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Does injury claim status and benefit status predict low back pain outcomes?

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RESEARCH

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ABSTRACT

Background

In New Zealand the Accident Compensation Corporation (ACC) is a state-funded insurance agency that accepts claims for accidental injuries, including lumbar spine injuries. It is unknown whether ACC claim status (accepted, not accepted) affects low back pain (LBP) outcomes, or whether benefit status (e.g., sickness, disability) further affects outcomes in patients without ACC cover.

Aims

This study aimed to determine whether ACC claim and benefit status are likely to influence a range of outcomes for people with LBP in New Zealand.

Methods

A prospective survey of low back pain patients was performed (April 2008–October 2010). ACC claim status was recorded, and individuals without accepted claims indicated benefit status. Surveys were sent at multiple time points; pain, functional limitation, psychological factors, and general health were assessed. Statistical analysis was undertaken using ANCOVA and ANOVA ($p<0.05$).

Results

In total, 168 patients completed the study. Six-month measures showed individuals with no ACC claim for LBP to overall have poorer outcomes (mental health, $p=0.039$; pain, $p=0.045$; functional limitation, $p=0.049$); sub-group analysis (no ACC claim) between those with or without a benefit showed those on benefits to have significantly higher functional limitation ($p<0.001$), poorer physical health ($p=0.002$), greater pain ($p=0.027$), and stronger fear avoidance behaviours for both work ($p=0.047$) and physical activity ($p=0.35$).

Conclusion

Findings indicate individuals with accepted ACC claims for LBP have significantly better outcomes than those without, and patients on benefits with no accepted ACC claim for LBP have even poorer outcomes.

Key Words

Low back pain, benefits, Accident Compensation Corporation, injury, claim

What this study adds:

1. What is known about this subject?

There is a paucity of information available about how low back injury claim status and benefit status relate to medium-term outcomes in New Zealand.

2. What new information is offered in this study?

Data indicate a positive correlation between low back injury, claim status, and low back pain outcome in New Zealand.

3. What are the implications for research, policy, or practice?

Support strategies for low back pain in New Zealand should be considered for those individuals who do not have accepted injury claims.

Background

Health care in New Zealand is unique because of the state-funded insurance agency, the Accident Compensation Corporation (ACC), which underwrites the expense of treatment and compensation for injuries. The ACC does not underwrite costs for all pathologies, such as degenerative conditions, rather it only subsidises costs or funding for pathology that arise as a result of injury (e.g., pathology caused by an external force). In New Zealand, low back pain (LBP) presents a significant burden to society, costing the ACC more than NZD $350 million annually on lumbar spine claims and having the highest incidence of all work-related diseases.[1,2] Research on LBP outcomes in New Zealand is therefore necessary to facilitate an understanding of those factors contributing to LBP prognosis, so that effective management of LBP can be administrated to modify the financial and social burden of LBP.

Many factors are known to be predictors of injury outcomes, including injury site, severity, and patient socio-economic status.[3–6] Recent data from New Zealand have suggested that ACC claim status (e.g., claim for compensation being accepted or not accepted) may also influence injury outcome.[7] McAllister et al. examined outcomes for individuals on ACC for earnings-related compensation (those who had suffered acute-onset injuries) compared to individuals who had suffered a stroke (on other benefits, e.g., sickness benefit).[7] Findings indicated that "earnings related compensation and rehabilitation support—like that offered by ACC—largely prevents the downward spiral into poverty and ill health" and also seemed to enhance the individual's return to work (functional recovery).[7] Limited data exist examining the relationship between ACC claim status and LBP in New Zealand. Carron et al. compared ACC LBP patients with those on compensation in the United States (US), suggesting that New Zealand's ACC system has better outcomes for low back pain of either work or non-work injury than those supported by compensation in the US.[8] No studies have specifically investigated the relationship between LBP outcomes and ACC claim status.

Identifying factors that contribute to persistent and ongoing LBP, such as work or socioeconomic status, is important as it allows targeted risk analysis to identify causes and develop strategies for intervention. Positive effects of work have been shown to reduce stress, improve self-efficacy, and, consequently, improve the prognosis of musculoskeletal conditions.[9] Resilience has also been shown to affect pathology outcomes; if resilience is low, individuals may be vulnerable to musculoskeletal conditions, and efficient recovery may be compromised.[10] This makes the assessment of employment and benefit status as a resource an important issue.[11] In addition, early identification of individuals at risk of developing persistent conditions is key,[4–6,12–14] and elements of psychological status (such as depression) have to be considered because of their potential influence on recovery.[15,16]

Due to the significant prevalence of LBP in injury statistics and the associated costs in New Zealand, this study aimed to explore the relationship between ACC claim status, benefit status (e.g., sickness, invalids, veterans, domestic purposes, and unemployment benefits) and LBP outcome in this country, with the working hypotheses that:

1. Patients who have an ACC claim accepted for LBP have better outcomes than those patient groups that do not.
2. Patient outcomes for those individuals without an accepted ACC claim for LBP have a correlation with benefit status.

Analysis of the relationship between LBP and ACC claim status will provide information that is relevant to policy makers and clinicians for LBP management, and support the development of effective risk management programmes and decisions for LBP in New Zealand.

Method

A prospective cohort study of patients presenting to a health practitioner (12 general practitioners, two physiotherapists) with a new episode of acute, subacute, or recurrent LBP was undertaken.[17] Acute LBP was defined as LBP lasting up to six weeks and subacute LBP no longer than 12 weeks.[18] Recurrent LBP was defined as LBP with a minimum of 30 pain-free days between the last two LBP episodes and a pain score on the Visual Analogue Scale (VAS) greater than 20 out of 100 points (maximum).[19] This study protocol has been published previously in Melloh et al.[17] This is the first use of the presented data to assess benefit status in relation to LBP outcomes. The study adhered to the Declaration of Helsinki and was approved by the Lower South Regional Ethics Committee (New Zealand) (LRS/08/03/008).

Patients were recruited consecutively across New Zealand. Inclusion criteria were patients between 18 and 65 years of age (inclusive); exclusion criteria included chronic LBP (LBP >12 weeks at initial presentation),[20,21] specific LBP (e.g., infection, tumour),[18] severe comorbidity influencing overall wellbeing (e.g., severe osteoarthritis), pregnancy, or no LBP at screening interview.

A standardised, structured telephone interview was used to screen participants who were then sent a baseline questionnaire. Follow-up questionnaires were sent at weeks three, six, and 12, then six months; patients not returning questionnaires were sent two reminders. Questionnaires were based on the recommendations of the Multinational Musculoskeletal Inception Cohort Study (MMICS) statement addressing occupational, psychological, biomedical, demographic, and lifestyle risk factors for the development of persistent LBP and resources preventing persistent LBP.[22]

Patient categories

Patients were grouped into those that had an accepted ACC claim for this episode of LBP (yes ACC claim accepted: Y-ACC) and those that did not (no ACC claim accepted: N-ACC). N-ACC patients were further grouped by benefit status (benefit N-ACC-B, or no benefit N-ACC-NB) to assess whether claim and benefit status affected LBP outcomes. Examples of benefit categories included sickness, invalids, veterans, domestic purposes, and unemployment benefits.

Variables assessed

Variables of interest included functional limitation, general health, pain, and psychological factors. Functional limitation was assessed using the Oswestry Disability Index (ODI).[23] Physical and mental health was measured using the Physical and Mental Component Scale Short Form 12 Health Survey Questionnaire (SF-12 PCS and MCS);[24] pain was assessed using a Visual Analogue Scale (VAS). Fear-avoidance beliefs were measured using the Fear-Avoidance Beliefs Questionnaire (FABQ) to assess physical activity and work related fear-avoidance beliefs,[25] and helplessness assessed using the pain catastrophising scale (PCS).[26]

Statistical analysis

Y-ACC were compared to N-ACC using post-hoc tests that assumed no equal variances in-group comparison (Tamhane's T2) in analysis of variance (ANOVA). Comparison of Y-ACC with N-ACC, N-ACC-NB and N-ACC-B, and between N-ACC-NB and N-ACC-B groups were performed in estimating marginal means with control for baseline mental health and helplessness in analyses of covariance (ANCOVA). Analyses were conducted using IBM SPSS Statistics 19 (IBM Corp., Armonk, NY) with significance at $p<0.05$ level (two-tailed).

Results

Between April 2008 and October 2010, 562 consecutive patients with acute, subacute, or recurrent LBP were screened. We excluded 124 patients: chronic LBP (93); LBP-free at interview (10); specific LBP (eight); >65 years old (six); pregnancy (three); severe osteoarthritis hip/knee joints (two); unavailable for follow-ups (two). Twenty-six patients chose not to participate; 97 did not return baseline questionnaires. Compared to New Zealand census data,[27] the study population was representative for the New Zealand population in regard to employment status and occupation.

In total, 315 patients were enrolled in the study; 147 were lost to follow-up. Overall, 124 Y-ACC patients and 188 N-ACC (146 patients with no benefit, N-ACC-NB; 42 with benefit, N-ACC-B) were included in the analysis with 168 patients completing all surveys. Eight patients were excluded on the basis of incorrect questionnaire completion. The mean time on benefits in the sickness-benefit group was 203 days, compared to 216 days in the unemployment, 304 in the invalids, and 423 in the domestic purposes-benefits group. Mean days on benefit for N-ACC-B were 581 days (SD=1,959 days, range 0–12,410 days, median=239 days).

Functional limitation

At baseline, functional limitation (as measured with ODI) was significantly better in Y-ACC than N-ACC cases (Table 1) ($p=0.025$); these both improved by six months but remained significantly different ($p=0.049$). Initial scores were worst in N-ACC-NB; significant differences were seen between N-ACC-NB and N-ACC-B at all time points. Over time functional limitation improved in Y-ACC, N-ACC and N-ACC-NB but not N-ACC-B, where at six-month follow-up functional limitation was still worse than at baseline of the other two groups. Baseline functional limitation was best in N-ACC-NB (score=19), and at six months lowest in Y-ACC (score=13).

General health

For physical health, Y-ACC was significantly worse than N-ACC ($p=0.000$) and N-ACC-NB ($p<0.001$) at baseline but not six months (Table 1). Y-ACC was significantly better than N-ACC-B at six weeks, 12 weeks, and six months. Although physical health at baseline was worst in Y-ACC (score=42), over six-months it improved to the same norm values as N-ACC-NB. All groups improved over time except N-ACC-B where physical health deteriorated, falling below the baseline-values of the other two groups (score=40). There were significant differences between N-ACC-NB and N-ACC-B for all time points except baseline.

There was a significant difference in mental health at baseline between Y-ACC and N-ACC ($p<0.001$) and N-ACC-B ($p<0.001$), but not between Y-ACC and N-ACC-NB (Table 1). Scores for all groups improved over six months, but were

worst in N-ACC-B at every time point. At six months scores were significantly different between Y-ACC and N-ACC (p=0.039), Y-ACC and N-ACC-B (p=0.015).

Pain

Pain was highest in N-ACC-B at every time point (Table 1). Significant differences were seen between Y-ACC and N-ACC at 12 weeks and six months. No difference was seen between Y-ACC and N-ACC-NB at any time point, however, Y-ACC was significantly different to N-ACC-B at every time point except baseline. Pain was significantly higher in N-ACC-B than N-ACC-NB at every time point.

Psychological factors

Fear-avoidance beliefs (mental component) about work activity at baseline were weakest in N-ACC-NB and Y-ACC (score=15) (Table 2); values decreased over time in all groups except N-ACC-B, which did not show any change. There was a significant difference between Y-ACC and N-ACC-NB at baseline and six weeks, and Y-ACC and N-ACC-B at 12 weeks; N-ACC-B had consistently weaker fear avoidance beliefs than N-ACC-NB at all times except baseline.

Fear-avoidance beliefs about physical activity at baseline were not different between groups (Table 2). Values improved over time in both Y-ACC and N-ACC; further breakdown showed an improvement for N-ACC-NB cases but N-ACC-B remained the same. No significant differences were seen between Y-ACC and N-ACC, however, there were significant differences between N-ACC-NB and N-ACC-B (those on benefits worse) at all time points except baseline and some differences between Y-ACC and other sub-groups (those with a claim better) at various time points.

Feelings of helplessness at baseline were highest in N-ACC-B (score=9.8) (Table 2); over time it lessened in all groups with the greatest decrease in N-ACC-B though this group remained higher than all other groups at six months. Y-ACC was significantly different to N-ACC at six (p=0.012) and 12 (p=0.003) weeks. Further breakdown showed Y-ACC and N-ACC-NB were significantly different to N-ACC-B for all time points except six months.

Patients lost to follow-up

All baseline characteristics between participants and those lost to follow-up were similar except for a higher depression score on the Zung self-rating depression scale [F (1, 286) = 7.08; p<0.01] and a lower mental health according to the SF-12 mental component scale [F (1, 286) = 5.61; p<0.05] in the patient group lost to follow-up.

Discussion

This study is the first to specifically explore the relationship between LBP, ACC claim status, and benefit status in New Zealand. Results indicate a trend for a negative relationship between function, general health, pain, and psychological factors over time for LBP outcomes in patients who do not have an accepted ACC claim, and in particular those who do not have an accepted ACC claim and are on a benefit (N-ACC-B).

The main finding for functional limitation showed improvement for all groups over time, except for N-ACC-B, which got worse. Coping with LBP is known to be more difficult with diminished resources[28] and it is possible that having an ACC claim accepted for LBP could be interpreted as being a positive resource. While there was a significant difference between Y-ACC and N-ACC at three time points, further breakdown indicates this is potentially caused by high functional limitation scores in the N-ACC-B group. N-ACC-B status therefore appears related to poor functional outcome, indicating that in individuals receiving benefits there is low resilience to LBP.[10] It is possible that those individuals on benefits may overstate poor function or general health so as not to endanger benefit status, however any such relationship between behaviour and benefit status is currently unclear in a New Zealand context and requires further exploration.

Physical health improved in all groups except N-ACC-B, with the general trend being significant differences between this group and both Y-ACC and N-ACC-NB (those on benefits worse). Mental health values for N-ACC-B were significantly poorer than Y-ACC and N-ACC-NB at all times. These two factors combined suggest that individuals on benefits in New Zealand may be vulnerable to other health issues, similar to findings of groups in welfare state regimes in other countries where health and unemployment are negatively related.[10,29-31] Similar to physical and mental health, pain improved in all groups. However, N-ACC-B cases were significantly worse than both Y-ACC and N-ACC-NB overall, indicating that individuals receiving benefits were generally less resilient to pain.[10] These findings highlight the potential for poor outcomes in NZ LBP patients, in particular those in the N-ACC-B group, because of the link between general health, pain, and health outcomes.[20]

For psychological factors, fear-avoidance beliefs about work activity and physical activity did not improve in the N-ACC-B group, and in general remained significantly worse than both Y-ACC and N-ACC-NB groups. Helplessness was not

different between Y-ACC and N-ACC groups, yet N-ACC-B data remained higher (but not significantly) at six months and throughout the study period. Immediately applied cognitive behavioural therapy may support the treatment of LBP, in particular in the N-ACC-B group.[2] These findings suggest that intervention such as psychological support or counselling may be useful for individuals belonging to the N-ACC-B group; studies[32,33] have indicated positive outcomes for LBP can be facilitated by the administration of counseling or psychological support.

Previous research has pointed to the positive effects of work participation and resource provision that are predictive of outcomes for LBP recovery,[9] and that coping with musculoskeletal complaints is more difficult with fewer resources. Our findings indicate that individuals receiving ACC support (perhaps financial and/or psychological) demonstrate improvement in functional outcome; conversely, many of the factors measured show some or no improvement in the N-ACC group, and in particular the N-ACC-B group. This result is important because many factors influence recovery from spinal injury including structured management of potential resources such as treatment,[20] employment and social-support.[18,34] Combined, these are necessary to allow effective management of individuals who do not have ACC claims accepted for LBP - and in particular, those individuals on benefits. Receiving benefits may also indicate a low resilience to disease; in other words, these individuals are vulnerable, further compounding optimal recovery and the implementation of effective management strategies.[10,29,30,31] Interestingly, Lilley et al. (2013) examined ACC-entitled non-work and work injuries in New Zealand and assessed injury outcomes showing that by 12 months, vocational, disability and some functional outcomes were poorer for workers with work-related injuries.[35] Although findings were based on injuries for all body regions, it does suggest that ACC claim entitlement and benefit status, such as those assessed in this study, may not be the only variables affecting long-term outcomes for musculoskeletal disorders in New Zealand.

Low resilience and poor outcomes to LBP in almost all measurements in this study were more often demonstrated in the N-ACC-B group than either Y-ACC or N-ACC-NB groups. Therefore, LBP cases without an accepted claim and who receive other benefits could be preferentially targeted for early intervention with multifaceted strategies to improve physical, psychological, functional and pain outcomes. This targeted approach has been implemented as frameworks for improving LBP outcomes in other settings,[20] and should be considered as a potential intervention pathway for clinicians in New Zealand. These results are similar to the findings of local research on ACC claim status by McAllister et al. (2013),[7] who demonstrated a link between ACC claim status and outcome in stroke versus injury patients. Findings from both studies indicate ACC claim status is a significant factor in predicting outcomes for both stroke and LBP in New Zealand, with individuals not eligible for an ACC claim likely to have significantly poorer outcomes. Further, this study demonstrates that benefit and claim status are also negatively associated for LBP.

Limitations

This study did not include diagnostic information, therefore we are unable to comment on whether our data are representative of any specific LBP classification (e.g. discogenic or muscular). It is common for LBP to be described as 'non-specific' therefore our results should compare with related research. Data for Y-ACC benefit status was not available, therefore no specific analysis of Y-ACC and benefit status was possible. Other limitations include the potential for bias due to the patient drop out, which was more pronounced in N-ACC-B (e.g. baseline n = 42, 6 months n = 17) and therefore differential drop out may have influenced results. Further, analyses on FABQ-W may be affected due to specific questions about a person's ability to return to work; some individuals without jobs may not have interpreted this question correctly and therefore data - and subsequently analyses and outcomes - may have been affected for these questions. Last, while the terminology used throughout includes the phrase 'LBP outcomes', it is appreciated that there is the possibility that some respondents may overstate pain or dysfunction: caution should therefore be used in interpreting presented data given these are 'respondent reported' outcomes.

Conclusion

Poorer outcomes for function, mental health, and pain were shown in the no-claim group at six months. Further, no claim-receiving benefits (N-ACC-B) had poorer outcomes across all variables compared to no claim-no benefit, and claim receivers. Results suggest that those individuals who do not qualify for an ACC claim for LBP, and for benefit recipients in particular, support strategies screening helplessness and mental health, psychological intervention, and physical conditioning should be considered. Furthermore, an alternative strategy may also be to target these individuals to provide employment, and therefore an increase in personal resources. These could be immediately in such cases, as part of LBP treatment, in order to facilitate improved LBP outcomes in New Zealand.

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PEER REVIEW

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CONFLICTS OF INTEREST

The authors declare the following conflict of interest: Jon Cornwall and Markus Melloh are members of the editorial board of the *AMJ*.

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ETHICS COMMITTEE APPROVAL

Ethical approval for this case report was provided by the local Lower South Regional Ethics Committee of New Zealand (LRS/08/03/008).

Table 1: Change over time in functional limitation, general health, and pain between low back pain patient cohorts from baseline to six months

Variables	Groups and comparisons	Baseline (n=312)	3wk FU (n=252)	6wk FU (n=222)	12wk FU (n=192)	6mth FU (n=168)
Functional limitation	**ODI** (mean[+/-SD])					
	Y-ACC (n=124)	24 (15)	21 (14)	18 (15)	14 (12)	13 (12)
	N- ACC (n=188)	21 (11)	20 (14)	19 (15)	19 (17)	17 (17)
	N-ACC-NB (n=146)	19 (10)	18 (12)	16 (13)	16 (15)	14 (15)
	N-ACC-B (n=42)	27 (12)	28 (15)	30 (17)	33 (17)	33 (17)
	Y-ACC vs. N-ACC	**P = .025**	P = .891	P = .732	**P = .016**	**P = .049**
	Y-ACC vs. N-ACC-NB	**P = .003**	P = .482	P = .698	P = .764	P = .926
	Y-ACC vs. N-ACC-B	P = .553	P = .064	**P = .009**	**P < .001**	**P < .001**
	N-ACC-NB vs. N-ACC-B	**P = .001**	**P = .007**	**P = .002**	**P < .001**	**P < .001**
General health	**SF-12-PCS** (mean[+/-SD])					
	Y-ACC (n = 124)	42 (10)	46 (9)	47 (9)	49 (8)	50 (8)
	N- ACC (n = 188)	47 (8)	48 (7)	47 (9)	47 (10)	48 (9)
	N-ACC-NB (n = 146)	47 (8)	48 (7)	49 (9)	49 (9)	50 (9)
	N-ACC-B (n = 42)	46 (8)	42 (10)	41 (8)	41 (10)	40 (10)
	Y-ACC vs. N-ACC	**P = .000**	P = .271	P = .775	P = .093	P = .125
	Y-ACC vs. N-ACC-NB	**P < .001**	P = .076	P = .392	P = .933	P = .992
	Y-ACC vs. N-ACC-B	P = .079	P = .222	**P = .005**	**P = .002**	**P = .001**
	N-ACC-NB vs. N-ACC-B	P = .704	**P = .006**	**P < .001**	**P = .005**	**P = .002**
	SF-12-MCS (mean[+/-SD])					
	Y-ACC (n=124)	48 (9)	48 (9)	48 (9)	49 (11)	50 (10)
	N- ACC (n=188)	43 (11)	45 (12)	46 (10)	46 (10)	47 (11)
	N-ACC-NB (n=146)	46 (10)	47 (10)	47 (10)	47 (10)	48 (11)
	N-ACC-B (n=42)	35 (11)	37 (13)	40 (9)	42 (8)	43 (9)
	Y-ACC vs. N-ACC	**P = .001**	**P = .012**	**P = .036**	P = .137	**P = .039**
	Y-ACC vs. N-ACC-NB	P = .354	P = .792	P = .689	P = .723	P = .370
	Y-ACC vs. N-ACC-B	**P < .001**	**P < .001**	**P < .001**	**P = .030**	**P = .015**
	N-ACC-NB vs. N-ACC-B	**P < .001**	**P < .001**	**P = .002**	P = .116	P = .155
Pain	**VAS** (pain intensity last week) (mean[+/-SD])					
	Y-ACC (n=124)	38 (25)	26 (23)	26 (25)	20 (22)	17 (22)
	N- ACC (n=188)	37 (22)	29 (21)	30 (25)	29 (27)	24 (25)
	N-ACC-NB (n=146)	32 (21)	26 (20)	26 (24)	24 (24)	21 (24)
	N-ACC-B (n=42)	48 (23)	41 (22)	43 (24)	49 (27)	42 (27)
	Y-ACC vs. N-ACC	P = .513	P = .412	P = .300	**P = .016**	**P = .045**
	Y-ACC vs. N-ACC-NB	P = .207	P = .984	P = .999	P = .640	P = .627
	Y-ACC vs. N-ACC-B	P = .065	**P = .006**	**P = .010**	**P < .001**	**P = .008**
	N-ACC-NB vs. N-ACC-B	**P = .001**	**P = .002**	**P = .010**	**P = .001**	**P = .027**

Raw data are presented, significant difference is indicated in bold; analysis compares patients over time between ACC claim (Y-ACC) versus no ACC claim (N-ACC); no ACC claim patients are further broken down into no ACC claim and not on a benefit (N-ACC-NB), and no ACC claim and on a benefit (N-ACC-B). Post-hoc group comparisons performed in one-way ANOVA with no equal variances; in-group comparison assumed (Tamhane's T2), two-sided. FU: Follow up. ODI: Oswestry Disability Index. SF-12-PCS: Physical Component Scale Short Form 12 Health Survey Questionnaire. SF-12-MCS: Mental Component Scale Short Form 12 Health Survey Questionnaire. VAS: Visual analogue scale.

Table 2: Change over time in psychological factors between low back pain patient cohorts from baseline to six months

Variable	Groups and comparisons	Baseline (n=312)	3wk FU (n=252)	6wk FU (n=222)	12wk FU (n=192)	6mth FU (n=168)
Psychological factors	**FABQ work activity** (mean[+/-SD])					
	Y-ACC (n=124)	15 (11)	15 (25)	13 (10)	10 (9)	9 (9)
	N- ACC (n=188)	12 (10)	10 (9)	9 (9)	10 (9)	9 (9)
	N-ACC-NB (n=146)	11 (9)	9 (8)	8 (7)	8 (8)	7 (8)
	N-ACC-B (n=42)	15 (12)	16 (9)	15 (12)	17 (11)	15 (11)
	Y-ACC vs. N-ACC	**P = .042**	P = .067	**P = .005**	P = .664	P = .734
	Y-ACC vs. N-ACC-NB	**P = .020**	P = .051	**P < .001**	P = .274	P = .504
	Y-ACC vs. N-ACC-B	P = .989	P = .997	P = .876	**P = .041**	P = .171
	N-ACC-NB vs. N-ACC-B	P = .140	**P = .001**	**P = .027**	**P = .003**	**P = .047**
	FABQ physical activity (mean[+/-SD])					
	Y-ACC (n = 124)	14 (6)	13 (6)	13 (10)	11 (7)	12 (6)
	N- ACC (n=188)	14 (6)	13 (6)	9 (9)	11 (7)	11 (7)
	N-ACC-NB (n=146)	13 (6)	12 (6)	8 (7)	10 (6)	10 (6)
	N-ACC-B (n=42)	15 (6)	16 (6)	15 (12)	17 (6)	15 (6)
	Y-ACC vs. N-ACC	P = .214	P = .594	**P = .005**	P = .726	P = .388
	Y-ACC vs. N-ACC-NB	P = .234	P = .254	**P < .001**	P = .678	P = .304
	Y-ACC vs. N-ACC-B	P = .963	**P = .039**	P = .876	**P < .001**	P = .274
	N-ACC-NB vs. N-ACC-B	P = .303	**P = .001**	**P = .027**	**P < .001**	**P = .035**
	Helplessness (PCS) (mean[+/-SD])					
	Y-ACC (n=124)	6.1 (5.9)	3.7 (3.5)	3.5 (3.5)	2.7 (4.0)	3.3 (4.0)
	N- ACC (n=188)	6.4 (5.5)	4.6 (4.5)	5.0 (5.0)	4.7 (5.0)	4.3 (4.6)
	N-ACC-NB (n=146)	5.5 (4.9)	3.9 (3.9)	4.1 (4.3)	4.1 (4.5)	3.8 (4.1)
	N-ACC-B (n=42)	9.8 (6.0)	7 (5.2)	8.7 (6.1)	7.5 (5.9)	6.6 (6.2)
	Y-ACC vs. N-ACC	P = .566	P = .065	**P = .012**	**P = .003**	P = .141
	Y-ACC vs. N-ACC-NB	P = .755	P = .974	P = .697	P = .127	P = .815
	Y-ACC vs. N-ACC-B	**P = .002**	**P = .002**	**P = .001**	**P = .004**	P = .143
	N-ACC-NB vs. N-ACC-B	**P < .001**	**P = .003**	**P = .003**	**P = .046**	P = .254

Raw data are presented, significant difference is indicated in bold; analysis compares patients over time between ACC claim (Y-ACC) versus no ACC claim (N-ACC); no ACC claim patients are further broken down into no ACC claim and not on a benefit (N-ACC-NB), and no ACC claim and on a benefit (N-ACC-B). Post-hoc group comparisons performed in one-way ANOVA with no equal variances; in-group comparison assumed (Tamhane's T2), two-sided. FU: Follow-up. FABQ: Fear avoidance beliefs questionnaire. PCS: Pain catastrophising scale.