

Supplemental table 1

Analyses of confounding between the exposition variable (disability pension (DP) applicant), possible confounders (bivariate analyses), and the outcome (return to work)

	Beta (exposition)	Odds ratio (OR) (exposition)	95% CI OR (exposition)	p-value (exposition)	Confounder§§ (1 yes, 0 no)
Dependent variable					
Not returned to work at 12 months follow up (yes or no)					
Exposition variable					
<i>Univariate analysis</i>					
DP-applicants (yes/no)	2.51	12.24	10.35-14.49	<0.001	
Possible confounders					
<i>Bivariate analysis with the exposition variable</i>					
Age*	2.49	12.05	10.18-14.26	<0.001	0
Female gender*	2.49	12.00	10.13-14.21	<0.001	0
Smoking* (yes/no)	2.48	11.97	10.10-14.20	<0.001	0
College or university education* (yes/no)	2.46	11.67	9.83-13.85	<0.001	0
Native Norwegian speaker* (yes/no)	2.48	11.95	10.09-14.15	<0.001	0
Body Mass Index*	2.50	12.17	10.25-14.45	<0.001	0
Numeric Rating Scale score for back pain* (0 - 10)	2.41	11.08	9.33-13.15	<0.001	0
Numeric Rating Scale score for leg pain* (0 - 10)	2.50	12.22	10.23-14.50	<0.001	0
Oswestry Disability Index* (0 - 100)	2.45	11.53	9.73-13.67	<0.001	0
EuroQoL 5 Dimensions* (-0.6 - 1)	2.45	11.58	9.60-13.97	<0.001	0
Longer than 12 months duration of back pain* (yes/no)	2.36	10.61	8.93-12.60	<0.001	0
Longer than 12 months duration of radiating pain* (yes/no)	2.40	11.01	9.25-13.11	<0.001	0
Fusion surgery* (yes/no)	2.39	10.96	7.07-16.99	<0.001	0
Use of painkillers* (yes/no)	2.48	11.99	10.12-14.21	<0.001	0
Previous lumbar spine surgery*	2.44	11.45	9.66-13.56	<0.001	0
Any comorbidity* (yes/no)	2.42	11.19	9.38-13.35	<0.001	0
American Society of Anaesthesiologists' classification* >2 (yes/no)	2.50	12.17	10.27-14.42	<0.001	0
Moderate to severe anxiety and/or depression*‡ (yes/no)	2.39	10.90	9.05-13.13	<0.001	0
Duration of sick leave*	1.64	5.14	3.82-6.92	<0.001	1
Reading/writing difficulties† (yes/no)	2.42	11.22	7.20-17.50	<0.001	0
Wanted back to work by employer†§ (1-3) (yes/uncertain/no)	2.02	7.53	4.67-12.13	<0.001	1
Heavy physical work† (0-10)	2.23	9.32	5.79-15.00	<0.001	1
ÖMPQ item number 15†¶ (0-10)	2.39	10.87	6.95-16.99	<0.001	0
ÖMPQ item number 16†** (0-10)	1.73	5.66	3.52-9.11	<0.001	1
ÖMPQ item number 19†, †† (0-10)	2.42	11.205	7.17-17.51	<0.001	0
ÖMPQ item number 20†‡‡ (0-10)	2.23	9.28	5.85-14.72	<0.001	1
*Variables from 2009-2020: n=806 DP-applicants, n=15291 non-applicants					
†Variables from 2019-2020 only: n=122 DP-applicants, n=2412 non-applicants					

‡EQ-5D 5th item

§ "Do you feel that your employer wants you back to work?"

¶ "In your view, how large is the risk that your current pain may become persistent?" (no risk -very large risk)

** "In your estimation, what are the chances you will be working your normal duties in 6 months" (no change-very large chance)

†† "An increase in pain is an indication that I should stop what I'm doing until the pain decreases" (completely disagree-completely agree).

‡‡ "I should not do my normal work with my present pain" (completely disagree-completely agree)

§§ A covariate was defined as a significant confounder if it changed the Beta of the exposition variable with more than 10 percent when entered into a bivariate analysis

Supplemental table 2

Baseline characteristics for all included cases, stratified by completed follow-up and lost to follow-up, and analyzed with One-Way ANOVA for continuous variables and Person's chi-squared test for category variables.

	Cases with completed follow-up	Lost to follow-up	P value
Age*, mean (95 % Confidence Interval (CI))	49.0 (48.8-49.1)	43.8 (43.6-44.1)	<0.001
Missing, n (%)	0	0	
Female gender*, n (%)	7356 (41.7%)	3393 (37.5%)	< 0.001
Missing	0	0	
Disability Pension applicant*, n (%)	852 (5.0%)	517 (5.9%)	0.002
Missing	0	0	
Smokers*, n (%)	36108 (20.5%)	2628 (29.1%)	< 0.001
Missing	151 (0.9%)	73 (0.8%)	
College or University education*, n (%)	7543 (42.7%)	3299 (36.5%)	< 0.001
Missing	90 (0.5%)	74 (0.8%)	
Native Norwegian speaker*, n (%)	16265 (92.2%)	8205 (90.8%)	<0.001
Missing	57 (0.3%)	30 (0.3%)	
Body Mass Index*, mean (95 % CI)	27.2 (27.1-27.3)	27.5 (27.4-27.6)	<0.001
Missing	433 (2.5%)	280 (3.1%)	
Numeric Rating Scale (NRS) score for back pain*, mean (95 % CI)	6.2 (6.18-6.25)	6.35 (6.1-6.4)	<0.001
Missing, n (%)	441 (2.5%)	271 (3.0%)	
NRS score for leg pain*, mean (95 % CI)	6.53 (6.5-6.57)	6.6 (6.56-6.66)	0.009
Missing, n (%)	457 (2.6%)	289 (3.2%)	
Oswestry Disability Index*, mean (95 % CI)	42.1 (41.8-42.3)	43.0 (42.7-43.4)	<0.001
Missing, n (%)	93 (0.5%)	57 (0.6%)	
EuroQoL 5 Dimensions*, mean (95 % CI)	0.33 (0.32-0.34)	0.30 (0.29-0.31)	<0.001
Missing, n (%)	3528 (20.0%)	2016 (22.3%)	
Duration of back pain*, n (%)			<0.001
No symptoms	359 (2.0%)	124 (1.4%)	
Less than 3 months	2193 (12.4%)	1020 (11.3%)	
3 – 12 months	6266 (35.5%)	3365 (37.2%)	
12 – 24 months	2781 (15.8%)	1526 (16.9%)	
More than 24 months	5709 (32.3%)	2826 (31.3%)	
Missing	341 (1.9%)	178 (2.0%)	
Duration of radiating pain*, n (%)			0.014
No symptoms	517 (2.9%)	219 (2.4%)	
Less than 3 months	3156 (17.9%)	1524 (16.9%)	
3 – 12 months	7092 (40.2%)	3748 (41.5%)	
12 – 24 months	2799 (15.9%)	1483 (16.4%)	
More than 24 months	3560 (20.2%)	1789 (19.8%)	
Missing	525 (3.0%)	276 (3.1%)	
Using painkillers*, n (%)	14517 (82.3%)	7554 (83.6%)	0.021
Missing	132 (0.7%)	69 (0.8%)	
Previously operated in the lumbar spine*, n (%)	4134 (23.4%)	2451 (27.1%)	<0.001
Missing	116 (0.7%)	65 (0.7%)	
Surgeon reported comorbidity*, n (%)	5686 (32.2%)	2634 (29.1%)	<0.001
Missing	1337 (7.6%)	706 (7.8%)	
American Society of Anaesthesiologists' classification*, n (%)			0.018
I & II	16669 (94.4%)	8610 (95.3%)	
III, IV & V	787 (4.5%)	339 (3.8%)	
Missing	193 (1.1%)	90 (1.0%)	
Moderate or Severe Anxiety/depression* [‡] , n (%)	5578 (31.6%)	3156 (34.9%)	<0.001
Missing	3267 (18.5%)	1852 (20.5%)	
Duration of sick leave*, n (%)			<0.001
Less than 3 months	4305 (24.4%)	1959 (21.7%)	
3 – 12 months	1344 (7.6%)	745 (8.2%)	
12 – 24 months	1195 (6.8%)	680 (7.5%)	
More than 24 months	850 (4.8%)	481 (5.3%)	

Not answered (/not receiving SB)	9955 (56.4%)	5174 (57.2%)	
Reading/writing difficulties [†] , n (%)	274 (9.2%)	249 (14.8%)	<0.001
Missing	113 (3.8%)	64 (3.8%)	
Wanted back to work by employer [‡] §, n (%)			0.07
Yes	2320 (77.7%)	1250 (74.3%)	
Uncertain	220 (7.4%)	138 (8.2%)	
No	101 (3.4%)	64 (3.8%)	
Missing	345 (11.6%)	230 (13.7%)	
Heavy physical work [†] (0-10), mean (95 % CI)	4.3 (4.2-4.4)	4.9 (4.7-5.1)	<0.001
Missing, n (%)	205 (6.9%)	146 (8.7%)	
Örebro musculoskeletal pain questionnaire (ÖMPQ)			
ÖMPQ item number 15 ^{†¶} (0-10), mean (95 % CI)	5.6 (5.5-5.7)	5.55 (5.4-5.7)	0.435
Missing, n (%)	228 (7.6%)	176 (10.5%)	
ÖMPQ item number 16 ^{†**} (0-10), mean (95 % CI)	7.59 (7.48-7.71)	7.55 (7.4-7.7)	0.676
Missing, n (%)	179 (6.0%)	139 (8.3%)	
ÖMPQ item number 19 ^{††} , ^{††} (0-10), mean (95 % CI)	7.1 (7.0-7.25)	7.3 (7.2-7.4)	0.079
Missing, n (%)	188 (6.3%)	150 (8.9%)	
ÖMPQ item number 20 ^{†‡‡} (0-10), mean (95 % CI)	6.8 (6.7-6.9)	7.2 (7.0-7.4)	<0.001
Missing, n (%)	201 (6.7%)	150 (8.9%)	
*Variables from 2009-2020: n=17649 for complete follow-up, n=9039 for lost to follow-up			
[†] Variables from 2019-2020 only: n=2989 for complete follow-up, n=1698 for lost to follow-up			
[‡] EQ-5D 5th item			
§ "Do you feel that your employer wants you back to work?"			
¶ "In your view, how large is the risk that your current pain may become persistent?" (no risk -very large risk)			
** "In your estimation, what are the chances you will be working your normal duties in 6 months" (no change-very large chance)			
^{††} "An increase in pain is an indication that I should stop what I'm doing until the pain decreases" (completely disagree-completely agree).			
^{‡‡‡} "I should not do my normal work with my present pain" (completely disagree-completely agree)			

Supplemental table 3

Multivariate analyses of the association (odds ratio (OR)) between the exposition variable (disability pension (DP) applicants) and its subgroups (planning to apply and having applied (reference subgroup “Has not applied”), the significant confounders, and return to work 12 months after surgery (dependent variable). Only patients with preoperative sick leave of 12 months or more are included.

	<i>Preoperative sick leave \geq 12 months</i>		
	OR	95% CI	p-value
DP-applicants (yes)	1.9	0.7-5.3	0.22
ÖMPQ item number 16* (0-10)	0.7	0.6-0.8	<0.001
ÖMPQ item number 20† (0-10)	1.0	0.9-1.1	0.58
Wanted back to work by employer‡ (1-3) (yes/uncertain/no)	1.1	0.6-2.1	0.66
Heavy physical work (0-10)	1.1	1.0-1.2	0.08

Supplemental table 4

Multivariate analysis showing the association between the exposition (DP-applicant) variable and all confounders , and the odds for not returning to work 12 months (dependent variable) after surgery among patients not working fulltime at baseline, stratified by pre-operative sick leave duration over and under 12 months.

	<i>Sick leave pre-operative < 12 months</i>			<i>Sick leave pre-operative > 12 months</i>		
	Odds ratio (OR) (exposition)	95% CI OR (exposition)	p-value (exposition)	Odds ratio (OR) (exposition)	95% CI OR (exposition)	p-value (exposition)
DP applicants	3.8	1.8-8.3	<0.001	1.8	0.6-4.9	0.28
ÖMPQ item number 16* (0-10)	0.9	0.9-0.9	<0.001	0.7	0.6-0.8	<0.001
ÖMPQ item number 20† (0-10)	1.1	1.0-1.2	0.019	0.9	0.8-1.1	0.43
Employer wants you back to work‡ (0-2) (yes/maybe/no)	1.8	1.3-2.3	<0.001	1.1	0.6-2.0	0.85
Heavy physical work (0-10)	1.1	1.0-1.1	<0.001	1.1	1.0-1.2	0.08
<p><i>All variables from 2019-2020 only: n=122 DP-applicants, n=2412 non-applicants</i></p> <p><i>*In your estimation, what are the chances you will be working your normal duties in 6 months (no change-very large chance)</i></p> <p><i>†I should not do my normal work with my present pain (completely disagree-completely agree)</i></p> <p><i>‡"Do you feel that your employer wants you back to work?"</i></p>						

Supplemental table 5

Univariate and multivariate analyses of the association (odds ratio (OR)) between the exposition variable, subgroups of disability pension (DP) applicants (“planning to apply” and “having applied” (reference subgroup “has not applied), all other covariates, and return to work 12 months after surgery (dependent variable). Only patients with preoperative sick leave less than 12 months are included.

	<i>Univariate analyzes</i>			<i>Multivariate analyzes</i>		
	OR	95% CI	p-value	OR	95% CI	p-value
Planning to apply for DP (yes)	12.3	7.7-19.5	<0.001	1.8	0.6-5.3	0.274
Have applied for DP (yes)	6.3	3.8-10.4	<0.001	7.0	2.5-19.3	<0.001
ÖMPQ item number 16* (0-10)	0.8	0.8-0.9	<0.001	0.9	0.9-0.9	<0.001
ÖMPQ item number 20† (0-10)	1.2	1.2-1.3	<0.001	1.1	1.1-1.2	<0.001
Wanted back to work by employer‡ (1-3) (yes/uncertain/no)	2.5	2.0-3.2	<0.001	1.7	1.3-2.2	<0.001
Heavy physical work (0-10)	1.2	1.1-1.2	<0.001	1.1	1.1-1.1	<0.001
<p><i>All variables from 2019-2020: n=122 DP-applicants, n=2412 non-applicants</i></p> <p><i>* Örebro Musculoskeletal Pain Questionnaire: “ In your estimation, what are the chances you will be working your normal duties in 6 months” (no change-very large chance)</i></p> <p><i>†Örebro Musculoskeletal Pain Questionnaire: “I should not do my normal work with my present pain” (completely disagree-completely agree)</i></p> <p><i>‡ “Do you feel that your employer wants you back to work?”</i></p>						