, they can vary greatly. This will make research and comparison between groups and communities with this sort of model challenging. It is the skills of group facilitation and management that become more important than the ultimate curriculum. Therefore, the reproducibility of these results relies on many factors that could be difficult to accurately measure, including facilitator skill.

CONCLUSIONS

The female participants referred to this underserved chronic pain group had a very low level of health-related quality of life. An empowerment model of chronic pain groups may improve health related quality of life in the setting of an underserved community in a community health center. The areas of greatest improvement were seen in ability to accomplish daily activities as measured by SF-36 factors. Statistically significant improvement was noted in the Bodily Pain, General Health, Social Functioning, and Mental Health subscales. Studies for longer periods of time, with control groups in place, in a variety of settings, and on larger group sizes are needed for further evaluation.

REFERENCES FOR THIS ARTICLE APPEAR ON PAGE 60.



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