

Observational Study

Awareness of the German Population of Common Available Guidelines of How to Cope with Lower Back Pain

Andreas Werber, MD, Monique Zimmermann-Stenzel, MSc, Babak Moradi, MD, Eva Neubauer, PhD, and Marcus Schiltenswolf, MD

From: University Hospital
Heidelberg, Heidelberg,
Germany

Address Correspondence:
Andreas Werber, MD
University Hospital Heidelberg
Dept. of Orthopedics and
Trauma Surgery
Schlierbacher Landstr. 200a
69118 Heidelberg
Germany
E-mail: andreas.werber@med.
uni-heidelberg.de

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Background: Several countries developed guidelines in order to provide a systematic approach for treatment of (chronic) lower back pain. The risk of suffering from (chronic) lower back pain differs significantly within the general population. A serious lack of research exists concerning the risk factor “dysfunctional behavior of the subjects in terms of acute lower back pain.”

Objective: The purpose of this study was to assess the knowledge of the German population regarding the availability of guidelines about managing lower back pain.

Study Design: Prospective observational cohort study.

Setting: We interviewed 983 subjects by phone. The study population included 50 – 70-year-old men and women with German residency and sufficient language ability.

Results: Of all the subjects, 70.2% claimed that they suffered at least once in their lifetime with lower back pain. Lower back pain with radiating symptoms occurred in 28.7%. Women were affected significantly more frequently compared to the epidemiological data. Of all the subjects with lower education, 82.9% suffered from lower back pain at least once in their lifetime compared to only 62.4% of people with university degrees. Education was also a protective factor for lower back pain with radiating pain. People who completed secondary modern school were 42% less likely to suffer from lower back pain than those who did not graduate. Knowing active rules of conduct occurred significantly more often at higher educational levels (i.e. all kinds of sports and exercises requiring physical strength, flexibility, power, agility, coordination, grace, balance and control, in particular stretching exercises) odds ratio = 7.78, physical activities odds ratio = 3.92, relaxation exercises odds ratio = 3.51).

Limitations: Data acquisition was performed by an external company and therefore provided only limited options for external validity. Furthermore data acquisition was restricted to 50 – 70-year-old patients, since this age group is at higher risk of suffering from lower back pain. A conclusion upon the knowledge of the whole population has to be drawn with caution, especially when considering the size of the study population. The life-time prevalence of lower back pain was assessed by interviewing patients about prior episodes of lower back pain. Slightly biased results may have occurred since the memory of prior episodes might result in too many or too few episodes.

Conclusion: The study revealed a lack of awareness of common available guidelines and an uneven distribution of existing knowledge throughout the population. Passive coping strategies like taking pain medication or ointment therapy were favored over active coping strategies like gymnastics, physical activities, and relaxation exercises. Respondents with a higher level of education suffered significantly less often from lower back pain and tended toward active treatment strategies. Respondents with lower levels of education more often demanded passive treatment strategies. The general population, especially those with lower education, is not sufficiently aware of behavioral strategies for managing lower back pain as proposed in available guidelines.

Key words: Treatment guidelines, lower back pain, aged 50 – 70, socioeconomic factors, health knowledge

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The incidence of lower back pain is similar in community and occupational settings. A previous history of lower back pain is the most consistent risk factor for transition to lower back pain from a baseline of a pain-free state (1). Several countries like Australia, Denmark, Germany, Finland, Israel, the Netherlands, and the USA have developed guidelines in order to provide a systematic approach for the treatment of (chronic) lower back pain (2). Koes et al (3) found similar procedures for diagnosis and treatment in several guidelines.

Consistent features were early mobilization of patients, discouragement of prescribed bed rest, and recognition of psychosocial factors as risk factors for chronification. However, discrepancies occurred for recommendations regarding exercise therapy, spinal manipulation, muscle relaxants, and patient information.

The risk of suffering from (chronic) lower back pain differs significantly within the general population. For instance, elderly women or employees of lower social classes are more often affected, as previously described in several studies (4). The relationship between medical, biological, and psychosocial risk factors has been widely studied (5). Beside occupational and lifestyle risk factors, physical and psychological comorbidities play an important role (6), especially concerning psychological distress (7). Based on standardized questionnaires, it is possible to predict the chronification of back pain with a probability of 78.05% (8).

A serious lack of research exists concerning the risk factor "dysfunctional behavior of the patient in terms of acute lower back pain" (9). It was argued that the shift of the paradigm from estimating degenerative spinal changes to a new understanding of the importance of continuous physical workout/exercise has been already fulfilled, both for general practitioners (GP) and specialized physicians. However, despite the fact that the majority of physicians and general practitioners are aware of the recommendations of the guidelines for lower back pain to remain physically active, especially going to work, 28% of them would recommend subjects to stay at home. Health care practitioners still believe – despite the facts – that lower back pain needs avoidance of activities, including absence from work (10). The attitudes and beliefs were associated with self-reported clinical behavior regarding advice about work (11).

METHODS

Objectives

The present study investigates the knowledge in the German population regarding the management of lower back pain as recommended by international guidelines. The knowledge of those suffering from lower back pain was compared to those who never suffered (i.e. cannot remember to have suffered) from lower back pain. The survey and assessment is based on common recommendations of guidelines for the treatment of lower back pain and additionally extended by the educational level:

- ◆ age and gender
- ◆ localization of the main pain area including pain radiation
- ◆ active self-treatment and passive therapies
 - gymnastics
 - relaxation exercises
 - maintaining physical activities
 - ointment therapies
 - taking pain medication
- ◆ level of education

Study Design/Setting/Patients/Data Sources

Our working hypothesis was that inadequate dysfunctional behavioral strategies in terms of lower back pain still exist. Guidelines favor maintaining physical activities and performing gymnastics for the treatment of lower back pain episodes. The hypothesis was that the general population is not familiar with these treatment recommendations. A questionnaire (Fig. 1) was developed by the researching team based on common guidelines for the treatment of lower back pain (12). This questionnaire was sent to a data acquisition company, which interviewed patients by phone during a survey period of 6 months. The investigated group included 50 – 70-year-old men and women with German residency and sufficient knowledge of the German language. The survey was restricted to this age range for its high prevalence for lower back pain (13).

Variables/Study Size

A representative sample of the German resident population was randomly established in a two-step algorithm: All questionnaires were sent by email from the data acquisition company to the interviewers according to the features "federal state" and "city size"

Did you suffer from...?	no	yes, during the last 7 days	yes, during the last 12 months	yes, more than a year ago
neck pain				
neck pain with radiation (in the arms)				
back pain				
back pain with radiation (in the legs)				
pain in shoulder joint(s)				
What do you think to do in case of back pain?				
In case of back pain one should...				
take pain medication / apply injections				
use ointment therapies				
do relaxation exercises				
do gymnastics				
maintain physical activity				
I do not know				
What is your level of education?				
no graduation				
graduation				
middle school				
university entrance diploma				
university degree				
not specified				

Fig. 1. Questionnaire.

based upon official federal statistics to reach a representative data set. Further classifications included the characteristics "gender," "age," "household size," and "profession," also based on the official federal statistics. Hence, the distribution of the questionnaires corresponded exactly to the distribution of the German resident population in the related age range.

Statistical Methods

Using Pearson's Chi²-Test, the statistical coherence between lower back pain (with or without radiating pain) and several socio-economic factors like "gender," "age," and "education" was calculated. Furthermore, the correlation of knowledge about guidelines and educational level as well as the connection between knowledge about guidelines and prior episodes of lower back pain was calculated. Afterwards, influencing factors for lower back pain and the knowledge about guidelines were identified using multi-variant binary logical regression. All tests were performed with SPSS 15.0 for Windows using a level of significance of 95%.

RESULTS

Bias

Because of the dropouts during data acquisitions, the distribution of the characteristics of the returned questionnaires did not match exactly the official federal statistics anymore. For being representative, the results for the 50 – 70-year-old population were weighted, according to the official federal statistics as well as by a multi-level weighting procedure. During this particular procedure, for each interviewed person a weighting factor was calculated, which, after being activated, allowed the generation of the representativeness of the general population. Further parameters for the weighting factor were the officially published characteristics "gender," "age," "household size" and "profession of the householder," "federal state," and "city size." After activation of the weighting factors and elimination of incomplete data records, the sample size was n = 983. In order to distinguish between the knowledge

about the guidelines of persons suffering from lower back pain (with or without radiating pain) and the knowledge of people without any pain in the lower back, a variable was established, describing these 2

distinct groups: "affected and not-affected." Eighty-one patients were excluded since the main pain area was located in the shoulder joint and not related to back pain (Fig. 2).

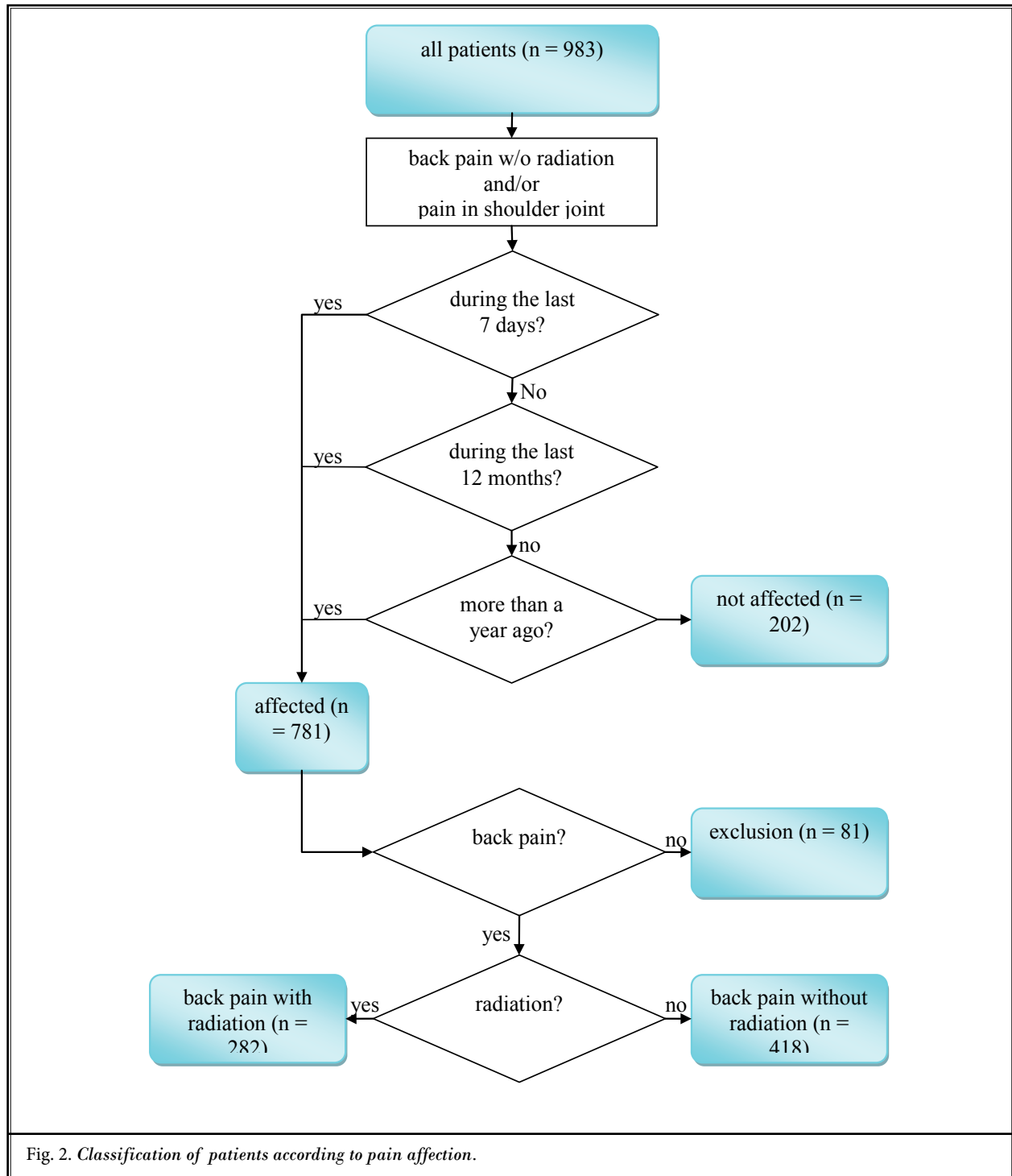


Fig. 2. Classification of patients according to pain affection.

Life-time Prevalence of Lower Back Pain

Descriptive Analysis

Lower back pain, without radiation, was the most observed pain syndrome in the 50 – 70-year-old age group. Of all the test respondents, 70.2% claimed that they suffered at least once in their lifetime with lower back pain. Lower back pain with radiating symptoms occurred in 28.7%. Women were affected significantly more frequently compared to the epidemiological data (Fig. 3).

Multivariate Analysis

Education and the appearance of lower back pain correlated significantly (Table 1). Of all the test respondents, 82.9% with lower education levels suffered from lower back pain at least once in their lifetime compared to only 62.4% of people with university degrees. No significant differences were observed between the groups of different educational levels when compared for lower back pain with radiation (Fig. 4).

Considering the parameter “lower education,” women had a significantly higher risk of suffering from

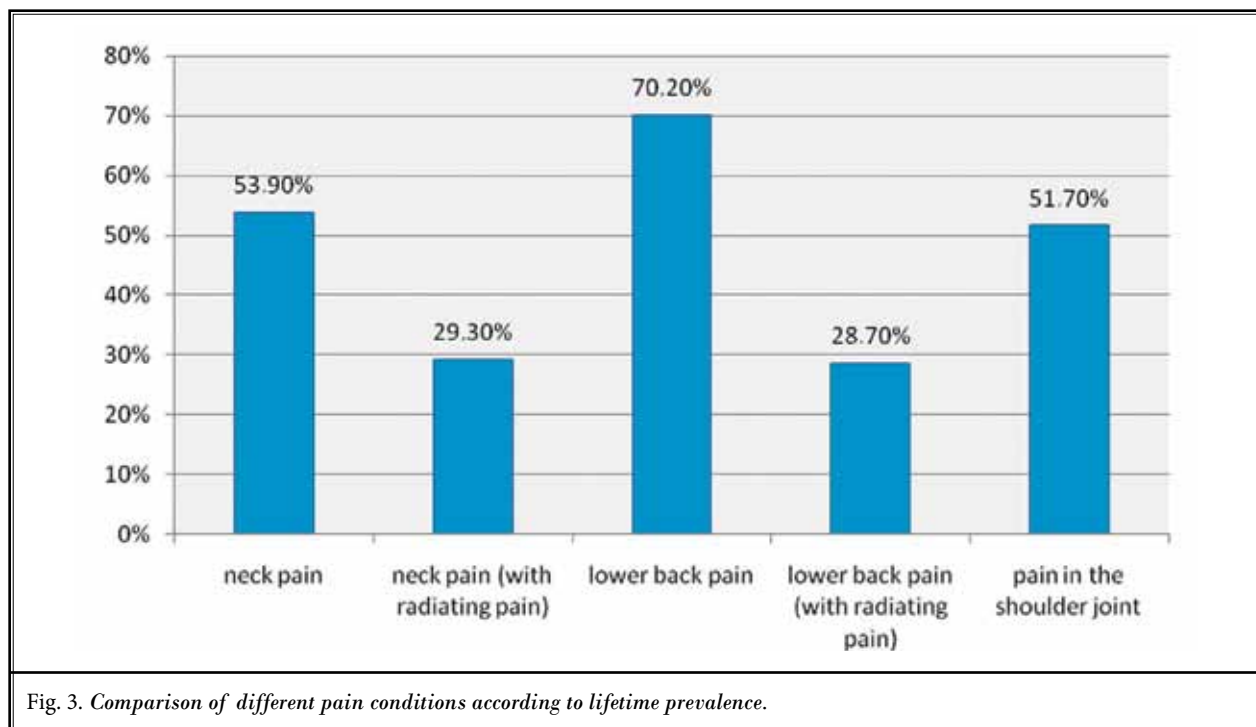


Table 1. Correlation between gender and lifetime prevalence from lower back pain (odds ratio).

N = 983 * P ≤ 0.05		Lower Back Pain			
		Without Radiation		With Radiation	
		OR	95% CI	OR	95% CI
Age		1.03*	[1.01; 1.05]	1.02	[0.99; 1.04]
Gender	male	1.00		1.00	
	female	1.17	[0.88; 1.55]	1.42*	[1.06; 1.89]
Education	no graduation	1.00		1.00	
	secondary modern school	0.59	[0.30; 1.15]	0.58*	[0.34; 0.98]
	middle school	0.52	[0.26; 1.03]	0.58*	[0.33; 1.00]
	university-entrance diploma	0.32*	[0.13; 0.80]	0.55	[0.32; 1.30]
	university degree	0.40*	[0.19; 0.88]	0.54	[0.27; 1.07]

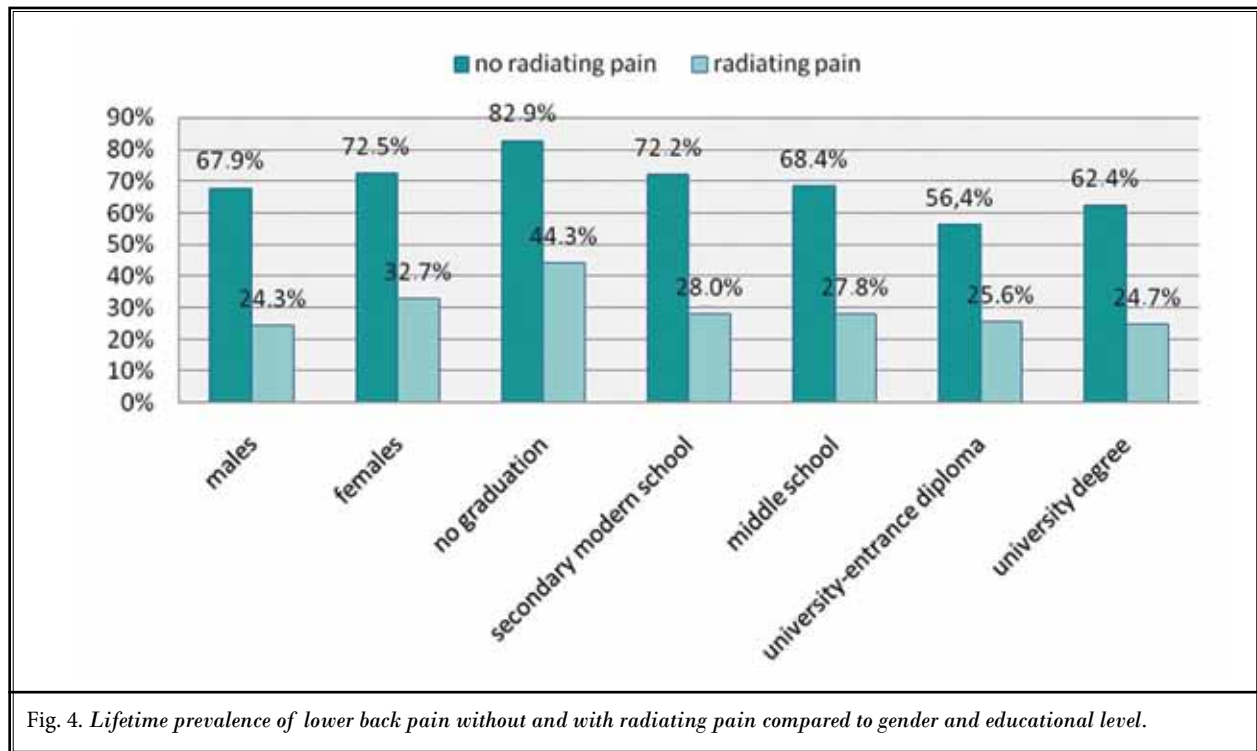


Fig. 4. Lifetime prevalence of lower back pain without and with radiating pain compared to gender and educational level.

lower back pain. In contrast to this, people with a university-entrance degree had a 70% lower risk and those with completed academic studies had a 60% lower risk of developing lower back pain in their lifetime. In terms of education, the statistical correlation between education and lower back pain prevailed.

Furthermore, education was a protective factor as well for lower back pain with radiating pain. People who had completed secondary modern school were 42% less likely to suffer from lower back pain than those who did not graduate.

Knowledge of Guidelines to Manage Lower Back Pain

Descriptive and Bivariate Analysis

Only 35.9% of all people considered gymnastics as a correct strategy against lower back pain. Stress relaxation exercises and maintaining physical activities were considered as helpful by 46.2% and 38.3%, respectively. More than 50% of the participants valued passive therapies like ointment therapy as an effective treatment option. Fewer than 30% of all participants knew that pain medication is a short-term method to regain physical activity.

There was no significant difference between gen-

ders about how to manage lower back pain. Significant differences occurred in terms of education levels. Taking pain medication and using ointment therapies were more frequently observed in the lowest education groups at 50% and 60.6% respectively, while maintaining independent physical activities as well as gymnastics and relaxation exercises were nearly exclusively found in the highest educational groups 52.7%, an 61.5% respectively (Fig. 5).

Through bivariate analysis, people with at least one episode of lower back pain were compared to those who have never suffered from lower back pain (or could not remember having suffered). No significant difference between affected and not-affected groups was found. Differences in knowledge only were observed in terms of pain medication: 42.2% of those who already suffered from lower back pain with radiating pain (compared to 35.1% of non-affected people and 35.9% of people with lower back pain but without radiation) claimed that taking pain medication was a correct strategy to treat lower back pain (Fig. 6).

Multivariate Analysis

No significant difference in knowledge of guidelines to cope with lower back pain could be found between men and women. Knowing active rules of

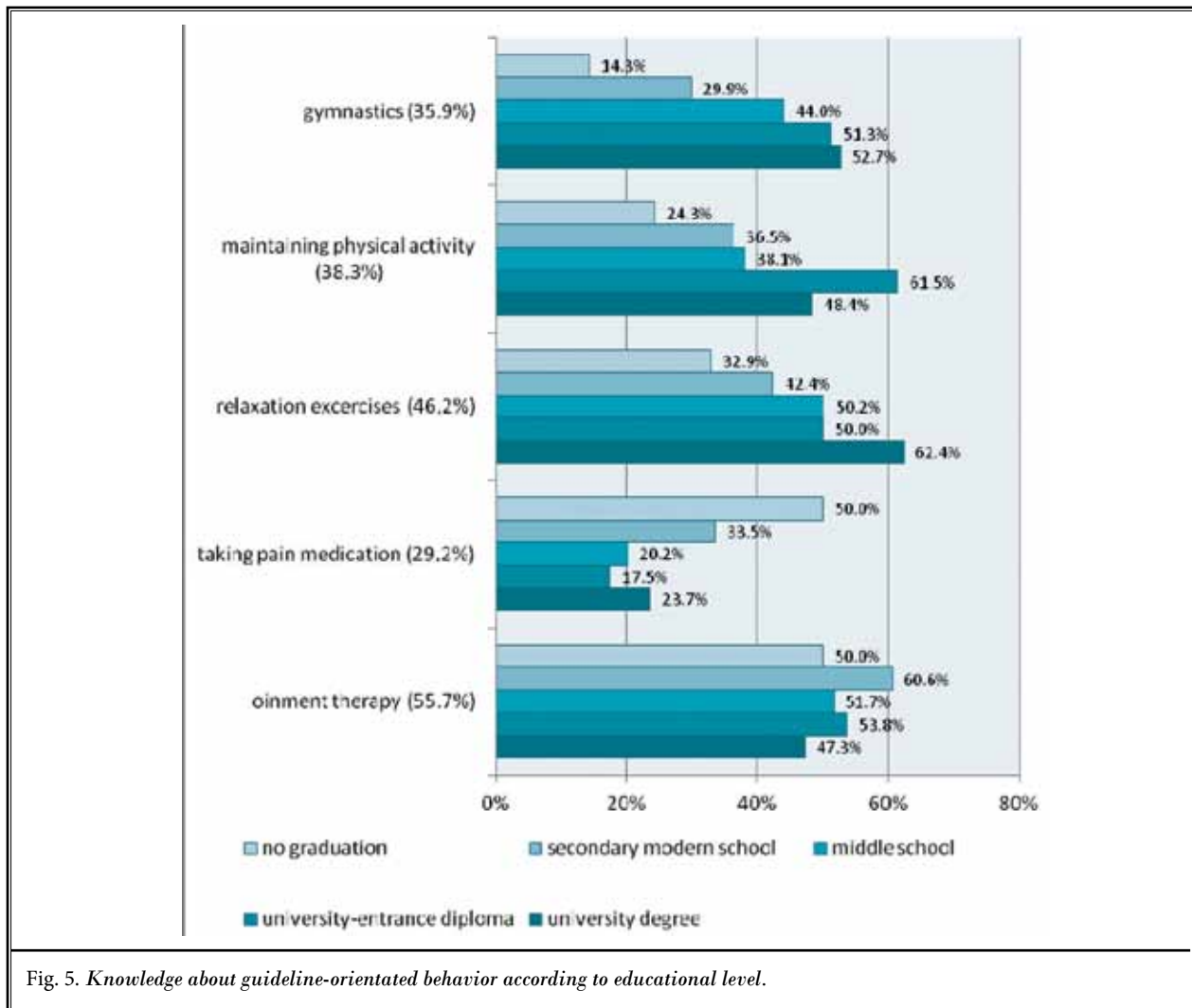


Fig. 5. Knowledge about guideline-orientated behavior according to educational level.

conduct was found significantly more often in higher educational levels (gymnastics odds ratio = 7.78, physical activities odds ratio = 3.92, relaxation exercises odds ratio = 3.51). University graduates considered relaxation exercises 40% more likely as a recommended therapy compared to people who did not graduate. Similar ratings were found in terms of maintaining independent physical activity (Table 2).

There was no significant difference in the knowledge about the recommendations of passive therapy between genders. Taking pain medication as an effective treatment was found more often in lower education levels. Similar results were found for ointment therapy, which was also more often considered as useful in groups with higher education (Table 3).

DISCUSSION

The obtained results show that knowledge about the recommendations of guidelines for lower back pain are not sufficiently present in the majority of 50 – 70-year-old people in the general population. Less than 50% of these people, who suffer most frequently of lower back pain, are aware of guideline-orientated behavioral strategies for lower back pain.

Furthermore, the knowledge of guidelines is heterogeneously distributed among this particular age-group. People with lower educational levels are at significantly higher risk of suffering from lower back pain and at the same time have a lower knowledge about the active management of lower back pain. Even though the treatment guidelines were developed espe-

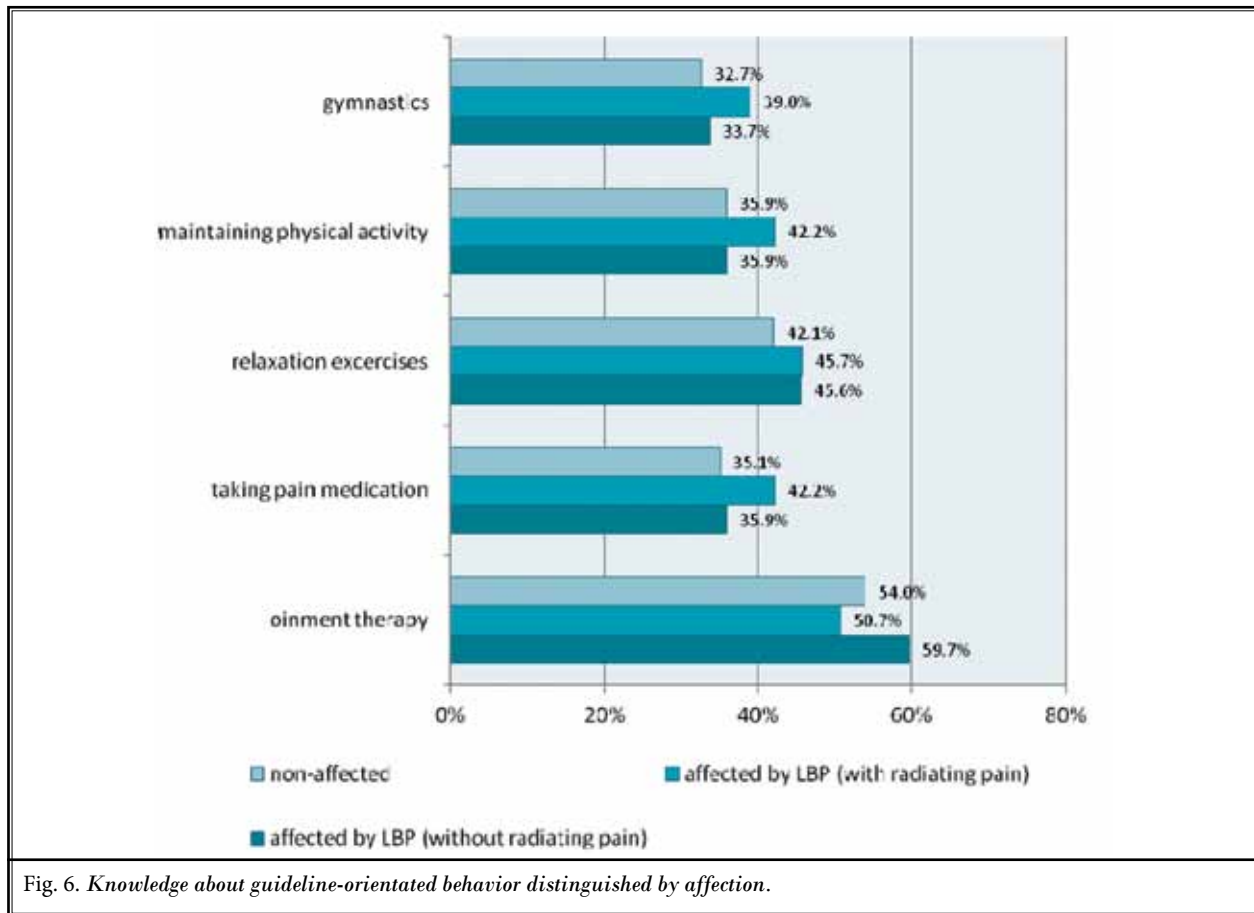


Fig. 6. Knowledge about guideline-orientated behavior distinguished by affection.

Table 2. Impact of educational level, gender, age, and affection of lower back pain on the knowledge about guideline-orientated active behavior (odds ratio).

N = 902 * P ≤ 0.05 ** P ≤ 0.01 *** P ≤ 0.001	Gymnastics		Maintaining Physical Activity		Relaxation Exercises	
	OR	95% CI	OR	95% CI	OR	95% CI
Age	0.99	[0.97; 1.02]	0.99	[0.97; 1.02]	0.99	[0.97; 1.02]
Gender						
male	1.00		1.00		1.00	
female	1.17	[0.87; 1.56]	1.05	[0.79; 1.39]	0.99	[1.04; 1.81]
Educational Level						
no graduation	1.00		1.00		1.00	
graduation	2.72**	[1.32; 5.60]	1.70	[0.94; 3.07]	1.91*	[0.84; 2.53]
middle school	5.02***	[2.40; 10.49]	1.74	[0.94; 3.21]	2.02	[1.07; 3.38]
university entrance diploma	5.32***	[2.00; 14.16]	3.92**	[1.62; 9.62]	3.51***	[0.86; 4.77]
university degree	7.78***	[3.38; 17.93]	2.96**	[1.44; 6.11]	1.37*	[1.74; 7.08]
Affection						
no pain	1.00		1.00		1.00	
lower back pain without radiating pain	1.10	[0.76; 1.59]	1.09	[0.76; 1.55]	1.18	[0.83; 1.66]
lower back pain with radiating pain	1.43	[0.96; 2.12]	1.45	[0.99; 2.13]	1.17	[0.80; 1.70]

Table 3. Impact of educational level, gender, age, and affection of lower back pain on the knowledge about guideline-orientated passive behavior (odds ratio).

N = 902 * $P \leq 0.05$ ** $P \leq 0.01$ *** $P \leq 0.001$	Taking Pain Medication		Ointment Therapy	
	OR	95% CI	OR	95% CI
Age	0.99	[0.97; 1.02]	0.99	[0.97; 1.02]
Gender				
male	1.00		1.00	
female	0.76	[0.56; 1.04]	0.81	[0.62; 1.07]
Educational Level				
no graduation	1.00		1.00	
graduation	0.51*	[0.30; 0.87]	1.25	[0.74; 2.13]
middle school	0.26***	[0.14; 0.46]	0.87	[0.50; 1.51]
university entrance diploma	0.20**	[0.07; 0.55]	0.83	[0.36; 1.94]
university degree	0.28***	[0.13; 0.58]	0.84	[0.43; 1.65]
Affection				
no pain	1.00		1.00	
lower back pain without radiating pain	1.15	[0.78; 1.72]	1.28	[0.91; 1.80]
lower back pain with radiating pain	2.21***	[1.46; 3.34]	0.91	[0.61; 1.81]

cially for the group of people suffering from lower back pain, this group in particular has not been reached by the guidelines' recommendations in Germany (14).

People who suffered at least once in their lifetime from lower back pain, probably already consulted a physician in the past. Hence, it is assumed that these people were already informed (by the physician) about how to cope with lower back pain according to commonly available guidelines. However, Chenot et al (15) showed that consulting a specialist remained the strongest predictor for imaging and therapeutic interventions while disease-related and socio-demographic factors were less important. The high dependence of health care service utilization on providers rather than clinical factors indicates an unsystematic and probably inadequate management of lower back pain – sometimes in contrast with the recommendations of commonly available guidelines (15).

It seems that the implementation of low back pain guidelines is not successful in Germany, despite the fact that the results of a guideline-orientated treatment are verified. Feuerstein et al (16) showed in a survey that patients who have been treated according to these guidelines and who followed guideline recommendations afterwards reached a significantly higher functionality, satisfaction, and general state of health in combination with lower costs of treatment.

This survey shows that there still is a lack of knowledge in the general population of how to cope with lower back pain. In order to demand guideline-orientated behavior, it is necessary to sufficiently communicate the topics of the guidelines as the first step. In this regard, many patients are treated in cooperation with an orthopedic surgeon, which requires an effective exchange of information. Chenot et al (17) showed that incomplete and scant information on referral forms from GPs and a high non-response rate from orthopedic surgeons suggest that current health care system and referral forms do not promote effective communication about the patient, maybe resulting in an ineffective communication between the GP and the patient during the course of treatment. Piccoliori et al (18) found deviations of GP management of low back pain from current guidelines, either partially following guidelines or not following them at all.

Limitations

One particular shortcoming of the survey was data acquisition was performed by an external company and therefore only provided limited external validity options. The aim of this study was neither to investigate the communication between medical specialists and the patients nor to analyze the reliability of com-

mon guidelines. Furthermore the data acquisition was restricted to 50 – 70-year-old patients, since this age group shows a high risk of suffering from lower back pain. Therefore, conclusions about the knowledge of the whole German population cannot be deduced, especially when considering the small number of participants. In our survey the actual behavior of the people interviewed was not observed – merely the knowledge of how to manage lower back pain according to commonly available guidelines. Therefore it is indeed possible that patients, who know about guideline-orientated behavior, perhaps don't behave accordingly. The lifetime prevalence of lower back pain was surveyed by interviewing people about prior episodes of lower back pain. This may have led to biased results since the memory of prior episodes might result in too many or too few episodes.

CONCLUSION

Knowledge of treatment guidelines for lower back pain is not sufficiently enough available in the general population. This survey showed the lack of knowledge about guideline-orientated behavior in the general population in terms of lower back pain. Physicians should assess the knowledge of patients with lower back pain about the rightful treatment behavior and should provide them with guideline-oriented treatment strategies. Due to the higher prevalence, 50 – 70-year-old patients with lower education should be addressed particularly. Active rules of management like maintaining independent physical activity as well as gymnastics and relaxation exercises should be emphasized. Passive rules of management like taking pain medication and using ointment therapies should be put in the rear. Following these results, the counseling interview during consultation can help to achieve a better outcome of treatment for patients with lower back pain.

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