Prognostic Indicators of Low Back Pain in Primary Care: Five-Year Prospective Study

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Abstract: Back pain is common and many people experience long-term problems, yet little is known about what prognostic factors predict long-term outcomes. This study's objective was to determine which factors predict short- and long-term outcomes in primary care consulters with low back pain (LBP). Analysis was carried out on 488 patients who had consulted their physician about LBP. Patients were followed up at 6 months and 5 years. Clinically significant LBP at follow-up was defined as a score of 2, 3, or 4 on the Chronic Pain Grade, indicating substantial pain and disability. Cox regression was used to estimate relative risks (RRs) with 95% confidence intervals (CIs) on 32 potential predictive factors, organized into domains (demographic, physical, psychological, and occupational). Baseline pain intensity conferred a 12% increase in risk (RR = 1.12, 95% CI = 1.03–1.20), and patients' belief that their LBP would persist conferred a 4% increase in risk (RR = 1.04, 95% CI = 1.01–1.07) for poor outcome at 6 months. Outcome at 5 years was best predicted by a model with the same factors as in the 6-month model: pain intensity increased risk by 9% (RR = 1.09, 95% CI = .997–1.20), and a belief that their LBP would persist increased risk by 6% (RR = 1.06, 95% CI = 1.03–1.09). Both predictors have the potential to be targets for clinical intervention.

Perspective: Few studies have investigated factors that predict long-term back pain. This study has shown that pain intensity experienced during a period of primary care consultation, and patients' perception about whether their back pain will persist, were significant predictors of poor outcome at 6 months and at 5 years.

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The prevalence of low back pain (LBP) is substantial, with population estimates of 50 to 70% over a lifetime.[21,30] Up to half the people with LBP seek health care for their pain.[21] Evidence highlights that many people with LBP do not have single episodes but often experience long-term pain with significant recurrence and fluctuations.[15,17,21,31] This results in considerable costs for health care and society.[25]

One important area of focus within LBP research is the identification of key prognostic factors.[15] There is a diverse range of prognostic factors in relation to LBP: demographics such as educational status, age, and gender,[18] physical factors such as the level of pain intensity and disability perceived by the patient,[24] psychological factors such as depression and anxiety[23] and pain-specific concepts such as fear avoidance, catastrophizing, and illness perceptions,[4,10,12] and occupational factors such as employment status.[8,12] Importantly, these factors can characterize groups of people at higher risk of persistent pain and disability, and they highlight potentially modifiable factors to target in clinical interventions (eg, psychological therapies and occupational interventions).[15,24] However, most prognostic studies of LBP have considered follow-up periods of 1 year or less (see reviews[17,24]). For example, of the 32 studies on back or spinal pain included in a review by Mallen and colleagues,[24] only 3 had follow-up periods longer than 1 year. This is problematic, as potential prognostic factors could differ depending on the time scale.[4,6,15] For example, one study (Burton et al[4]) followed up patients attending private group osteopathic practices. They tested factors that were associated with disability at 1 year and at 4 years and report that fear avoidance, passive coping, and catastrophizing were significant at 1 year, but depression and pain intensity were significant

at 4 years. They suggested that initial fear avoidance, catastrophizing, and passive coping possibly give way to depression in the long term. However, another recent study[12] considered differences in prognostic factors between primary care patients with acute/subacute pain (defined as pain duration of less than 3 months prior to baseline assessment) and those with chronic pain (defined as pain duration of more than 3 months prior to baseline assessment) at baseline. They reported no differences in prognostic factors between these groups in the prediction of disability 12 months later. This clearly shows that further study is required to understand the potential for differences in prognostic markers dependent on time. Indeed possible differences in prognostic factors over time may be a reason why current interventions for LBP show low sustainability of treatment effect over the long term.[1] We need to better characterize factors that independently predict short- and long-term outcome of patients with LBP in order to inform and test treatments that target different prognostic groups.

The aim of this study is to investigate, in patients with LBP consulting in a primary care setting, which prognostic factors predict poor pain and disability outcomes 5 years later and to compare these with predictors of earlier short-term outcomes at 6-month follow-up in the same cohort.

Methods

Design and Setting

Participants in a large prospective cohort study of persons visiting their primary care physician about LBP were mailed questionnaires soon after their healthcare visit (baseline) and again 6 months and 5 years later. The population for this analysis were responders to the baseline questionnaire (N = 1591) who gave consent to further contact and who responded again at 6 months (n = 810) and 5 years (n = 488).

Ethical approval was given by North Staffordshire and North West Cheshire Research Ethics Committees for all phases of the study.

Recruitment and Procedure

Patients, aged between 18 and 60 years, who visited their primary care physician about LBP at 8 primary care practices within the North Staffordshire and Cheshire area of England were invited to take part.[10] Primary care practices are the gateway to the healthcare system within the United Kingdom. The practices cover a range of deprivation areas, and given that more than 95% of the UK population is registered with a primary care practice,[2] they are representative of the local population. At baseline, eligible participants were identified via computerized primary care records using the "Read Code" system, which is the standard method of coding and recording reasons for contact in UK general practice. All codes relating to LBP were used to identify potential participants, with specific codes for "red flag" diagnoses (cauda equina syndrome, significant trauma, ankylosing spondylitis, cancers) used as exclusion criteria. Quality and validity of the Read Code system within these practices is assessed annually through continual training

and feedback to ensure high levels of recording of relevant Read codes during patient healthcare visits.[33] The target cohort consisted of 1,591 adults who had visited their primary care physician for LBP in the study practices and who responded to the initial baseline questionnaire mailed to them within 2 weeks of their index visit. We have previously shown that this cohort is broadly representative of all patients attending primary care for LBP in these practices[10] and that the registered populations are broadly representative of a UK population generally. Of the 1,591 back pain patients recruited at baseline, 810 completed and returned their 6-month follow-up questionnaire and 488 responded at 5 years (70% of those eligible). This cohort of 488 responders at 5 years formed the basis for the analyses presented in this paper (see flow diagram Fig 1).

Measures

Outcome Measure

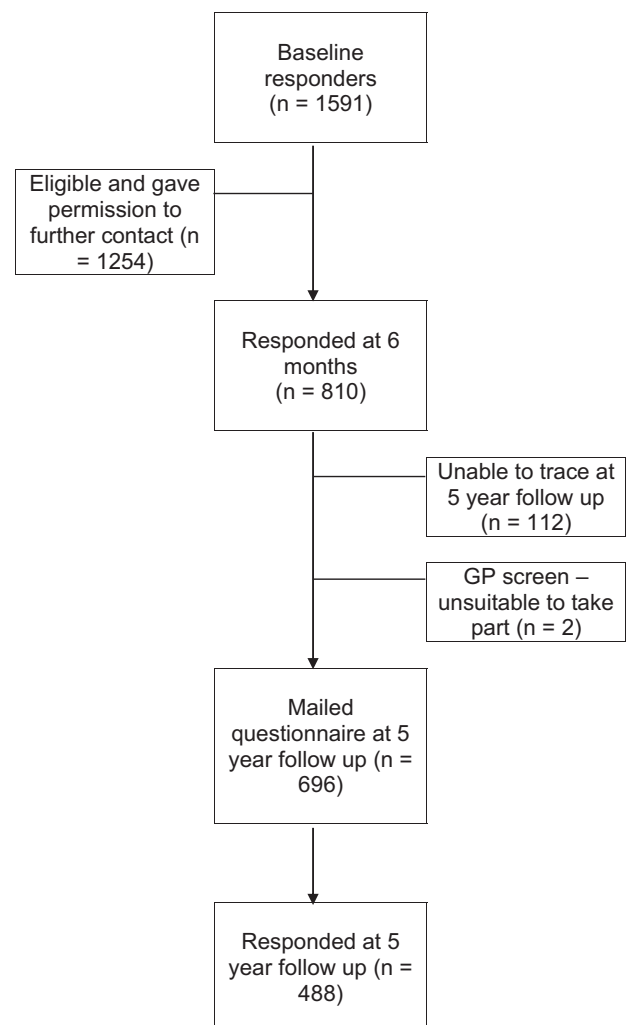Pain and disability related to LBP were measured at 6 months and at 5 years using the Chronic Pain Grade

Figure 1. Flow diagram of recruitment.