

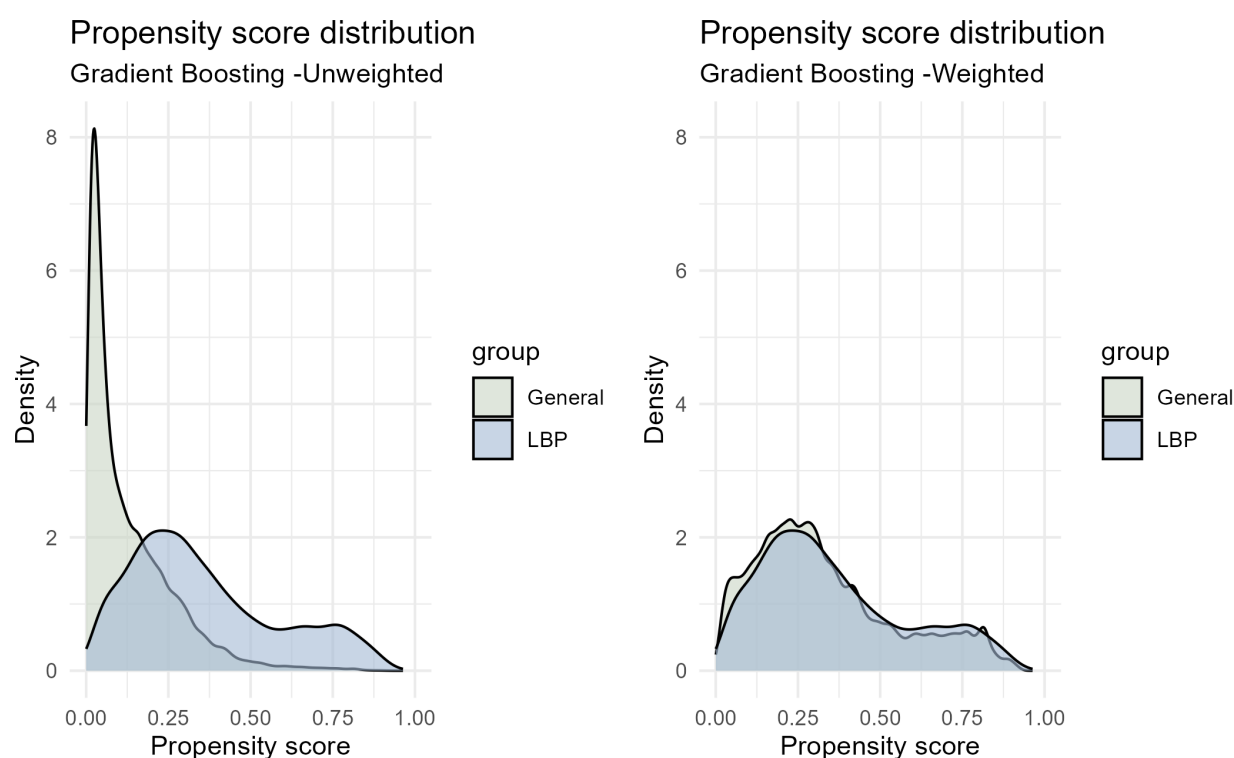
Labor market participation among patients referred to occupational medicine with low-back pain: a Danish nationwide register-based cohort study¹

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Figure S1: Propensity score distribution before and after weighting in the subsample of the general working population (general) and lower back pain patients (LBP).



We used gradient boosting with stopping criteria “es.max” to estimate propensity score weights using the average treatment effect in the treated (ATT). Missing values were handled using missing-indicator coding, where each variable with missingness was assigned a separate indicator and missing values were replaced with arbitrary constants for model fitting (“ind” option in the WeighIt package). The WeighIt package was used (Greifer N (2025). *WeightIt: Weighting for Covariate Balance in Observational Studies*. R package version 1.5.0, <https://ngreifer.github.io/WeightIt/>.)

Table S1. Subgroup analyses of prevalences (prev.) of positive labor market status at 2 years after index*

Subgroup (index time values)	LBP ^a working prev., %	General pop. ^b working prev., %	PS ^c -weighted difference (95% CI ^d) vs general	PS ^c -weighted ratio (95% CI ^d) vs general	LBP ^a patients, n	General pop. ^b , n	General pop. ^b , ESS ^e	Max SMD ^f
Age group (years)								
<30	57.7	86.4	-23.71 (-28.21 – -19.22)	0.71 (0.66 – 0.76)	742	3710	773	0.29
30-49	47.0	85.7	-29.75 (-31.66 – -27.83)	0.61 (0.59 – 0.63)	4583	22915	5619	0.12
≥50	36.1	82.0	-35.93 (-38.27 – -33.59)	0.50 (0.48 – 0.53)	2931	14655	3799	0.17
Sex								
Male	44.3	86.0	-32.21 (-34.20 – -30.23)	0.58 (0.56 – 0.60)	4502	22510	4596	0.17
Female	43.7	82.6	-30.42 (-32.51 – -28.32)	0.59 (0.57 – 0.61)	3754	18770	5058	0.13
Civil status								
Married/partnership	44.0	87.1	-33.96 (-35.88 – -32.03)	0.56 (0.54 – 0.59)	4663	24222	5562	0.10
Unmarried	48.0	81.6	-27.16 (-29.89 – -24.43)	0.64 (0.61 – 0.67)	2208	10917	2586	0.20
Divorced/widowed	38.3	75.9	-28.75 (-32.28 – -25.22)	0.57 (0.53 – 0.62)	1365	5028	1698	0.26
Educational level								
Short	39.3	73.7	-30.49 (-32.83 – -28.14)	0.56 (0.54 – 0.59)	3133	8844	3560	0.20
Medium	46.5	85.5	-32.08 (-34.05 – -30.10)	0.59 (0.57 – 0.61)	4310	18990	5435	0.11
Long	53.0	90.1	-29.89 (-34.10 – -25.68)	0.64 (0.59 – 0.69)	681	12117	1675	0.34
Occupational classification								
Plant and machine operators and assemblers	39.4	79.3	-35.79 (-39.31 – -32.28)	0.52 (0.49 – 0.56)	1451	3242	1415	0.37
Management, legislation, professionals, technicians	52.7	90.8	-31.58 (-35.54 – -27.62)	0.63 (0.58 – 0.67)	734	15756	2906	0.30
Elementary occupations	40.3	72.4	-29.39 (-32.22 – -26.55)	0.58 (0.55 – 0.61)	2120	4747	2338	0.27
Craft and related workers	45.0	83.9	-32.20 (-35.63 – -28.76)	0.58 (0.55 – 0.62)	1299	4572	2001	0.17
Clerks and service, shop and market sales workers	47.0	82.8	-30.96 (-33.50 – -28.43)	0.60 (0.58 – 0.63)	2445	10346	3304	0.14
Armed forces and skill agricultural and fishery workers	48.8	89.0	-36.05 (-44.83 – -27.28)	0.58 (0.49 – 0.68)	166	826	299	0.74

Industry sector								
Unknown	29.4	57.7	-20.61 (-25.59 – -15.63)	0.59 (0.51 – 0.68)	513	2406	1039	0.29
Trade, repair, transport & storage	48.3	85.4	-29.05 (-32.51 – -25.59)	0.62 (0.59 – 0.66)	1378	7688	1922	0.17
Resource extraction, manufacturing & supply	41.2	85.7	-35.14 (-38.41 – -31.87)	0.54 (0.51 – 0.57)	1851	6463	1751	0.26
Public administration, education and health	48.1	86.8	-31.60 (-34.12 – -29.08)	0.60 (0.58 – 0.63)	2507	12464	2960	0.12
Information, communication, finance, insurance, real estate, rent	41.9	91.1	-34.55 (-50.54 – -18.56)	0.55 (0.42 – 0.72)	117	2975	106	0.80
Culture, recreation and other services	42.9	85.7	-38.96 (-46.92 – -30.99)	0.52 (0.44 – 0.62)	182	1387	585	0.45
Construction	46.3	84.1	-31.66 (-35.91 – -27.42)	0.59 (0.55 – 0.64)	1018	2505	960	0.27
Commercial services	37.3	84.6	-30.28 (-36.45 – -24.10)	0.55 (0.48 – 0.63)	483	3513	597	0.45
Agriculture, forestry & fishing	38.1	85.1	-37.34 (-49.30 – -25.38)	0.51 (0.40 – 0.63)	194	691	145	1.14
Job change?								
No	42.4	84.6	-32.38 (-34.06 – -30.71)	0.57 (0.55 – 0.59)	6441	29279	7130	0.11
Yes	50.4	85.1	-27.17 (-30.03 – -24.30)	0.65 (0.62 – 0.68)	1765	10076	2639	0.21
Equivalised household income								
Low	33.0	66.4	-25.28 (-28.15 – -22.42)	0.57 (0.53 – 0.61)	1947	7809	2552	0.19
Medium	47.4	87.2	-33.22 (-34.93 – -31.52)	0.59 (0.57 – 0.61)	5574	23663	6479	0.11
High	48.1	91.6	-37.01 (-41.14 – -32.88)	0.57 (0.52 – 0.61)	732	9010	1393	0.37
Labor market status at index date								
Working	71.0	91.4	-16.47 (-18.25 – -14.69)	0.81 (0.79 – 0.83)	3031	34095	9599	0.21
Education or maternity/parental leave	59.0	85.6	-22.36 (-31.55 – -13.16)	0.73 (0.63 – 0.84)	139	1916	361	1.32
Temporary public benefits	27.6	39.3	-16.50 (-18.97 – -14.02)	0.63 (0.59 – 0.67)	5086	5269	2067	0.15
Somatic comorbidity								
>2	26.9	65.6	-32.36 (-38.82 – -25.90)	0.45 (0.39 – 0.53)	550	1063	310	0.45
1-2	38.4	78.8	-31.26 (-33.87 – -28.64)	0.55 (0.52 – 0.58)	3423	10373	2219	0.24

0	50.8	87.1	-30.84 (-32.52 – -29.16)	0.62 (0.60 – 0.64)	4283	29844	11398	0.15
Psychiatric comorbidity								
Yes	25.9	60.1	-25.44 (-31.10 – -19.77)	0.50 (0.43 – 0.59)	734	1759	440	0.60
No	45.8	85.6	-31.97 (-33.42 – -30.51)	0.59 (0.57 – 0.61)	7522	39521	9560	0.10
Calendar period								
2013-2017	49.5	87.6	-26.66 (-30.90 – -22.42)	0.65 (0.61 – 0.70)	1209	6045	852	0.27
2009-2012	40.8	85.2	-30.53 (-34.51 – -26.55)	0.57 (0.53 – 0.62)	1292	6460	1154	0.25
2005-2008	41.6	85.6	-32.40 (-35.57 – -29.24)	0.56 (0.53 – 0.60)	2076	10380	1787	0.15
2000-2004	44.8	82.5	-32.60 (-34.47 – -30.73)	0.58 (0.56 – 0.60)	3679	18395	7885	0.20
Region of residency								
Zealand region	43.8	84.8	-33.96 (-37.27 – -30.65)	0.56 (0.53 – 0.60)	1625	5882	1563	0.32
Southern region	42.9	83.8	-33.12 (-36.31 – -29.93)	0.56 (0.53 – 0.60)	1357	8582	2773	0.21
Northern region	38.8	81.9	-34.92 (-38.44 – -31.39)	0.53 (0.49 – 0.57)	1541	4274	1334	0.28
Central region	45.7	84.8	-29.18 (-32.54 – -25.82)	0.61 (0.57 – 0.65)	1454	9089	2216	0.18
Capital region	47.7	84.7	-28.72 (-31.44 – -26.00)	0.62 (0.59 – 0.66)	2259	12340	2639	0.24

*All comparisons are weighted using propensity scores (ATT). Differences and ratios compare LBP patients to the general population

^a LBP= Patients with suspected work-related persistent low back pain

^b General pop.= A sub-sample of the general working population

^c PS= Propensity score

^d CI= Confidence interval (95%)

^e Effective sample size in general population used for PS-weighted differences and ratios (after general population has been down-weighted)

^f Max SMD= The maximum standardized mean difference per strata after weighting that was observed among covariates.

Figure 2 in the main manuscript is based on the data presented in this table.

Table S2: Cumulative probability of returning to work (defined as 3 months without public benefits) among patients receiving temporary public benefits at time of assessment (n=5,086). The table includes competing exits from temporary public benefits.

Exit reason	6 months	1 years	1.5 years	2 years	3 years	4 years	5 years
Work	9.44% (8.66%– 10.26%)	20.26% (19.16%– 21.37%)	27.42% (26.20%– 28.65%)	31.16% (29.90%– 32.44%)	36.74% (35.42%– 38.07%)	39.93% (38.58%– 41.27%)	42.14% (40.78%– 43.49%)
Pension	0.20% (0.10%– 0.35%)	0.57% (0.39%– 0.81%)	0.96% (0.72%– 1.26%)	1.40% (1.10%– 1.75%)	1.95% (1.60%– 2.36%)	2.34% (1.95%– 2.79%)	2.46% (2.06%– 2.92%)
Permanent health-related public benefits	3.54% (3.06%– 4.07%)	12.45% (11.56%– 13.37%)	20.89% (19.79%– 22.02%)	27.26% (26.04%– 28.48%)	34.30% (32.99%– 35.60%)	37.93% (36.60%– 39.26%)	39.89% (38.54%– 41.23%)
Education or maternity/parental leave	0.63% (0.44%– 0.88%)	1.85% (1.51%– 2.25%)	2.34% (1.95%– 2.78%)	2.85% (2.42%– 3.34%)	3.64% (3.15%– 4.18%)	4.16% (3.63%– 4.73%)	4.47% (3.93%– 5.06%)
Death	0.16% (0.08%– 0.30%)	0.33% (0.20%– 0.53%)	0.43% (0.28%– 0.65%)	0.43% (0.28%– 0.65%)	0.57% (0.39%– 0.81%)	0.67% (0.47%– 0.93%)	0.75% (0.54%– 1.02%)

Table S3: DREAM codes used for classification:

Status	Codes
Working	No code, 121, 122, 123, 996
Education or maternity/parental leave	151, 152, 153, 412, 413, 521, 651, 652, 661, 881
Temporary public benefits	124, 125, 126, 111, 112, 123, 115, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 143, 144, 145, 146, 147, 148, 149, 160, 163, 164, 165, 166, 167, 168, 169, 211, 121, 213, 214, 215, 216, 217, 218, 219, 231, 232, 299, 511, 522, 611, 700, 703, 704, 705, 706, 707, 708, 709, 710, 713, 714, 715, 716, 717, 718, 719, 720, 723, 724, 725, 726, 727, 728, 729, 730, 733, 734, 735, 736, 737, 738, 739, 750, 752, 753, 754, 755, 756, 757, 758, 760, 762, 763, 764, 765, 766, 767, 768, 810, 813, 814, 815, 816, 817, 818, 870, 873, 874, 875, 876, 877, 878, 890, 892, 893, 894, 895, 896, 897, 898, 899
Permanent health-related public benefits	740, 741, 742, 743, 744, 745, 746, 747, 748, 771, 772, 773, 774, 781, 782, 783, 784, 785
Voluntary early or age-related retirement	621, 622, 786, 998
Death	999
Emigrated	997