Published in final edited form as:

Am J Emerg Med. 2012 November ; 30(9): 1852–1859. doi:10.1016/j.ajem.2012.03.027.

Predicting seven day and three month functional outcomes after an ED visit for acute non-traumatic low back pain

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Abstract

Background—Recent work has shown that two-thirds of patients report functional disability one week after an ED visit for non-traumatic musculoskeletal low back pain (LBP). Nearly half of these patients report functional disability three months later. Identifying high-risk predictors of functional disability at each of these two time points will allow emergency clinicians to provide individual patients with an evidence-based understanding of their risk of protracted symptomatology.

Object—To determine whether five high-risk features previously identified in various primary care settings predict poor functional outcomes among ED patients. The hypothesized predictors are: low back pain related functional disability at baseline, radicular signs, depression, a work-related injury, or a history of chronic or recurrent LBP prior to the index episode.

Methods—We conducted a prospective observational cohort study of ED patients with a chief complaint of non-traumatic LBP, which the ED attending physician classified as musculoskeletal. We interviewed patients in the ED prior to discharge and performed a baseline assessment of functional disability using the 24 item Roland-Morris questionnaire. We also tri-chotomized the patient's baseline history of LBP into chronic (defined as 30 straight days with continuous LBP or a history of acute exacerbations more frequently than once per week); episodic (acute exacerbations more frequently than once per year but less frequently than once per week); or rarely/never (less frequently than once per year or no prior history of LBP). We performed telephone follow-up one week and three months after ED discharge using a scripted closed-question data collection instrument. The primary outcome was any functional limitation attributable to LBP at one week and three months, defined as a score greater than zero on the Roland-Morris questionnaire. We used logistic regression, adjusted for age, sex, and educational level, to assess the independent association between functional disability and each of the five hypothesized predictors listed above.

Results—We approached 894 patients for participation and included 556. We obtained follow-up on 97% and 92% of our sample at one week and three months, respectively. Two of the five hypothesized variables predicted functional disability at both time points: Higher baseline Roland-Morris score (OR 4.3 95%CI 2.6, 6.9) and chronic LBP (OR 2.3 95%CI 1.1, 4.8) were associated

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with seven-day functional disability. These same two variables predicted functional disability three months after ED discharge—higher baseline Roland-Morris score (OR 2.3 95%CI 1.4, 3.9) and chronic LBP (OR 2.8 95%CI 1.5, 5.2). The remaining three hypothesized predictors (depression, radicular signs, and on-the-job injury) did not predict functional outcome at either time point.

Conclusions—ED patients with worse baseline functional impairment and a history of chronic low back pain are two to four times most likely to suffer poor short and longer term outcomes.

Background

Low back pain is the 4th most common reason for an emergency department (ED) visit, resulting in 2.7 million visits annually. In general, functional outcome over the weeks and months following an ED visit for non-traumatic musculoskeletal LBP is poor. One week after ED discharge, 70% of patients reported persistent functional disability and 59% reported moderate or severe low back pain. Three months after ED discharge, 48% reported functional impairment and 42% reported moderate or severe pain. These findings are generally in keeping with pain and functional outcomes observed in non-ED outpatient settings, though there is some variability among studies. For example, one primary care based study that enrolled patients with only a brief duration of LBP had substantially better outcomes than generally reported. In addition to a longer duration of symptoms, other risk factors for poor functional outcomes identified in the outpatient setting include radicular signs apparent on physical examination, on-the-job-injury, worse functional status at baseline, and depression. In contrast to previous work done in the primary care population, poor-prognosis predictors for an ED population have yet to be determined. The purpose of this investigation was to identify high-risk features that predict poor outcome at one week and three months following the index ED visit for LBP. Specifically, we wished to determine whether five high-risk features previously identified in various primary care settings independently predict poor functional outcomes among ED patients, after controlling for age, sex, and educational level. The hypothesized predictors were: baseline low back pain-related functional disability, radicular signs, depression, a work-related injury, or a history of chronic or episodic LBP prior to the index episode. Identifying high risk predictors of functional disability at one week and three months will allow emergency clinicians to provide individual patients suffering from LBP with evidence-based prognostic expectations that might influence anticipated absence from work and duration of treatment or therapy for those in whom it is required.

Methods

Overview—This was a prospective observational cohort study of patients presenting to one urban ED with undifferentiated non-traumatic musculoskeletal low back pain. We enrolled patients in the ED, completed a standardized twenty-minute interview prior to discharge, and then conducted a ten-minute follow-up interview by telephone seven days and three months later. This study was reviewed and approved by the Montefiore Medical Center IRB.

Setting—We conducted this study in the ED of Montefiore Medical Center, the academic medical center for the Albert Einstein College of Medicine in the Bronx, New York. The ED receives over 100,000 adult visits annually. Salaried, trained, bilingual (English and Spanish) technician-level research associates collect data under the supervision of the principal investigators. During the study period, research associates staffed about 80% of all shifts.

Subject selection—We included adults if their chief complaint was low back pain whose etiology, in the judgment of the ED attending, was musculoskeletal and in whom no

alternative etiology of low back pain was identified during the course of their work-up. We defined low back pain as originating below the tips of the scapulae and above the buttocks. Individuals could only be enrolled once. All participants had capacity to consent to participate. We excluded patients from this study for any history of trauma within the previous month, including motor vehicle collisions, direct blunt trauma, or a fall from a standing position.

Measures—We collected the following data through a twenty minute structured in-person oral interview with the patient during the baseline ED visit.

- Variables relating to low back pain including duration of symptoms prior to ED presentation, prior episodes and chronicity of previous attacks of low back pain (if any), and whether the current episode of LBP was associated with the patient's work. In addition, we had our patients verbally complete the 24-item Roland-Morris questionnaire. The Roland-Morris questionnaire is a valid and reliable standardized instrument used in LBP research. It is reproduced in the Appendix. It includes 24 questions that assess the extent to which low back pain impairs an individual's ability to perform activities of daily living, such as putting on socks, climbing stairs, and getting out of a chair. A score of zero indicates no back pain related functional disability, while a score of 24 indicates severe functional disability related to back pain.
- We asked two depression screening questions from the Patient Health Questionnaire depression module: 1) "Before your back pain began, were you bothered by little interest or pleasure in doing things?" 2) "Before your back pain began, were you feeling down, depressed, or hopeless?" We considered a positive response to be answers of "often" or "always" to either of these questions.
- The ED attending physician caring for the patient provided the results of straight leg testing and the patient's clinical diagnosis.
- Prior back pain. We solicited information on the chronicity and frequency of LBP, if any, prior to the baseline visit, defining these as follows: 1) Chronic: We defined chronic back pain to be continuous LBP for at least 30 successive days or a baseline frequency of acute episodes of back pain of at least once per week. 2) Episodic: We defined episodic LBP to be acute exacerbations of back pain at least once per year but not as often as once per week 3) None/Rarely: We defined this category to be acute episodes of back pain less frequently than once per year.
- We also solicited socio-demographic variables including age, sex, employment status, type of employment, and highest level of education completed. Education level was used as a surrogate marker of socio-economic status. Employed patients were asked to rate their job satisfaction on a scale from 0 to 10, with 0 signifying "I hate my job and would never go back if I did not have to" and 10 signifying "the job is as close to perfect as a job can be".

Outcomes—We assessed outcomes by telephone seven days and three months after the ED index visit. When follow-up was due, we attempted to obtain these data once every eight hour shift and continued this for one week. Telephone follow-up was then attempted monthly until data collection was terminated in August of 2010.

The primary outcome measure for each time point was functional, derived from the patient's score on the Roland-Morris low back pain questionnaire. We dichotomized this ordinal scale to simplify the outcome and improve its clinical relevance. Patients received either a score greater than zero on the Roland Morris questionnaire, indicating the presence of back pain-

related functional impairment over the 24 hours prior to assessment, or a score of zero, indicating no low back-related functional impairment over the same timeframe. We considered a score greater than zero on the Roland-Morris to constitute an unsatisfactory functional outcome.

Analysis—The bivariate relationship between the Roland-Morris score at one week and at three months and each of the five hypothesized predictors was plotted and examined visually to determine whether a predictor variable would function better as a parametric, ordinal, or dichotomous variable. If continuous variables required transformation into ordinal variables, this was done at the most clinically sensible cut-point that would also yield a statistically valid analysis. For the baseline Roland-Morris score, 1/3 of patients reported a score of 24, the worst possible score, and 2/3 of patients reported a score of 20 or higher; therefore, this variable needed to be transformed before it could be used in a regression model. We plotted the one week Roland-Morris score versus the baseline Roland-Morris score and determined that using the criteria of clinical sensibility and statistical validity, it seemed most logical to dichotomize this variable between 16 and 17 because median seven day Roland-Morris scores tended to be substantially better in patients who scored 16 and below than in those who scored 17 and above.

Our overall analytic approach was to identify and quantify the independent associations between any of the five hypothesized baseline predictor variables and our primary outcome variable (i.e., any back pain related functional disability) at each of two time points (1 week and 3 months) by building a multivariate logistic model. We included each of our hypothesized predictors in the model, as well as age, sex, and educational level, using SPSS V.13 (SPSS Inc, Chicago, IL) to conduct all analyses. We present the results of bivariate analysis and multivariate logistic models as crude and adjusted odds ratios, respectively, with 95% confidence intervals. Rather than using arbitrary bivariate statistical cut-points for inclusion in the multivariate model, we decided a priori that the most unbiased approach would be to enter and retain all hypothesized predictors and covariates in the model.

As described in the Measures section, we asked patients to rate their job satisfaction on a scale from 0 to 10. We determined the association between job satisfaction and both the seven day and three month Roland-Morris score with Spearman's rho.

Sample size calculation

Using a commonly used rule-of-thumb for regression, 10 subjects with a bad outcome (back pain related functional disability) were needed for every degree of freedom in the regression model. Based on other work, we estimated that 30% of subjects would have a bad outcome. As detailed above in the measures section, we anticipated the need for up to 15 degrees of freedom in the model. Factoring in a 10% rate of missing data, we estimated we would need to enroll 550 subjects.

Results

Between July 2009 and March 2010, we enrolled five hundred fifty six patients (Figure 1). Baseline characteristics are displayed in Table 1.

Most of our hypothesized predictors were associated with a poor one-week outcome in bivariate models (Table 2). However, after adjusting for all other hypothesized predictors, only baseline Roland-Morris score >16, and chronic LBP were predictive of poor functional outcomes at one week. Two socio-demographic features, female sex and lower educational level, which were not part of our hypothesis, were also associated with poor short-term outcomes.

Similarly, many of our hypothesized predictors were associated with a poor three-month outcome in bivariate models (Table 3). However, after adjusting for all other independent variables, as with the short-term outcome model, only baseline Roland-Morris score >16 and chronic LBP were predictive of poor functional outcomes at three months.

Of 24 patients with no history of chronic low back pain and a baseline Roland-Morris score 16, 33% (95%CI: 16, 55%) had poor seven day functional outcomes versus 77% (95%CI: 73, 81%) of patients with either one of these two poor prognosis variables. At three months, 26% (95%CI: 11, 49%) of the former group had a poor functional outcome, versus 53% (95%CI: 48, 57%) of the latter.

Mean job satisfaction among our patients who were employed at baseline was 7.7 (SD 2.3). There was no correlation between job satisfaction and seven day Roland Morris score ($p=0.05$, $p=0.55$) or three month Roland Morris score ($p=0.05$, $p=0.51$).

Limitations

- Over-fitting the baseline Roland-Morris score. We had hoped to analyze the baseline Roland-Morris score as a continuous variable, but because these data were so skewed towards higher scores, this seemed methodologically and statistically inappropriate. Dividing the cohort into equal tertiles or quartiles based on the initial Roland-Morris score would have required drawing important distinctions between a Roland-Morris score of 23 and 24, which would have made little clinical sense. We used the one week outcome data to determine how best to dichotomize the baseline Roland-Morris score, and thereby artificially optimized the association between the newly dichotomized predictor variable and the one week outcome variable. This led to the robust association between baseline Roland-Morris score and the one-week outcome, an adjusted odds ratio that therefore must be interpreted cautiously. However, the critique of over-fitting is not applicable to the three month model because the cut point between 16 and 17 was not specifically chosen based on the relationship between these two variables.
- Roland Morris is an unwieldy tool. We do not imagine that emergency clinicians will take the time to ask the 24 questions of the Roland-Morris scale—this is simply not practical. It is more feasible for patients to complete the Roland-Morris questionnaire by themselves and submit this to the physician for a rapid interpretation, but this too is beyond the scope of a typical emergency visit. Future work can make the Roland-Morris scale more practical for an emergency visit by pruning it to the questions with the best predictive utility.
- Ideal primary outcome. We chose functional disability as the primary outcome for this analysis because it seemed both clinically relevant and can be accurately and reliably measured using the Roland-Morris scale. We were concerned that relying on pain level or use of analgesic medication was too readily confounded by other factors such as type of employment or household responsibilities.
- Diagnosis was not considered in the modeling. We believe that in general low back pain diagnoses assigned by providers are not necessarily reproducible. Therefore, we did not include them in our analysis.
- For the purpose of our analysis, we defined chronic back pain to be continuous back pain for at least 30 straight days, rather than back pain for three to six months, the more typically encountered definition. We did this because only 6.5% of our population reported back pain duration of at least three months (versus 9% for 30 straight days) and because the bivariate analyses did not reveal important differences between a cut-point at 30 days versus three months.

Discussion

In this prospective observational cohort study, in which 556 patients who presented to an ED with low back pain were followed for three months after the index visit, ED patients with worse baseline functional impairment and chronic LBP were the most likely to suffer poor functional outcomes at both one week and three months.

It is not surprising that the patients with the most functional disability on initial presentation and the worst low back pain history were the ones most likely to suffer poor functional outcomes. This has been a consistent finding in primary care based low back pain cohorts. Presumably, the clinicians caring for these high risk patients in our observational cohort understood that they were dealing with more refractory patients, but were nevertheless unable to deliver effective interventions. It is not clear if more aggressive or comprehensive interventions for these patients would have had a greater impact.

Several high-risk features identified in clinic-based studies did not prove to be predictive in this ED-based cohort. The first of these was radicular signs, which were associated with poor outcomes in our bivariate models, but not after multi-variate adjustment. The lack of association may be related to variability in technique—many clinicians contributed patients to this study and no one standardized method exists for interpreting the results of the straight leg raise test. The lack of predictability of radicular signs may also be related to the very high degree of functional disability observed at baseline in this group, which may have made accurate assessments difficult. Alternatively, it may be that radicular signs are less strongly associated with poor outcomes than other more global measures of functional disability at baseline. Radicular signs, when present in patients with an appropriate history, suggest the presence of a herniated intervertebral disc. However, because radicular signs are not specific for a herniated disc and because we did not image most of our patients, our study cannot provide data as to whether the diagnosis of herniated disc connotes a worse prognosis than non-specific low back pain among patients with similar baseline functional disability scores and similar low back pain histories.

On the job injury also was not associated with poor prognosis in this study, though this has been determined to be a high-risk feature in clinic based low back pain cohorts. This finding in our work should be interpreted cautiously, given the very high rate of unemployment in this cohort and the broad economic downturn during which this study was conducted. Researchers in this field have raised the issue of secondary gain among patients who sustain low back pain at work or in other situations in which considerations of economic compensation may influence a patient's recovery. Consistent with finding no association between on-the-job injury and poor outcome, we also did not identify an association between job satisfaction and poor outcomes. Therefore we have no evidence to support the contention that issues of secondary gain influenced outcomes in this study.

Finally, depression was not associated with poor outcome in the population we studied, which is surprising given that depression has been associated with poor outcome in multiple clinic-based cohorts. This may be because we used a depression screen rather than a thorough assessment for depression, which would have misclassified some patients who were not truly depressed as suffering from depression. Given the emphasis of any screening instrument on sensitivity, we were surprised at how few of our patients were categorized as depressed. We speculate that depression may have failed to predict poor outcomes in this cohort simply because, as reflected in the wide confidence intervals, so few patients were categorized as depressed.

Female sex has been associated with poor outcome in primary care cohorts, though not consistently. A pathophysiologic rationale for an association between gender and poor

outcome is not readily apparent. We are not aware of data supporting an anatomic or hormonal contribution to poor prognosis. Given that this association was not an a priori hypothesis, these results should be interpreted as hypothesis generating. Lower educational level was similarly associated with poor short-term outcomes, and may be a marker for inadequate access to healthcare or for manual labor. This finding too should be considered as an exploratory finding because it also was not hypothesis driven.

Of the poor prognostic variables we identified, only worse baseline Roland-Morris scale is a potentially modifiable risk factor. A hypothesis, to be tested in future work, is that aggressive and timely treatment of low back pain related functional disability could improve the long-term prognosis. This is an appealing hypothesis that, to the best of our knowledge, has yet to be studied.

Emergency clinicians can best use the results of this study to understand which of their patients are at greatest risk of poor outcome. This information can then be used to counsel patients, anticipate the need for aggressive medical and integrative therapies, and plan for short-term disability.

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Figure 1.

Study flow diagram

*Patients were excluded for any trauma within the previous month, including motor vehicle collisions, falls, and direct blunt trauma to the back. Logistical barriers included patients who spoke a language other than English or Spanish or unavailability of research personnel. Medical and surgical etiologies of back pain included urinary tract infections, gynecologic pathology, sickle cell disease, and viral illness.

Table 1

Baseline characteristics

Variable	n/N (%) or Median (IQR)
Age (years)	45 (35, 53)
Female gender	341/556 (61%)
Race/Ethnicity	
Black/African –American	140 (25%)
Asian/Pacific Islander	4 (1%)
White	24 (4%)
Hispanic/Latino	348 (63%)
Bi-/Multi-racial	15 (3%)
Other	21 (4%)
Refused	4 (1%)
Education	
Did not graduate high school	196 (35%)
Graduated high school	248 (45%)
College degree	102 (18%)
Unknown	10 (2%)
Type of work	
Unemployed	234 (42%)
Homemaker or student	22 (4%)
Service worker	157 (28%)
Professional/executive/manager/owner	53 (10%)
Other	82 (15%)
Unknown	8 (1%)
Pain began at work	
Yes	129 (23%)
No	421 (76%)
Unknown	6 (1%)
Depression screen	
Negative	517 (93%)
Positive	34 (6%)
Missing	5 (1%)
Clinician's diagnosis	
Back pain/low back pain	83%
Back strain	2%
Chronic back pain	3%
Lumbago	1%

Variable	n/N (%) or Median (IQR)
Muscle spasm	1%
Musculoskeletal pain	4%
Sciatica/Herniated disc	5%
Spinal stenosis	<1%
Spondylolisthesis	<1%
Other	1%
Duration of back pain in hours	96 (48, 258)
Baseline Roland Morris score	22 (18, 24)
Straight leg raise positive, as determined by emergency clinician	90/556 (16%)
Back pain history *	
Chronic LBP	104 (19%)
Episodic LBP	325 (59%)
New onset or few lifetime episodes of LBP	107 (19%)
Missing	20 (4%)

* Chronic LBP was defined as 30 or more consecutive days with LBP or a baseline LBP frequency of at least once/week. Episodic LBP was defined as multiple lifetime episodes of LBP that recurred at a frequency of less than once per week but more than once per year.

Table 2

Baseline variables associated with functional disability one week after an ED visit for non-traumatic musculoskeletal low back pain

Variable	Crude OR (95%CI)	Adjusted OR (95%CI)
Age (ten years)	1.12 (0.96, 1.30)	1.05 (0.88, 1.26)
Gender		
Male	1.0	1.0
Female	1.92 (1.32, 2.80)	1.73 (1.12, 2.66)
Education level		
Didn't graduate high school	2.25 (1.32, 3.85)	2.09 (1.13, 3.86)
Graduated high school	1.16 (0.71, 1.88)	1.28 (0.73, 2.24)
Graduated college	1.0	1.0
Back pain history*		
New onset or few lifetime episodes of LBP	1.0	1.0
Episodic LBP	1.13 (0.71, 1.81)	1.08 (0.63, 1.84)
Chronic LBP	2.85 (1.46, 5.56)	2.27 (1.07, 4.81)
Baseline Roland-Morris score		
16	1.0	1.0
17	4.87 (3.14, 7.57)	4.25 (2.61, 6.90)
Straight leg raise test		
Negative	1.0	1.0
Positive	2.00 (1.14, 3.52)	1.67 (0.88, 3.18)
Depression screen		
Negative	1.0	1.0
Positive	7.35 (1.74, 31.03)	6.75 (0.89, 51.25)
On-the-job injury		
No	1.0	1.0
Yes	0.78 (0.51, 1.20)	1.18 (0.71, 1.96)

On the Roland-Morris scale, 0= no functional disability and 24=severe impairment. Chronic LBP was defined as 30 or more consecutive days with LBP or baseline LBP frequency of at least once/week. Episodic back pain was defined as multiple lifetime episodes of LBP that recurred at a frequency of less than once/week but more than once/year.

Table 3

Baseline variables associated with functional disability three months after an ED visit for non-traumatic musculoskeletal low back pain

Variable	Crude OR (95%CI)	Adjusted OR (95%CI)
Age (ten years)	1.22 (1.05, 1.40)	1.14 (0.97, 1.35)
Gender		
Male	1.0	1.0
Female	1.50 (1.04, 2.16)	1.34 (0.90, 2.00)
Education level		
Didn't graduate high school	1.65 (1.00, 2.72)	1.46 (0.84, 2.52)
Graduated high school	1.23 (0.76, 2.00)	1.28 (0.75, 2.17)
Graduated college	1.0	1.0
Back pain history*		
New onset or few lifetime episodes of LBP	1.0	1.0
Episodic LBP	1.17 (0.73, 1.85)	1.15 (0.70, 1.89)
Chronic LBP	3.39 (1.88, 6.11)	2.76 (1.47, 5.20)
Baseline Roland-Morris score		
16	1.0	1.0
17	2.36 (1.50, 3.70)	2.33 (1.41, 3.87)
Straight leg raise test		
Negative	1.0	1.0
Positive	1.93 (1.20, 3.11)	1.59 (0.94, 2.68)
Depression screen		
Negative	1.0	1.0
Positive	3.84 (1.70, 8.66)	2.15 (0.90, 5.13)
On-the-job injury		
No	1.0	1.0
Yes	0.88 (0.58, 1.33)	1.01 (0.63, 1.61)

On the Roland-Morris scale, 0= no functional disability and 24=severe impairment. Chronic LBP was defined as 30 or more consecutive days with LBP or a baseline LBP frequency of at least once/week. Episodic back pain was defined as multiple lifetime episodes of LBP that recurred at a frequency of less than once/week but more than once/year.

Appendix 1

Roland Morris low back pain disability questionnaire

1.	Over the last 24 hours, I have stayed home most of the time because of my back pain:	No ⁰	Yes ¹
2.	Over the last 24 hours, I changed position frequently to try to get my back comfortable:	No ⁰	Yes ¹
3.	Over the last 24 hours, I walked more slowly than usual because of my back:	No ⁰	Yes ¹
4.	Over the last 24 hours, I have not been doing any jobs that I usually do around the house because of my back pain:	No ⁰	Yes ¹
5.	Over the last 24 hours, I used a handrail to get upstairs because of my back pain:	No ⁰	Yes ¹
6.	Over the last 24 hours, I lay down to rest more often because of my back pain:	No ⁰	Yes ¹
7.	Over the last 24 hours, I have had to hold on to something to get out of an easy chair because of my back pain:	No ⁰	Yes ¹
8.	Over the last 24 hours, I have tried to get other people to do things for me because of my back pain:	No ⁰	Yes ¹
9.	Over the last 24 hours, I got dressed more slowly than usual because of my back pain:	No ⁰	Yes ¹
10.	Over the last 24 hours, I only stood up for short periods of time because of my back pain:	No ⁰	Yes ¹
11.	Over the last 24 hours, I tried not to bend or kneel down because of my back pain:	No ⁰	Yes ¹
12.	Over the last 24 hours, I found it difficult to get out of a chair because of my back pain:	No ⁰	Yes ¹
13.	Over the last 24 hours, my back was painful almost all of the time:	No ⁰	Yes ¹
14.	Over the last 24 hours, I found it difficult to turn over in bed because of my back pain:	No ⁰	Yes ¹
15.	Over the last 24 hours, my appetite was not very good because of my back pain:	No ⁰	Yes ¹
16.	Over the last 24 hours, I have had trouble putting on my socks (or stockings) because of the pain in my back or leg:	No ⁰	Yes ¹
17.	Over the last 24 hours, I could only walk short distances because of my back pain:	No ⁰	Yes ¹
18.	Over the last 24 hours, I slept less well because of my back:	No ⁰	Yes ¹
19.	Over the last 24 hours, I got dressed with the help of someone else because of my back pain:	No ⁰	Yes ¹
20.	Over the last 24 hours, I sat down for most of the day because of my back:	No ⁰	Yes ¹
21.	Over the last 24 hours, I avoided heavy jobs around the house because of my back pain:	No ⁰	Yes ¹
22.	Over the last 24 hours, I was more irritable and bad tempered with people than usual because of my back pain,	No ⁰	Yes ¹
23.	Over the last 24 hours, I went upstairs more slowly than usual because of my back pain:	No ⁰	Yes ¹
24.	Over the last 24 hours, I stayed in bed most of the time because of my back pain:	No ⁰	Yes ¹