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Bridging the Gap: Support Groups Do Not Enhance Long-Term Outcome in Chronic Back Pain

Steven J. Linton, Ph.D., Anna-Lisa Hellsing, M.S., and Irene Larsson, B.A.

Örebro Medical Center, Department of Occupational and Environmental Medicine, Örebro, Sweden

Abstract:

Objective: Because back pain patients often relapse within months of treatment, the effects of two types of support groups as a complement to usual medical treatment was investigated on long-term outcome.

Design: Regular treatment was compared with an "educational" support group and a professional support group before and 1 year after intervention in a randomized controlled trial.

Patients: A total of 76 women and 27 men, average age of 50 years and with an accumulated sick leave for musculoskeletal pain of 2–24 weeks during the past year, were randomly assigned to the three groups.

Outcome Measures: Sick leave records were obtained from the National Insurance Authority. A battery of standardized instruments was employed, which featured the Sickness Impact Profile, the Coping Strategies Questionnaire, the Multidimensional Pain Inventory, the Pain and Impairment Relationship Scale, the Pain and Discomfort Scale, the Pain Beliefs and Perceptions Inventory, and the Outcome Evaluation Questionnaire.

Results: The Educational Support Group demonstrated greater attendance than did the Professional Support Group. However, long-term outcome was not significantly different between any of the groups for sick leave, coping, function, or experienced pain. Both support groups, relative to the Regular Treatment Group, made greater improvements on the Sickness Impact Profile.

Conclusion: This study provides little evidence that support groups, as a complement to regular treatment, enhance long-term outcome for subacute musculoskeletal pain problems. Specific treatment techniques, matched to the patient's needs, stringently taught, and delivered in a more compact form, may be necessary for enhancing outcome.

Key Words: Randomized controlled trial—Musculoskeletal pain—Treatment—Prevention—Outcome—Back pain—Chronic pain.

Rehabilitation programs for patients with musculoskeletal pain (MSP) have sorely lacked proper long-term programs to ensure the generalization and maintenance of treatment gains. Thus, there is a real gap between the abundant support provided to the patient in the treatment setting as compared with the patient's natural environment. Outcome evaluation typically reveals substantial improvement after treatment, which to a large extent dwindles away during the coming year.[1,2] This does not mean that rehabilitation is not effective, but rather that many patients "lose" a significant portion of the gains they made during treatment. An example of this comes from our own research from which we found that approximately 50% of treatment gains were lost during an 18-month follow-up period.[3,4] The average outcome did not adequately represent the results as about one third of the patients had a very good outcome, while another one third had a poor outcome. Turk and Rudy[2] have underscored the problems associated with transferring treatment gains to the home environment where compliance and generalization may be difficult.

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Address correspondence and reprint requests to Dr. Steven J. Linton, Department of Occupational and Environmental Medicine, Örebro Medical Center, S-701 85 Örebro, Sweden.

Practical limitations in administering follow-up programs seem to have hindered their development and implementation. First, there is the question of who is actually responsible for follow-up interventions. A variety of facilities (e.g., the treating facility, occupational healthcare services, or primary healthcare facilities) may be viewed as having responsibility. Moreover, since those providing follow-up intervention must cover the costs incurred, the price of the program increases, something that most providers want to avoid. Finally, many facilities may not have the staff or expertise to conduct a broad-based follow-up. Consider the need for contacts with workplaces and family members where long distances and time periods are involved. Consequently, attempts at follow-up programs have largely been confined to a limited number of booster or follow-up sessions.

A number of important issues are linked to long-term outcome success. Generalization involves ensuring that the skills learned during treatment actually may be transferred to the home and work environment. This appears to have often been overlooked. Although pain treatment centers are characterized by large portions of friendly assistance and encouragement in a "facility," real life may involve little support for new health behaviors and a different physical and social environment. Thus, the patient may have problems employing newly learned skills once released from the facility.

Compliance is a second issue as patients may fail to follow recommended procedures. In fact, Turk and Rudy[2] as well as Nicholas[5] maintain that this may be one of the most important factors reducing long-term outcome results. Because patients are regularly asked to perform several tasks ranging from taking medications to practicing relaxation, over long time periods, there is a very real danger for relapse and problems with compliance. A significant part of this might, for example, be time-management skills. Patients' self-reports indicate that time management is a central problem for complying with recommendations.[4]

A third issue is how patients are supposed to cope with new problems that arise. For example, a patient may deal well with the current situation, but have problems coping with a flare-up.[5] Because research demonstrates that chronic MSP is characterized by periodic "flare-ups,"[6,7] this becomes a very relevant problem. Moreover, other types of problems may also arise in the family or work situation (e.g., a sick family member or new work routines). These may be particularly relevant during the period immediately following treatment as the patient probably has not fully recovered to a "normal" state and therefore is more vulnerable. As a result of these problems, there appears to be a significant gap between the treatment setting and the patient's natural environment.

One method of bridging the gap between intensive treatment and the natural environment, which also might facilitate behavioral change, is so-called support groups. In the literature concerning relapse prevention for patients with myocardial infarction, patients have been provided with therapy after they have been discharged from the hospital for medical treatment on a weekly and biweekly schedule over the course of an entire year.[8] Burell and colleagues[8] were able to show that this group therapy aimed at assessing risks and subsequently modifying risk behaviors (e.g., Type A behavior was very successful in managing the problem and preventing relapse compared with a control group receiving cardiac counseling). Similar group therapy has been successfully employed relative to a "treatment as usual" control for cancer patients where 11 2-hour sessions provided information, physical training, and coping modules.[9] A significant difference between these group approaches and traditional "support groups" is that they are run by professionals and entail teaching skills including homework to achieve changes, whereas traditional support groups are often run by former patients and are oriented mainly toward providing educational and emotional support.

Some attempts at long-term group treatment for MSP that are similar to the programs for cardiac patients have been reported. Basler,[10] for example, has provided therapy for chronic pain patients in a group format and found that this reduced healthcare visits as compared with usual treatment. Philips[11] has provided a manual for group management of chronic pain consisting of a cognitive–behavioral program including relaxation, coping skills, medication, and activity management. Thus, support groups for patients with back pain might be a means of enhancing outcome.

The present study was designed to evaluate the effects of providing patients with support groups over a long period of time as a complement to "treatment as usual" for MSP. The idea was that support groups might enhance the long-term benefits of treatment. Consequently, the purpose was to assess the effects of adding a support group to regular treatment received in the healthcare system. Thus, patients off work for MSP were randomly assigned to either a professionally run support group, a traditional support group, or a control group receiving the regular treatment available.

METHODS

Subjects

People 18–60 years of age, who had accumulated sick leave for MSP of 2–24 weeks during the past year, were eligible to participate. In cooperation with the local office of the National Insurance Authority, insurance files were periodically screened for candidates who fulfilled the

above criteria. In addition, an advertisement in the local newspaper alerted potential participants to the program; these candidates were screened by telephone, and their records at the National Insurance Authority were checked to ensure that they fulfilled the inclusion criteria. A total of 113 candidates were subsequently provided with written information about the study, and informed consent was obtained. However, 10 subjects dropped out of the study and never actually attended a single session (see Results), leaving 103 participants. The study was approved by the hospital's Board on Research Ethics.

An overview of the characteristics of the subjects is provided in Table 1. As Table 1 shows, participants in the three groups were similar. Nearly 75% were women with an average age of 50 years, and approximately one third reported having participated in concerted medical treatment, such as at a rehabilitation clinic, for their pain. Sick leave due to MSP during the past 2 years showed a somewhat smaller number of days for those in the Educational Support group, but this difference was not statistically significant ($F = .95$; $p > .05$). There was a rather large difference between the groups on pain duration as the Professional Support Group had suffered pain 43 months as opposed to an average of 26 months in the other two groups, but this difference was not statistically significant ($F = .84$; $p > .05$).

Design

Participants were randomly assigned to a Regular Treatment Control Group, an Educational Support Group representing an educational orientation and a nonprofessional leader, or a Professional Support Group in which a trained professional helped members identifying possible risk factors for developing chronic pain as well as alter these risks by developing appropriate strategies. Randomization was achieved by entering each person's ID number into a computer program that randomized them into the three groups with the contingency that 20% were assigned to the Regular Treatment Control Group and 40% to each of the support groups. These groups are described in more detail below. The Regular Treatment Control Group represents usual treatment of these cases, while the two types of support groups tests differences in the content of the groups. Consequently, the design allows evaluation of the effect of adding a support group to the usual treatment provided for these cases. Assessment occurred before the start of the intervention as well as 1 year later. This constitutes a randomized controlled study of the effects of support groups.

Outcome measures

To obtain a broad evaluation that would reflect therapeutic as well as preventive aspects, several instruments were employed in a standardized assessment that occurred prior to the intervention and 1 year after the start of the intervention. The Swedish version of the Sickness Impact Profile (SIP), a well-documented, psychometrically sound instrument, designed to measure perceived health status regardless of the medical, demographic, or cultural variables involved, was employed.[12,13] In this study, the SIP–Pain Index was used, which includes 15 questions as recommended by Stratford, Solomon, Binkley, Finch, and Gill.[14]

The participant's method of dealing with his or her pain was assessed with the 50-item Coping Strategies Questionnaire (CSQ), which has demonstrated good reliability and validity.[15,16] It measures eight types of coping strategies as well as two measures of how well these strategies work.

The Multidimensional Pain Inventory (MPI) is a multifactor instrument containing 52 items and 12 scales. The MPI is designed to assess the broad domain of variables relevant for chronic pain.[17] In addition to being widely used, it has demonstrated good psychometric properties in a number of tests.[12]

Pain beliefs and attitudes were measured using three instruments. The Pain and Impairment Relationship Scale (PAIRS)[18] was used to assess attitudes toward the relation

TABLE 1. *Overview of the characteristics of the participants*

Variable	Regular treatment	Educational support	Professional support
n	25	39	39
Gender, females	68%	74%	77%
Age, mean (SD)	53 (9.6)	50 (9.9)	50 (9.6)
Rehabilitation treatment past 2 years (yes)	29%	36%	23%
Pain duration (months), mean (SD)	26 (50)	26 (46)	43 (67)
Mean no. of days sick leave for musculoskeletal pain past 2 years	92.0	76.4	90.7

between pain and activity. This scale has been found to have good reliability and validity, and it contains 15 questions rated on 7-point Likert scales.[15] The Pain and Discomfort Scale, which also has good reliability and validity,[19] was used to measure the degree to which pain results in emotional discomfort. The third instrument was the Pain Beliefs and Perceptions Inventory (PBPI) developed by Williams and Thorn.[20] The PBPI has 16 statements assessing beliefs about pain, including self-blame, pain as a mystery, and pain stability, and has shown satisfactory psychometric traits.[15]

The Outcome Evaluation Questionnaire was used as an overall measure of outcome.[21,22] This 14-item instrument, which covers pain intensity, medication, sleep, mood, cognition, and functional impairment, has been shown to have good psychometric properties and is sensitive to change.[21,22]

Information concerning sick leave was obtained, with the patients' consent, from the National Insurance Authority. These data were first classified into MSP-related diagnoses and other diagnoses. Moreover, other forms of absenteeism (e.g., parental leave) were classified. Only the results for MSP are included in this article because analyses indicated that there were no significant differences or trends between the groups for sick leave due to other illnesses or compensated time off work for other reasons (e.g., parental leave).

Finally, background information (e.g., age and work status) were collected using a questionnaire constructed for the study.

Interventions

Regular Treatment Control Group

This group received the treatment they normally would obtain. No effort was made either to facilitate or to prohibit this treatment. This treatment always consisted of contact with a general practitioner. In addition, patients received prescription analgesics, a referral to a physical therapist, specialist, or rehabilitation clinic at the doctor's discretion. The most common treatments were contact with the doctor, analgesics, and physical therapy.

Educational Support Group

This group was run as a patient-based support group in which education, empathy, and insight were the main ingredients. Participants were provided a copy of Richard Sternbach's book *Mastering Pain*[23] as a basis for discussion. This is a self-help book for chronic pain patients that provides information about chronic pain as well as various methods of dealing with these problems. For each session, a chapter in the book was assigned to be read at home. Subsequently, the content of the current chapter (e.g., pain physiology, attitudes toward pain, strategies for controlling pain, and exercise) was reviewed and discussed. No other homework was given.

The leader of the group had previous experience as a group leader and was a lay person with personal experience of MSP problems. The group met for 180 minutes 15 times during the course of 1 year. The groups met once per week for 1 month, every other week for 3 months, once per month for 3 months, and every other month for 5 months. The number of meetings, the length, and the point in time were matched with the Professional Support Group to facilitate comparisons.

Professional Support Group

These groups were similar to other professionally run support groups (e.g., for cancer or cardiovascular disease). It was specifically patterned after the support groups for patients with cardiovascular disease described by Burell and colleagues,[8] and the group leader attended a training course provided by this research group. In a group format in which mutual support and attachment could be utilized, this approach emphasized emotional support, education, and cognitive–behavioral change as a coping strategy. In fact, each session was structured to provide support through discussion and group exercises, education through reading assignments and the introduction of new ideas and material, and cognitive–behavioral change by reviewing homework assignments, practicing skills, and providing new homework.

In terms of cognitive–behavioral change, participants attempted to identify relevant risk factors for developing chronic pain in order to then use coping strategies to improve. The first two sessions provided educational material about MSP and the development of chronic pain problems emphasizing usual reactions. Examples of factors that may influence pain perception (e.g., risk factors) were underscored as were techniques that may facilitate management or prevention. Subsequent sessions focused on controlling pain intensity, activity limitations, family and social issues, workplace issues, medications, stress management, applied relaxation, and other coping strategies. Participants were asked to practice and complete various homework assignments that were designed to highlight a particular technique, risk factor, or problem.

In the next phase, participants completed an analysis of pertinent problem or risk areas and then attempted to develop strategies to deal with these. Finally, the last three sessions dealt with compliance, maintenance, and the fine-tuning of skills. Here, the problem of maintenance was related to compliance, and participants identified risk situations in which compliance could become a problem. They then developed a program for meeting these problem situations.[24] Because the intersession interval of these last sessions was large, they also served as a follow-up of progress.

The group meetings were matched with the Educational Support Group in terms of therapy duration, timing, etc.

TABLE 2. *Overview of attendance levels for the two types of support groups*

Sessions attended	Educational support: no. (%)	Professional support: no. (%)
1–4	11 (28)	23 (59)
5–10	8 (21)	10 (26)
11–15	20 (51)	6 (15)
Average	8.9	5.6

The groups met for 180 minutes 15 times during the course of 1 year. Participants met once per week during the first month, every other week for 3 months, once per month for 3 months, and every other month during the last 5 months.

RESULTS

The data were first summarized, and the appropriate scales calculated. The mean and standard error of the mean for selected variables for each group at pretest and 12-month follow-up are presented in Table 3. The results were first probed by looking at distributions, descriptive statistics, and univariate comparisons. To minimize errors due to a large number of analyses, multivariate analysis of variance (MANOVA) was chosen as the basic method of statistical comparison. These were calculated for similar variables (e.g., the scales of a particular questionnaire and gain scores were employed). For the single variables included in the Outcome Evaluation Questionnaire and the Sickness Impact Profile–Pain Scale, analysis of variance (ANOVA) was used. The Duncan Post Hoc Test was calculated if the ANOVA was significant.

Dropouts and attendance

Of the 113 candidates who fulfilled the inclusion criteria, 10 never responded to the appointments for pretest assessment nor did any of them attend any treatment session, and therefore these were classified as dropouts. The remaining 103 participants were included in all analyses because they did attend assessment, or at least one session of treatment, which therefore constituted "intention to treat." Attendance is shown in Table 2.

The Educational Support Group members attended more sessions than did the Professional Support Group members, and this difference is statistically significant ($\chi^2 = 12.0$; $df = 22$; $p < .003$).

Questionnaire measures

The results of the MANOVA analyses are summarized in Table 4. There were no significant differences between the groups on any of the measures ($p > .05$). Thus, there

TABLE 3. *Means ($\bar{x}$) and standard errors (SE) of the mean for selected variables for the three groups pretreatment and at 12-month follow-up*

	Regular treatment control				Educational support				Professional support			
	Pre		Post (12 mo)		Pre		Post (12 mo)		Pre		Post (12 mo)	
Variable	$\bar{x}$	SE	$\bar{x}$	SE	$\bar{x}$	SE	$\bar{x}$	SE	$\bar{x}$	SE	$\bar{x}$	SE
Pain												
MPI—severity[a]	3.4	.26	3.2	.26	3.5	.177	3.1	.23	3.3	.23	2.8	.28
OEQ—pain free (0–7 days)	1.0	.40	.82	.38	.78	.28	1.3	.29	1.2	.46	1.8	.54
OEQ—medications (0–7 days)	2.3	.58	2.2	.57	2.2	.41	2.1	.42	3.0	.60	1.9	.45
Function												
MPI—general activity[b]	2.8	.15	2.9	.15	2.8	.11	3.0	.11	2.8	.12	3.0	.15
OEQ—sleep[c]	3.1	.18	3.0	.19	3.1	.16	3.1	.15	2.7	.23	3.2	.23
SIP—pain impact[d]	3.9	.62	5.2	.64	4.4	.53	4.0	.51	4.9	.62	3.9	.73
Coping												
Diverting attention[e]	12.3	1.4	11.9	1.4	11.1	1.2	12.4	1.2	13.9	1.2	13.7	1.3
Catastrophizing[e]	12.2	1.6	11.6	1.3	12.8	1.0	10.6	1.0	11.2	1.1	9.0	1.4
Beliefs												
PAIRS[f]	58.6	2.2	54.7	2.7	55.2	2.1	48.4	2.2	50.0	2.6	47.2	2.6
Pain and Discomfort[g]	21.6	1.5	20.7	1.4	19.8	.97	17.1	1.1	19.8	1.1	16.7	1.3

MPI, Multidimensional Pain Inventory; OEQ, Outcome Evaluation Questionnaire; SIP, Sickness Impact Profile; PAIRS, Pain and Impairment Relationship Scale.

[a] 0–6, 6 = very intense pain.
[b] 0–6, 6 = very active.
[c] 1–5, 5 = good.
[d] 0–15, 15 = dysfunction.
[e] 0–36, 36 = always use.
[f] 0–90, 90 = great impairment.
[g] 0–40, 40 = high discomfort.

TABLE 4. *Results of MANOVA comparisons on gainscores*

Variable	Wilks lambda	df	p
Sickness Impact Profile	.754	16	.312
Coping Strategies Questionnaire	.726	20	.222
Multidimensional Pain Inventory	.720	24	.794
Pain attitudes (PAIRS, PBPI, Pain and Discomfort Scale)	.798	10	.098

PAIRS, Pain and Impairment Relationship Scale; PBPI, Pain Beliefs and Perceptions Inventory; MANOVA, multiple analysis of variance; df, degrees of freedom.

were no significant differences between the groups on the Coping Strategies Questionnaire, The Multidimensional Pain Inventory, Pain Attitudes (which includes PAIRS, PBPI, and the Pain and Discomfort Scale), or the Sickness Impact Profile.

The results of the univariate analyses are shown in Table 5. An ANOVA analysis of gainscores on the Sickness Impact Profile—Pain Index produced a significant result ($p < .03$). The Professional Support Group as well as the Educational Support Group had significantly larger improvements than the Regular Treatment Control Group ($p < .05$). Table 5 shows that only one item on the Outcome Evaluation Questionnaire demonstrated a statistically significant difference between the groups. For self-reported sleep satisfaction, the Professional Support Group had significantly greater improvements than did the Educational Support Group or the Regular Treatment Control.

TABLE 5. *Results of the ANOVAs for gainscores*

Variable	F	df	p	Duncan
Sickness Impact Profile Pain Scale	3.78	2/80	.027*	ES, PS > RTC
Outcome Evaluation Questionnaire				
Pain-free days	.97	2/80	.384	
Pain intensity	.65	2/77	.627	
Days using medications	2.02	2/81	.139	
Sleep quality	3.58	2/81	.032*	PS > ES, RTC
Falling asleep	1.25	2/81	.292	
Stress	.887	2/81	.416	
Mood	.984	2/81	.378	
Irritation	1.80	2/81	.172	
Healthcare visits	1.08	2/73	.345	
Control/coping	2.19	2/81	.118	
Pain is a hindrance	.558	2/81	.575	
Feeling worthless	.233	2/69	.792	

ANOVA, analysis of variance; ES, Educational Support Group; PS, Professional Support Group; RTC, Regular Treatment Control Group.

Sick leave

Figure 1 shows the mean number of sick leave days per month 2 years before and 1 year after the intervention for each of the groups. Although the Professional Support Group showed a tendency for a somewhat faster decrease in sick leave than the Educational Support Group, there was no significant difference between the groups. This was true even when the largest differences were tested (e.g., the 3-month period before intervention and the last 3 months of follow-up [months 10, 11, 12] [$F = 1.24$, $df = 2/96$; $p > .05$]).

Discussion

Contrary to earlier reports, this study found little evidence that support groups enhance improvement as compared with treatment as usual for patients with musculoskeletal pain problems. Indeed, there were almost no significant differences found between the groups even though a broad range of assessment instruments was employed. All three groups showed considerable improvement during the course of the study, but the speed and depth of recovery as well as relapse were not found to differ significantly. Thus, no scientific evidence was found to support the idea that groups of this type actually do "bridge the gap" and improve long-term outcome.

A number of factors may potentially explain these results in light of other studies showing the efficacy of support groups. Previous studies have been conducted mainly with volunteer patients with cardiovascular disease or cancer,[8,9] while the participants in this study had subacute musculoskeletal pain mainly back pain. These problems differ greatly in many respects (e.g., musculoskeletal pain is not life-threatening, probably was of shorter duration, and may be attributed to factors in the work environment). In addition, in the current study, the intervention was recommended by the National Insurance Authority, and participants may have experienced this negatively as the Authority also provides compensation. Approximately 75% of our participants were women. This may reflect that men did not find the "support group" concept as appealing or valid as did women. Consequently, our participants may have differed substantially from those in other studies in important ways that influence behavior change. Still, it is striking that virtually no difference was found between the groups.

Another possible explanation of the negative results is that the content of the support groups, particularly the Professional Support Group, was not properly administered or matched to the needs of the patients. The idea was to provide a complement to regular treatment that would enhance the long-term outcome, rather than provide traditional therapy. As a result, the format for delivering the therapy was different than previous group treatments for pain, and the

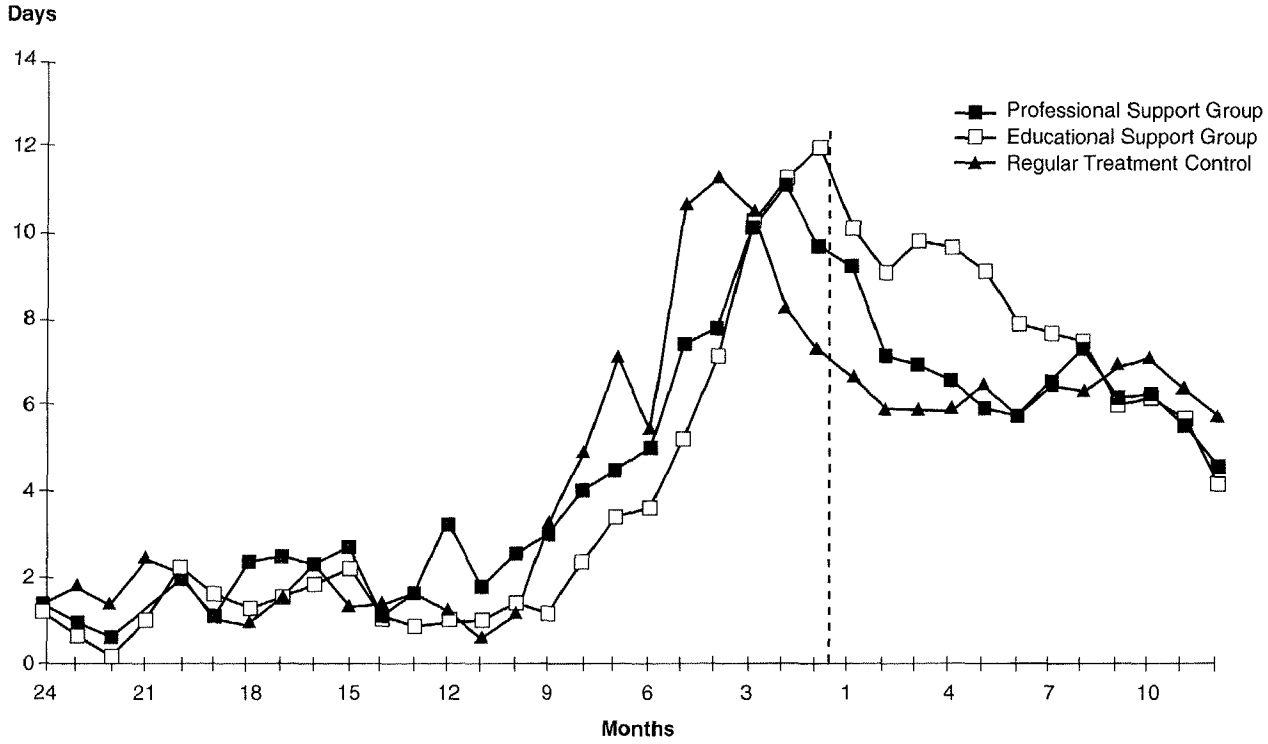

FIG. 1. Mean numbers of sick leave days per month for the three groups 2 years before and 1 year after the start of the program.

content was probably not equivalent to usual procedures in most cognitive–behavioral treatment programs for chronic pain.[3,10,11] Moreover, the amount of treatment was relatively small and spread over a long period of time resulting in a considerable amount of educational material, discussion, and presentation of general techniques. This might have also affected learning negatively. Finally, the effect of the given group leaders could not be evaluated because they were held constant and involved only three leaders, but this might conceivably have influenced the results.

Attendance records indicated that few subjects actually participated in all sessions, and this might influence outcome. Moreover, a significant difference in attendance was observed between the two types of support groups. Although attendance was not especially high, it does seem to be comparable with some studies reporting attendance.[25] The wide range of attendance might also imply that those attending sessions would learn new coping skills better and thus have more substantial results than those attending fewer sessions. Although dividing subjects on this basis would infringe on the "intent to treat" principle, post hoc probing was conducted to test this idea. This probe suggested that there was relatively little correlation between attendance and outcome for the support group members. The difference in attendance between the groups might be explained by the fact that the Professional Support Group required greater participation as well as homework. Another explanation might be that the groups were conducted over an entire year. Moreover, as pointed out above, previous studies have usually recruited volunteers with life-threatening diseases, while the participants in this study suffered from a non-life-threatening pain problem and were referred from the National Social Insurance Authority. Future research is needed to delineate the effect of selection criteria on outcome.

Nevertheless, this study provided little evidence of a significant difference in recovery between patients receiving "treatment as usual" and those receiving a support group in addition to treatment as usual. Consequently, the effect of support groups for subacute musculoskeletal pain may need to be called into question. Although it is impossible to determine why the results were negative, the possibility that the groups simply are not effective needs to be entertained.

Although significant differences between the groups were not observed, patients attending the groups were enthusiastic about them and reported that they were helpful. This underscores the need for objective evaluation. Future research concerning group therapy for patients with musculoskeletal pain should pay particular attention to the selection criteria employed. Moreover, our results highlight the role of attendance and compliance in conducting therapy groups as well as in evaluating them. Substantial alterations

in the program are needed, if they are to be improved. We suggest that the patients be selected more stringently and that the number of sessions be reduced and conducted during a 3–5-month period. Furthermore, special efforts are needed to ensure compliance (e.g., attendance and homework). Finally, the content needs to be more specific with cognitive and behavioral skills presented as coping and self-help for the particular problems the individual experiences. Whether these changes will actually result in effective treatment, however, remains to be empirically tested.

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