

Information and Low Back Pain Management

A Systematic Review

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Study Design. A systematic search of three electronic databases was done to identify randomized controlled trials on the effect of written or audiovisual information in low back pain.

Objectives. To determine whether information is an effective preventive action and/or therapy for low back pain and which type of information is most effective.

Summary of Background Data. Information is commonly used in the primary care of low back pain and mostly delivered by booklets.

Methods. A systematic computer-aided search of the Medline, PsycInfo, and Embase database. A rating system was used to assess the strength of the evidence, based on the methodologic quality of the randomized controlled trials, the relevance of the outcome measures, and the consistency of the results.

Results. Eleven randomized controlled trials were selected, including seven trials of high methodologic quality, as well as one parallel group controlled survey and one longitudinal study. Only three of the seven high-quality studies showed favorable results for information. There is strong evidence that a booklet increases knowledge and moderate evidence that physician-related cues increase the confidence in a booklet and adherence to exercises. There is limited evidence that a biopsychosocial booklet is more efficient than a biomedical booklet to shift patient's beliefs about physical activity, pain, and consequences of low back trouble. There is strong evidence that booklets are not efficient on absenteeism and conflicting evidence that they are efficient on healthcare use. There is no evidence that e-mail discussion or video programs alone are effective to reduce low back pain, disability, and healthcare costs.

Conclusions. Information based on a biopsychosocial model is recommended in primary care to shift patient beliefs on low back pain. Nevertheless, information de-

livery alone is not sufficient to prevent absenteeism and reduce healthcare costs.

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Low back pain (LBP) is a major health and economic problem among populations in western industrialized countries. Chronic LBP, in particular, is a major cause of medical expenses, absenteeism, and disability.

Providing information to the patients is considered as a crucial issue for primary care and treatment of LBP. Studies show that the patient's understanding of his or her pain significantly predicts treatment success.¹ However, in general, patients are dissatisfied with the information they receive from healthcare professionals, especially regarding the natural history of back pain, diagnosis, and treatment.² Patient information is often based on physician's assumptions of what patients may want or need to know; yet these assumptions are often incomplete or incorrect.^{3,4} Other barriers to adequate information are the use of medical, legal and other jargon, care provider's lack of time, lack of communication skills, and attitudes to back pain patients.⁵ Therefore, patients tend to access information from a variety of other sources, which are often contradictory, may conflict with research evidence and lead to maladaptive beliefs about LBP and its consequences.⁶ These beliefs may contribute to build a negative orientation toward pain (catastrophizing) and a fear of movement/(re)injury (kinesiophobia) may in turn increase the risk of a transition from acute to chronic LBP.⁷

Providing information to the patient has numerous objectives: to increase satisfaction, knowledge, and understanding, to reduce anxiety and pain, to avoid consequences of pain like fear avoidance, catastrophism and kinesiophobia, to reduce the risk of chronicity by addressing patient's beliefs and related behaviors, and to increase patient empowerment.^{8–10} Patient information materials, such as leaflets, booklets, books, videos, computer and Internet-based information, have notably increased over recent years.^{11–14} Over the last three decades, there have been literally hundreds of booklets and leaflets produced for patients with LBP.¹⁵ The majority of them are based on the traditional biomedical model and focused on issues such as knowledge of spinal anatomy, biomechanics, pathology, avoidance of activities that generate pain and advice on "good posture," ergonomic advice, and back-specific exercises. Most are based on theoretical considerations rather than evidence

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and fail to be in line with the modern guidelines for the clinical management of LBP. More recently, a multidisciplinary team produced an educational booklet (“The Back Book”) based on the biopsychosocial model that emphasizes the role of psychological and social factors in the development and maintenance of complaints.⁹ The message was focused on patients’ beliefs and attitudes; it stressed the advantages of remaining active and avoiding bed rest, combined with reassurance that there is likely nothing seriously wrong. Traditional information on anatomy, ergonomics, and back-specific exercises was markedly reduced.

The objective of this systematic review was to evaluate the influence of information on LBP treatment and prevention as compared with other treatments and to determine which type of information is most effective.

■ Methods

Criteria for Studies Considered for This Review. To be included studies had to meet the following criteria: 1) to be a review of randomized controlled trials (RCTs) or controlled prospective studies. Uncontrolled, nonrandomized observational studies were discarded. Abstracts and unpublished studies were also excluded, 2) to include in the experimental regimen an information-based intervention (booklet, video program, multimedia campaign, Internet-based information), 3) to use as primary outcome at least one of the following variables: pain, disability, return to work, use of health resources or patient’s knowledge, beliefs, or attitudes about back pain, 4) to include patients suffering from nonspecific LBP, whether acute or chronic, or subjects drawn from the general population, 5) to be published in English or French.

Search Strategy for Identification of Studies. The research strategy was based on a 1) computer-aided search of the Medline database for the period 1966 through April 2004, the Embase database for the period 1988 through April 2004, and the PsycInfo for the period 1988 through April 2004, using the search strategy recommended by the editorial board of the Cochrane Back review group¹⁶ (specific key words: back pain, backache, LBP, information, advice, adult learning, booklet, book, leaflet, pamphlet, media campaign, early intervention, prevention, education, primary care), 2) a screening references given in relevant identified publication and reviews; and 3) a citation tracking of the RCTs identified by the prior steps, using the Science Citation Index.

Methods of the Review. The studies were selected by four reviewers (Y.E.H., C.C., B.D., B.D.) who independently selected the trials to be included in the systematic review. Consensus was used to resolve disagreements concerning inclusion of RCTs, and a fifth reviewer (T.B.) was consulted if disagreement persisted. A study was determined as positive by this group of reviewers if the authors concluded (in their abstract or conclusions, or both), that information was more effective than the reference treatment for at least one primary outcome. In a negative study, the authors reported no differences between the study treatments or better results with the reference treatment. No systematic review was found.

Two authors (Y.E.H. and C.C.) independently assessed the methodologic quality of RCTs, using a list of criteria (Table 1)

Table 1. Criteria List for the Methodologic Quality Assessment

Randomization procedure is described and excludes bias.
The treatment allocation is concealed.
The groups are similar at baseline regarding the most important prognostic indicators.
The care provider was blinded to the intervention.
Cointervention is avoided or comparable.
The compliance is acceptable in all groups.
The patient is blinded to the intervention.
The outcome assessor is blinded to the intervention.
The withdrawal/dropout rate is described and acceptable.
The analysis includes an intention-to-treat analysis.

recommended by the Cochrane Back review group.^{16,17} One point was awarded for each condition that was fulfilled. If a trial achieved a score of 5 or more out of 10, it was considered high quality. The reliability of the quality designation (low or high quality) between the two reviewers was excellent (kappa test = 1).

The rating system used to summarize the strength of the scientific evidence consisted of four levels:

Level A (strong evidence). Generally consistent findings provided by (a systematic review of) multiple high-quality RCTs.

Level B (moderate evidence). Generally consistent findings provided by (a systematic review of) multiple low-quality RCTs.

Level C (limited or conflicting evidence). One RCT (either high or low quality), or inconsistent findings from (a systematic review of) multiple RCTs.

Level D (no evidence). No RCTs.

■ Results

Nineteen studies were evaluated. The four independent reviewers included the same 13 studies and excluded two surveys,^{18,19} two observational studies,^{20,21} one qualitative study²² and one alternate month design study that did not meet the primary outcome.²³ Eleven studies were RCTs, one was a parallel group controlled survey and one was a longitudinal study (Table 2). Seven of the 11 RCTs were high-quality studies. No trial scored 10 and only two scored more than 6, suggesting that even high-quality trials had some methodologic problems. The most prevalent methodologic problems were the blinding of patients and the blinded measurements of effect, the proper description of cointerventions, and the absence of intention-to-treat analysis.

Five of the 13 studies were designed to investigate the efficacy of booklet compared with no information. Two independent studies were designed to specifically study video and multimedia campaign. In four trials, booklet was either associated with video, e-mail discussion, usual care, or credibility-enhancing cues. In two trials, booklet was considered as a control intervention. Five trials included only patients with acute or recurrent nonspecific LBP. One trial included patients with chronic LBP (>3 months of continue LBP) and another included patients

Table 2. Randomized Controlled Trials (RCTs) on Information in Low Back Pain (LBP)

Reference	Design and Methodologic Quality	Population	Intervention	Follow-Up	Outcomes Measured	Results
Roland and Dixon ²⁴ (1989)	RCT Low quality (3)	936 patients with acute or chronic LBP	1) Booklet group (N = 483) 2) Control group (N = 453)	1-yr follow-up	No. of consultation Knowledge Certified sickness absence	Reduction of the no. of consultation No effect on the mean no. of days of absence No significant decrease in the combined referral rate to physiotherapy and hospital Improvement of knowledge about back pain
Jackson ²⁸ (1994)	RCT Low quality (2)	LBP patients advised to exercise (by their doctor) (N = 68)	1) Booklet with credibility-enhancing cues vs. 2) Booklet without credibility-enhancing cues vs. 3) No booklet	Baseline pretest + 3-wk posttest	Patients' attitudes toward involvement in treatment Satisfaction with information Intention to adhere to exercises Pain beliefs Treatment beliefs Pain intensity Reported adherence	No between-group differences on attitudes and beliefs Group 1: significantly greater confidence in medical advice and more reported adherence to exercises than control group (no booklet)
Sydmonds <i>et al</i> ⁹ (1995)	Prospective study	Employees with low back trouble (LBT; N = 266) or without LBT (N = 184)	1) An educational psychosocial booklet "Back pain—Don't suffer needlessly" 2) A nonmedical back pain pamphlet or no intervention	1-yr follow-up	Back beliefs questionnaire Fear-avoidance beliefs questionnaire Modified Roland-Morris questionnaire Pain Locus of Control	A positive shift in beliefs concerning the locus of pain control and the inevitable consequences of low back trouble A significant reduction of the no. of spells with extended absence and of the no. of day of absence
Schenk <i>et al</i> ¹⁴ (1996)	RCT Low quality (2)	205 healthy adult volunteers from a local industry	1) American back school (N = 74) 2) Video (2 hr) on anatomy, biomechanics, and lifting techniques (N = 64) 3) No back education (N = 67)	Posttest only	Measurement of lumbar lordosis with a flexible ruler while the subject was in the lifting position Cognitive test (12-item test) Affective test (10-item test)	No significant differences between video and control groups on psychomotor, cognitive, and affective measures whereas back school was effective
Cherkin <i>et al</i> ²⁹ (1996)	RCT High quality (5)	Primary care of low back or pelvic pain and sciatica patients (N = 194), mostly acute	1) Usual care (UC; N = 97) vs. 2) UC + booklet (N = 102) vs. 3) UC + 15 min session with a nurse + booklet (N = 95) → Improve patients' understanding of back problem + what they can do? → Reduce unwarranted concerns about outcomes → Empower patients to take actions allowing return to activities, reduce risk of subsequent LBP, minimize dependency on healthcare practitioners	1, 3, 7, and 52 wk after intervention	Patient perceptions: Knowledge, control, worry, symptoms Evaluation of care Behavioral dimensions: Exercises, function, disability, healthcare use	Higher perceived knowledge, evaluation of care, and reported exercise in group 3 after 1 and 3 wk No difference in worry, symptoms, functional status, healthcare use at any follow-up interval No difference on any outcome measure after 52 wk
Cherkin <i>et al</i> ³⁰ (1998)	RCT High quality (8)	321 adults with acute LBP	1) McKenzie method of physical activity 2) Chiropractic manipulation 3) Educational booklet	1, 4, and 12 wk, 1 to 2 yr	Level of function (modified Roland Disability Scale) Disability (NHI survey interview) Recurrence of back pain Use of back-related health care Costs of care	Physical therapy and chiropractic manipulation had similar effects on pain, function, disability, and costs, and patients receiving these treatments had only marginally better outcomes than those receiving an educational booklet

(table continues)

Table 2. Continued

Reference	Design and Methodologic Quality	Population	Intervention	Follow-Up	Outcomes Measured	Results
Burton <i>et al</i> ²⁷ (1999)	RCT High quality (7)	152 patients with a new episode of acute LBP or recurrent nonspecific LBP (<3 mo)	1) Control group received Handy Hits book (typical traditional booklet) 2) Intervention group received the "Back Book" → This book is focused on patients' beliefs and on what they should do themselves about their back pain	2-wk, 3-mo, and 1-yr follow-up	Fear avoidance beliefs questionnaire Back belief questionnaire Roland disability questionnaire Visual analog scale for pain intensity	Only the "Back Book" decreased belief score Both booklets improved disability score and pain; there were no statistically significant differences between groups Effects were maintained at 1 yr
Linton and Andersson ³¹ (2000)	RCT High quality (5)	272 patients with acute or subacute spinal pain	1) Pamphlet group (N = 70) 2) Information package group (N = 66) 3) Cognitive behavior therapy group (N = 107)	12-mo follow-up	Perception of risk for developing long-term pain Healthcare use Sick absenteeism	Cognitive behavior intervention decreased the risk for long-term sick and healthcare use, whereas other interventions were without effects on risk and even increased healthcare use All three groups tended to improve on the variables of pain, fear-avoidance, and cognitions
Hazard <i>et al</i> ²⁵ (2000)	RCT High quality (6)	486 workers with acute LBP	1) Pamphlet compiling activity resumption, self-care, and attitudinal advice 2) Non pamphlet	3 and 6 mo after injury	Structured telephone interview on current pain, healthcare visits, work status, and pamphlet impact	Pamphlet did not prevent or reduce post-injury pain, healthcare use, or work absence
Buchbinder <i>et al</i> ³³ (2001)	Parallel group-controlled study	4,730 individuals in the general population 2,556 general practitioners	Multimedia campaign (mainly television commercials) based on the messages delineated in the "Back Book"	Before, and 2 and 2.5 yr after campaign	Population beliefs GPs beliefs and attitudes Incidences, duration, and costs of back pain	Improvement of the beliefs of the general population Changes in the stated management of back pain by GPs in line with messages campaign Reduction of back claims, day compensated per back pain, and medical cost
Phelan <i>et al</i> ³² (2001)	RCT High quality (6)	100 LBP patients, potential candidates for lumbar spine surgery (N = 100)	1) Video + booklet (N = 47) vs. 2) Booklet alone (N = 53) → Inform patients about surgical and nonsurgical treatment for LBP	Baseline pretest +1 or 2 mo posttest	Knowledge about treatment options Patients' reactions to video and booklet Patients' preferences for treatment	Knowledge increased in both groups, but the combination produced greater gains Patients' preference for video + booklet Lower preference for surgery if they had viewed video
Lorig <i>et al</i> ¹³ (2002)	RCT Low quality (4)	580 patients with chronic LBP	1) e-mail discussion group + videotape + back pain help book 2) Non-health-related magazine	1 yr	Pain (visual numeric scale) Disability (revised Roland-Morris scale) Health distress Healthcare utilization	Information improved pain, disability, health distress, and decreased medical visit and hospitalization day
Roberts <i>et al</i> ²⁶ (2002)	RCT High quality (5)	64 patients with acute back pain	1) Leaflet on knowledge, attitude, behavior, and function 2) Control group	1-yr follow-up	Knowledge (quiz) Function (Aberdeen low back pain scale) Attitude (6 questions) Behavior	No difference between groups for function and attitude outcomes; leaflet improved knowledge and behavior

that were candidates for lumbar pain surgery. Finally, two studies included healthy subjects and four trials a mixed population (chronic, subacute, and acute LBP). Among the RCTs, six trials measured the effects at least 1 year after randomization, most of which (four studies) reported long-term positive effect of information. Considering the seven high-quality RCTs, four reported positive results and three negative results. Among the four low-quality RCTs, three reported positive results and one negative results.

Booklet Versus Usual Care or No Intervention

One low-quality trial including 936 patients with acute or chronic back pain demonstrated that an educational booklet based on the traditional biomedical model significantly improved patient's knowledge about back trouble, even 1 year after the intervention.²⁴ Further, there was a significant reduction in the number of consultations for back pain in patients in the booklet group compared with the control group during the follow-up year. On the other hand, no significant differences were

found in certified sickness absences between the two groups. Referral to hospital, referral to physiotherapy, admissions to hospital, and laminectomies were all less common in the booklet group, but the difference with the control group was not significant at the 5% level. Finally, the booklet improved knowledge of back problem compared with patients of the control group.

In a 1-year prospective study in industry including 266 employees with low back trouble, Symonds *et al*¹⁰ compared an educational booklet designed to alter avoidance behaviors by encouraging a positive and active approach of low back trouble with a nonmedical pamphlet or no intervention. In the company whose employees received booklets, a significant reduction occurred for the number of spells with extended absence and the number of days of absence (70% and 60%, respectively) compared with extrapolated values. A concomitant positive shift in beliefs concerning the locus of pain and the inevitable consequences of low back trouble was found.

The ability of an educational booklet to improve recovery in terms of pain, work status, and healthcare utilization after occupational low back injury was tested by a high-quality trial, including 486 workers with acute LBP.²⁵ The booklet was based on a biopsychosocial model and promoted changes in health behaviors. The control group received no booklet. There were no baseline between-group differences in current working status, lost workdays, and time between injury and first return to work. At 3-month and 6-month follow-up interviews, there were no statistically significant group differences in terms of self-assessed current pain severity, improvement in pain since maximum severity, number of healthcare visits, or work absence.

A high-quality trial, including 64 patients with acute LBP, compared a booklet with the usual general practitioner (GP) management of back pain.²⁶ The GPs in the control group continued with their usual management and advice for patients with acute back pain. In the experimental group, the GP also gave the patient a copy of the leaflet, verbally reinforcing the content. This booklet gives to the patients practical hints about how they can help to ease their back pain. It also includes simple anatomy, advice on the limited use of radiograph, simple message about mattresses, and information on analgesia, the need to minimize bed rest, and the importance of keep in mobile. The findings showed that at 2 weeks, knowledge about sitting posture was significantly greater in the booklet group, which transferred to an observable behavioral difference. This difference remained significant at 3 months. They were no statistically significant differences between the control and leaflet groups in their functional outcomes.

Biopsychosocial Model-Based Booklet Versus Biomedical Model-Based Model

A high-quality trial, including 152 patients with acute or recurrent LBP, compared a booklet based on the biomed-

ical model with a booklet based on a biopsychosocial model.²⁷ The patients receiving biopsychosocial booklet showed a statistically significant improvement in beliefs about activity across time, whereas those receiving the biomedical booklet showed no clear trend for improvement. The difference between the two groups was statistically significant at 2 weeks, 12 weeks, and 1 year. Beliefs about the inevitable consequences of back trouble were improved by 2 weeks and maintained at 1 year in patients receiving biopsychosocial booklet. The patients receiving the biomedical booklet showed no statistically significant change throughout the experiment duration. Both the biomedical and biopsychosocial booklets improved disability, but the improvement was greater in biopsychosocial booklet group than in the biomedical booklet group at all three follow-up times. Mean values for pain improved across time in the biomedical and biopsychosocial group. There were no statistically significant differences in pain between the biomedical and the biopsychosocial booklet.

Educational Booklet Versus Booklet With a Physician-Related Cue

A low-quality study, including 68 patients with back and/or neck pain, demonstrated that patients receiving an educational booklet designed to increase adherence with physical exercises concomitantly with a credibility enhancing cue had a greater confidence in the booklet that patient receiving the booklet without a credibility-enhancing cue.²⁸ Further, patients receiving the booklet with a credibility-enhancing cue, but not patients receiving booklet only, reported a greater adherence (92%) to exercise than patients who received no booklet (50%). On the other hand, booklet, with or without a credibility cue did not significantly modify over time pain intensity, attitudes toward involvement in treatment or pain and treatment beliefs.

A high-quality trial, including 293 subjects with mostly acute LBP, were allocated randomly to receive usual care, an educational booklet based on the biopsychosocial model, or 15-minute sessions with a clinic nurse, including the booklet and a follow-up telephone call.²⁹ No differences were reported after 1, 2, 7, or 52 weeks follow-up among the three groups in bothersomeness of pain, function and disability, work loss days, or healthcare use. The nurse groups had significantly higher levels of perceived knowledge that the other groups, 3 and 7 weeks after the intervention, but these differences were no longer significant after 1 year. The nurse intervention had a significant impact on the proportion of subjects reporting regular aerobic exercises (*e.g.*, walking, swimming, cycling, jogging, or active sport), but the effect was no longer statistically significant 7 weeks after the intervention.

Educational Booklet Versus Physical Therapy

One large study, including 321 patients with acute LBP, compared the effect of a biomedical booklet, a physical

therapy and chiropractic manipulation on the bothersomeness of symptoms and the level of disability.³⁰ The physical therapy consisted of nine sessions of exercises according to the McKenzie method. The chiropractic method used was a short-lever, high-velocity thrusts. After adjustment for baseline differences, the chiropractic group had less severe symptoms than the booklet group at 4 weeks, and there was a trend toward less severe symptoms in the physical therapy group. However, these differences were small and not significant after transformations of the data to adjust for their non-normal distribution. Further, between-groups differences disappeared after 1-year follow-up. Differences in the extent of dysfunction among the groups were small and approached significance only after 1 year, with greater dysfunction in the booklet group than in the other two groups.

Booklet Versus Cognitive/Behavioral Interventions

A high-quality trial, including 271 patients with acute or subacute back pain with assessments at pretest and at a 1-year follow-up visit, compared the effect of a standardized cognitive-behavioral therapy (six sessions of 2 hours) with either a pamphlet (based on a biopsychosocial model) or a series of information packets (back school approach).³¹ As for pain, all three groups demonstrated significant within-group improvement, but between-group differences were not significant. Scores on the Pain Catastrophizing Scale improved somewhat from pretest to follow-up assessment in all three groups, but only the pamphlet and information package groups demonstrated a significant within-group improvement. The between-group comparison was not significant. Fear-Avoidance scores showed significant decreases in all three groups, although the between-group differences were not significant. Scores for kinesiophobia were stable between pretest and follow-up assessment, and there were no significant changes within or between groups. Whereas the two information groups reported an increase in their number of visits to a physician or a physical therapist relative to the pretest, the CBT group reported a decrease, and the difference between the groups was significant for visits to a physician and to a physical therapist. The risk for a long-term sick leave developing was lowered ninefold for the cognitive-behavioral therapy group as compared with the risk for the information groups.

Video Program

A low-quality trial of 100 patients who were potential surgical candidates compared the efficacy of an interactive videodisc with a biomedical booklet to the booklet alone for informing patients about back surgery. The videodisc program included computer graphics of spinal anatomy, a narrative presentation of problems that can cause low back and leg pain, the probabilities of harms and benefits of both surgical and nonsurgical care, and brief interviews with actual patients who had experi-

enced good and bad outcomes of either surgical and nonsurgical care. The patient's knowledge improved after exposure to either intervention, but the videodisc with the booklet was significantly more efficient than the booklet alone. The videodisc-booklet group showed significantly greater gains in knowledge among subjects with the worst baseline knowledge scores. Those who viewed the videodisc expressed a somewhat lower preference, but not significant, for surgery than those who received the booklet alone.³²

Another low-quality trial, including 205 healthy employees, was designed to determine whether a back school video is as effective as a live back school presentation to learn lifting techniques. The subjects were assigned into three groups. The subjects of the Group I received back school education which included practice and feedback on correct techniques from a course instructor. Group II received instruction through a 2-hour video presenting the back school instructor teaching another group. Group III was a control group, who received no education in spine mechanics and lifting techniques. In comparison to the control group, back school videos did not significantly improve knowledge of lifting techniques and lifting tasks, whereas back school was an effective and useful program.¹⁴

Media Campaigns

One longitudinal prospective study, including 4,730 members of general population and 2,556 general practitioners from two different states (Victoria and New South Wales, Australia), investigated the impact of a multimedia campaign 2 and 2.5 years after campaign onset, on back beliefs, knowledge, and attitude statement about back pain, incidence of workers' financial compensation claims for back problems, rate of days compensated, and medical payments for claims related to back pain and other claims.³³ The public health campaign was based on messages delineated in the biopsychosocial booklet "*The Back Book*."²⁷ The campaign comprised television commercials spots, including dialogue by recognized international and national experts as well as Australian sporting and television personalities who had successfully managed their back pain. Radio and printed advertisements, outdoor billboards, posters, seminars, workplace visits, and publicity articles supported the television campaign. "*The Back Book*" was made widely available. There were significant improvements in population beliefs about back pain. In the population, the mean baseline Back Beliefs Questionnaire (BBQ) were 26.5 (95% confidence interval [CI], 26.1–26.8) in Victoria and 26.3 (95% CI, 25.9–26.6) in New South Wales. The BBQ scores improved significantly in Victoria, but not in New South Wales, between baseline and 2.5 years after commencement of the campaign (3.2; 95% CI, 2.6–3.9; $P = 0.000$). There was a significant decline in number of claims for back problems, rate of days compensated, and medical payments for claims for back pain over the duration of the campaign.

Internet-Based Information

One low-quality study, including 580 patients with chronic LBP, investigated the impact of e-mail discussion on disability and healthcare costs.¹³ The intervention consisted of a closed e-mail discussion, a biopsychosocial booklet, and videotape that modeled how to continue an active life with back pain. Controls received a subscription to a non-health-related magazine. At 1-year treatment, subjects compared with controls demonstrated significant improvements in pain, disability, role function, and health distress. Physician visits for the past 6 months decreased by 1.5 visits for the treatment group and mean hospital days declined nearly 0.20 days for the treated group while they increased 0.04 days for the control group. However, these results were not statistically significant.

■ Discussion

There is strong evidence (level A, three high-quality RCTs and two low-quality RCTs)^{14,24,26,29,32} that booklet increase knowledge compared with no intervention, usual care alone, or associated to a healthcare provider-related cue or videodisc. It was also reported that the association of a booklet with a video program including biomedical information offered an advantage over the booklet alone in knowledge gain.³² Further, media combination was particularly beneficial in the subgroup of patients who were the least knowledgeable at baseline. This finding underlines the importance of the level of education on the magnitude of the booklet effect on knowledge acquisition.

There is strong evidence (level A, one low-quality and two high-quality RCTs)^{24,25,31} that booklet is not efficient on absenteeism as compared with no intervention or cognitive-behavioral intervention. Nevertheless, one prospective study with a quasi-experimental design demonstrated that a biopsychosocial booklet incorporating the principles of the fear-avoidance model and distributed at workplace decreased absenteeism resulting from low back trouble.¹⁰ It is important to point out that in the three RCTs demonstrating that booklet is not efficient on absenteeism, the booklets were delivered at home by mail or by a general practitioner, whereas in the Sydmonds prospective study in which a beneficial effect was reported, the booklet was delivered at workplace. This analysis point out the importance of site delivery on the effect of information.

There is moderate evidence (level B, one high-quality RCT and one low-quality RCT)^{28,29} that physician-related cues increase in the short-term the confidence in booklet and adherence to exercises as compared with providing the booklet without those cues or to usual care. In these two studies, patients received a traditional booklet with or without a physician-related cue consisting either in a photograph of the patients' physician and the association of the message with the patients' physician throughout the text, or an educational session with a registered nurse. The results revealed that confidence in

medical advice and adherence to exercise was significantly greater in the group receiving the booklet with a credibility-enhancing cue than in the group receiving a generic booklet. It is suspected that efficiency of cue depends on the credibility of the physician and on the patients' level of satisfaction. It was reported that the "patient" levels of adherence are dramatically increased by a sense that the physician cares for them.³⁴ Additional investigations are needed to know whether cues would produce the same effect in other circumstances, particularly regarding a different physician group in which patient satisfaction is low. However, in both studies, the reported increases in exercises were not associated with improvement in function or with decreases in disability or healthcare use. Possible explanations for this result include 1) the exercise was not of sufficient duration or intensity, 2) the specific type of exercises used (*i.e.*, walking, swimming and cycling) have no effect on the symptoms or function of patients with primarily acute back pain, and 3) studies have included patients with acute low back, that mostly show a spontaneous favorable evolution.

This systematic review shows that there is strong evidence (level A, one low-quality and four high-quality RCTs)^{24,25,29-31} against the efficacy of a booklet on healthcare use as compared with no intervention, usual care, physical therapy, chiropractic manipulation, or cognitive-behavioral therapy. Indeed, one low-quality study reported that a booklet decreased the proportion of patients who consulted but not the referral rate to physiotherapists and hospital,²⁴ two high-quality trials showed that a booklet had no statistically significant impact on healthcare visits,^{25,29,30} and finally, another high-quality study concluded that a booklet increase healthcare use.³¹ The most powerful decrease in healthcare use was obtained with an information package including e-mail, videotape, and an educational booklet. This information package decreased medical visits and hospitalization days at any follow-up interval.¹³ This finding probably suggests that people with back pain may need more specific and individual information that can be delivered by a booklet.

Psychosocial characteristics, such as attitudes and beliefs, may influence patients' cooperation, empowerment, and adherence. Szpalski *et al*³⁵ reported that health beliefs, particularly beliefs about low back troubles being a life-long problem, were important in determining healthcare behaviors such as consultation rates and medication dependency. In the present study, we have shown a conflicting evidence (level C, two prospective studies, one low- and one high-quality RCT)^{10,27,28,33} that information positively modifies beliefs about back pain, future consequences, and physical activity. Interestingly, in the three positive studies, information is clearly built on the biopsychosocial model and the improvement in beliefs is associated with a reduction in patients' disability and costs related to back pain. In contrast, in the study reporting negative results, information is delivered

by a booklet containing mainly biomedical information. One RCT has compared a booklet based on the biopsychosocial model with a booklet based on a biomedical model. The patients receiving the biopsychosocial based booklet showed statistically significant improvement in beliefs about activity across time, whereas those receiving the biomedical based booklet showed no clear trend for improvement. Taken together, these observations suggest that biopsychosocial, but probably not biomedical, based information is efficient to positively modify patients' beliefs (level C).

In conclusion, information based on a biopsychosocial model is an efficient strategy to modify patients' beliefs on back pain and consequences and increase the adherence to exercises. This finding is important as we know that shift to positive beliefs may decrease kinesiophobia and catastrophism and that regular exercise practice may prevent chronic pain. This observation supports the idea that the delivery of information based on a biopsychosocial model is an efficient strategy to prevent back pain consequences. Recently, European guidelines for prevention in LBP have been published.³⁶ They recommended information about back pain based on biopsychosocial principles, focusing particularly on beliefs, whereas information focused principally on a biomedical or biomechanical model was not recommended.

There are limitations in this review that should be recognized. Most notable is the ratio between the variety of means used to transmit information to the patients and the number of studies that could be included in this review. This review indicates promising results for the role of patient information but also contradictory findings that may be due to various factors, including the small number of trials addressing each of the several possible ways used to inform the patient. Thus, it also emphasizes the need for further research investigating the influence of a range of information media; this will most probably involve quickly growing channels such as Internet. The studies included in this review did not deal with a homogeneous population in term of LBP. As a consequence, there may be limitations to the generalizability of the results of this review as acute, subacute, and chronic LBP patients can have different information needs. However, it should be noted that most of the studies deal with primary and/or early preventive information. Further research is necessary to ascertain the information needs of different patient groups in terms of acute, subacute, and chronic LBP problems as well as those of nonpatients, but also how best this information should be conveyed. Indeed, these groups are very different in many respects, including social, behavioral, cognitive, and medical factors.

At present, we lack consistent evidence that information is efficient to prevent LBP occurrence, recurrence, and consequences such as healthcare use. Further investigations are needed to better determine the methods of application and the long-term effect of information on LBP primary care. It is speculated that the management

of the information (delivery mode, duration, message content, *etc.*) should take into account the socio-cultural characteristics of the population as well as the specificity of socioeconomic context (*e.g.*, rate of unemployment or sickness and invalidity legislation) and that results about information should be replicated in different countries before to definitively conclude on the efficacy of information in the management of LBP. Further, we have no result on the effects of information on the natural course of the disease and on which subgroup of patients this information is more effective.

■ Key Points

- This study is a systematic review on three databases.
- Booklets increase knowledge and positively modify patients' beliefs.
- A psychosocial booklet is more efficient than biomedical booklet.
- Booklets are not efficient on absenteeism.
- There is no evidence that e-mail discussion or video programs are efficient.

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