*Annex 1. Acute Low Back Pain Exercise Protocol*

|  |  |  |  |
| --- | --- | --- | --- |
| **Phases** | **Main goals** | **Precautions** | **Intervention description** |
| Phase 1 | Analyze movement patternsAchieve active mobility with minimal restrictions | Avoid staying in the same position too longAvoid exercises that exacerbate pain over 5/10 | Aim for at least 2 sets of core stabilization exercises (eg cat-camel, trunk flexion/extension/rotation) and pelvic tiltsEstimated session time around 20 minutes |
| Phase 2 | Normalise movement patternsIncrease trust in movementIncrease exercise complexity | Avoid staying in the same position too long | Introduce planksIncrease av session time by 5 minutes (increasing sets/reps) |
| Phase 3 | Gradually return to avoided movements | Avoid staying in the same position too long | Introduce plank variations and calisthenicsIncrease av session time by 5 minutes |
| Phase 4 | Return to all daily activitiesIncrease external load | Avoid staying in the same position too long | Introduce external resistance (bands and/or free weights)Aim for 30 min sessions |



*Supplementary Figure 1. Example path diagram for the LGC models used in the current study. LGCs are a form of structural equation model for modeling longitudinal processes. Squares represent outcome variables at baseline, 4 weeks, 8 weeks, and 12 weeks. Circles represent average latent intercept (I), slope (S), and curvature (C) components across all participants. Single-headed arrows represent fixed loadings relating the outcome variables to the latent components. Double-headed arrows represent either variance, covariance, or error variance parameters: variance of the intercept (vI), slope (vS) and curvature (vC); covariance between intercept and slope (cIS), slope and curvature (cSC), and intercept and curvature (cIC); error variance across measurement time points - at baseline (eYt0), 4 (eYt4), 8 (eYt8) and 12 (eYt12) weeks.*

Latent growth curve (LGC) models take the form:

*Yij* = *I* + *Sti*+ *Cti* + *uIj* + *usjti* + *ucjti* + *eij*

where *Y* is the outcome score for person, *j*, at time, *i*, *ti* is a vector of time points representing [0, 4, 8, 12] weeks, *I* is an intercept term representing the average value at *t=0* for all participants, *S* is a slope term representing the average linear change of *Yij*  over time for all participants, *C* is a curvature term representing the quadratic change over time of *Yij* for all participants, *uij* is a random intercept term representing individual participant variation in *I*, *usj* is a random slope term representing individual participant variation in *S*, *ucj* is a random curvature term representing individual participant variation in *C*, and *eij*is an error term (see Supplementary Figure 1).

*Supplementary Table S1. Baseline characteristics of study participants by risk subgroups based on at baseline (below 3, between 4 and 6, above 7)*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Characteristic | Low risk (pain ≤3)(N=144) | Medium risk(pain 4-6)(N=188) | High risk(pain ≥7)(N=74) | p |
| Age (years), mean (SD) | 46.4 (13.1) | 47.0 (10.8) | 45.9 (11.4) | 0.760 |
| Age categories, N (%): |  |   |   | 0.118 |
|  <25 | 3 (2.1) | 1 (10.5) | 0 (0.0) |   |
|  25-40 | 55 (38.2) | 57 (30.3) | 25 (33.8) |   |
|  40-60 | 61 (42.4) | 108 (57.4) | 40 (54.1) |   |
|  > 60 | 25 (17.4) | 22 (11.7) | 9 (12.2) |   |
| Sex, N (%): |  |   |   | **0.016** |
|  Female | 54 (37.5) | 95 (50.5) | 41 (55.4) |   |
|  Male | 90 (62.5) | 93 (49.5) | 33 (44.6) |   |
| BMI, mean (SD) | 27.2 (5.3) | 29.0 (6.8) | 28.8 (6.0) | **0.029** |
| BMI categories, N (%): |  |   |   | 0.276 |
|  Underweight (<18.5) | 2 (1.4) | 2 (1.1) | 0 (1.4) |   |
|  Normal (18.5-25) | 54 (37.5) | 51 (27.1) | 20 (27.0) |   |
|  Overweight (25-30) | 51 (35.4) | 71 (37.8) | 29 (39.2) |   |
|  Obese (30-40) | 34 (23.6) | 50 (26.6) | 19 (25.7) |   |
|  Obese grade III (>40) | 3 (2.1) | 14 (7.4) | 6 (8.1) |   |
| Pain radiating to lower limba, N (%): |  |  |  | **0.020** |
|  No pain | 110 (76.4) | 128 (68.8) | 43 (58.1) |  |
|  With Pain | 34 (23.6) | 58 (31.2) | 31 (41.9) |  |
| Employment status, N (%): |  |   |   | 0.350 |
|  Employed (part-time or full-time) | 139 (96.5) | 178 (94.7) | 67 (90.5) |   |
|  Unemployed | 5 (3.5) | 10 (5.3) | 7 (9.5) |   |
| Occupation typeb, N (%): |  |   |   | 0.621 |
|  White collar | 65 (45.1) | 72 (38.3) | 27 (36.5) |   |
|  Blue collar | 42 (29.2) | 57 (30.3) | 23 (31.1) |   |
|  Other (e.g. retired) | 13 (9.0) | 16 (8.5) | 7 (9.5) |   |
| Outcome measures, mean (SD) |  |   |   |   |
| ODI | 9.71 (7.01) | 16.35 (9.68) | 25.50 (14.20) | **<.001** |
| Pain Level | 2.32 (0.82) | 5.01 (0.82) | 7.61 (0.77) | **<.001** |
| Analgesics, N (%) | 30 (21) | 72 (38.7) | 42 (56.8) | **<.001** |
| Surgery Intentc | 2.78 (10.23) | 5.43 (13.56) | 8.18 (14.72) | **0.011** |
| FABQ-PA | 9.04 (5.55) | 10.26 (5.70) | 12.50 (5.84) | **<.001** |
| GAD-7c | 2.68 (3.57) | 2.98 (3.74) | 3.31 (4.21) | 0.493 |
| PHQ-9c | 1.94 (2.92) | 2.52 (3.53) | 2.96 (3.96) | 0.094 |
| WPAI Overalld | 9.08 (16.52) | 16.95 (21.67) | 32.91 (29.08) | **<.001** |
| WPAI Workd | 8.24 (14.31) | 14.49 (18.26) | 30.31 (26.06) | **<.001** |
| WPAI Timed | 1.79 (10.26) | 3.15 (12.78) | 3.91 (12.77) | **0.029** |
| WPAI Activity | 14.06 (17.21) | 25.00 (21.67) | 45.67 (25.43) | **<.001** |
| ***Abbreviations****: BMI, body mass index; ODI, Oswestry Disability Index; GAD-7, Generalized Anxiety Disorder 7-item scale; PHQ-9, Patient Health 9-item questionnaire; FABQ-PA, Fear-Avoidance Beliefs Questionnaire for physical activity; WPAI, Work Productivity and Activity Impairment questionnaire.**Missing values: a: N=2; b: N=85; c: N=1; d: N=345.**Note: Significant p-values are presented in bold.* |

*Supplementary Table S2. Baseline characteristics of completers vs non-completers*

|  |  |  |  |
| --- | --- | --- | --- |
| Characteristic | Completers(N=332) | Non-completers(N=74) | p |
| Age (years), mean (SD) | 47.3 (11.8) | 43.6 (11.0) | **0.015** |
| Age categories, N (%): |   |   | 0.172 |
|  <25 | 4 (1.2) | 0 (0.0) |   |
|  25-40 | 108 (32.4) | 29 (39.7) |   |
|  40-60 | 170 (51.1) | 39 (53.4) |   |
|  > 60 | 51 (15.3) | 5 (6.8) |   |
| Sex, N (%): |   |   | 0.634 |
|  Female | 154 (46.2) | 36 (49.3) |   |
|  Male | 179 (53.8) | 37 (50.7) |   |
| BMI, mean (SD) | 28.1 (6.0) | 29.5 (6.9) | 0.081 |
| BMI categories, N (%): |   |   | 0.197 |
|  Underweight (<18.5) | 3 (0.9) | 1 (1.4) |   |
|  Normal (18.5-25) | 109 (32.7) | 16 (21.9) |   |
|  Overweight (25-30) | 119 (35.7) | 32 (43.8) |   |
|  Obese (30-40) | 86 (25.8) | 17 (23.3) |   |
|  Obese grade III (>40) | 16 (4.8) | 7 (9.6) |   |
| Pain radiating to lower limba, N (%): |  |  | 0.289 |
|  No pain | 234 (70.3) | 47 (64.4) |  |
|  With Pain | 97 (29.1) | 26 (35.6) |  |
| Employment status, N (%): |   |   | 0.581 |
|  Employed (part-time or full-time) | 308 (92.5) | 308 (92.5) |   |
|  Unemployed | 65 (89.0) | 65 (89.0) |   |
|  Not available | 14 (4.2) | 14 (4.2) |   |
| Occupation typeb, N (%): |   |   | **0.004** |
|  White collar | 140 (42.0) | 24 (32.9) |   |
|  Blue collar | 105 (31.5) | 17 (23.3) |   |
|  Other (e.g. retired) | 27 (8.1) | 9 (12.3) |   |
| **Outcome measures, mean (SD)** |   |   |   |
| ODI | 15.79 (11.30) | 15.09 (11.32) | 0.632 |
| Pain Level | 4.43 (2.03) | 4.95 (2.14) | 0.055 |
| Analgesics, N (%) | 120 (36.4) | 24 (32.9) | 0.574 |
| Surgery Intent | 4.98 (12.93)c | 5.05 (12.47) | 0.965 |
| FABQ-PA | 11.63 (11.67) | 11.97 (20.08) | 0.845 |
| GAD-7 | 2.99 (3.81)c | 2.67 (3.63) | 0.513 |
| PHQ-9 | 2.47 (3.50)c | 2.08 (3.09) | 0.387 |
| WPAI Overall | 16.60 (22.77)d | 19.51 (24.96)e | 0.392 |
| WPAI Work | 14.72 (19.92)d | 17.45 (21.79)e | 0.359 |
| WPAI Time | 3.35 (13.17)d | 3.91 (16.25)e | 0.782 |
| WPAI Activity | 24.55 (23.57) | 26.58 (24.11) | 0.508 |
| ***Abbreviations****: ODI, Oswestry Disability Index; GAD-7, Generalized Anxiety Disorder 7-item scale; PHQ-9, Patient Health 9-item questionnaire; FABQ-PA, Fear-Avoidance Beliefs Questionnaire for physical activity; WPAI, Work Productivity and Activity Impairment questionnaire.**Missing values: a: N=2; b: N=85; c: N=3; d: N=290; e: N=55.**Note: Significant p-values are presented in bold.* |

*Supplementary Table S3. Unconditional Latent Growth Curve analysis: intent-to-treat*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|   |   | Intercept | Slope | Curve | Fit |
| Outcome | N | Mean (SD) | *p* | Mean (SD) | *p* | Mean (SD) | *p* | Chi-sq (df) | *p* | RMSEA | CFI | SRMR |
| ODI | 406 | 14.93 (3.96) | **< .001** | -1.61 (0.03) | **< .001** | 0.08 (0.07) | **< .001** | 16.29 (1) | < .001 | 0.194 | **0.94** | **0.045** |
| Pain Level | 406 | 4.50 (1.81) | **< .001** | -0.62 (0.49) | **< .001** | 0.03 (0.03) | **< .001** | 21.02 (1) | < .001 | 0.222 | 0.88 | 0.060 |
| Surgery Intent >0 | 135 | 9.94 (0.03) | **< .001** | -2.42 (0.95) | **0.001** | 0.16 (0.12) | **0.020** | 27.57 (1) | < .001 | 0.444 | 0.54 | 0.122 |
| Surgery Intent (all) | 403 | 4.73 (0.03) | **< .001** | -0.89 (1.19) | **< .001** | 0.05 (0.13) | **0.002** | 1.69 (1) | **0.194** | **0.041** | **0.99** | **0.020** |
| GAD-7 ≥5 | 100 | 8.29 (3.69) | **< .001** | -1.09 (0.77) | **< .001** | 0.06 (0.03) | **< .001** | 2.98 (1) | **0.084** | 0.141 | **0.97** | **0.043** |
| GAD-7 (all) | 403 | 2.92 (3.38) | **< .001** | -0.26 (0.57) | **< .001** | 0.01 (0.03) | **0.003** | 1.73 (1) | **0.188** | **0.043** | **1.00** | **0.013** |
| PHQ-9 ≥5 | 67 | 8.47 (3.48) | **< .001** | -0.85 (0.87) | **< .001** | 0.04 (0.04) | **< .001** | 3.35 (1) | **0.067** | 0.187 | **0.96** | 0.081 |
| PHQ-9 (all) | 403 | 2.37 (2.93) | **< .001** | -0.21 (0.48) | **< .001** | 0.01 (0.03) | **0.017** | 2.96 (1) | **0.085** | **0.070** | **0.99** | **0.019** |
| FABQ-PA | 406 | 11.21 (5.39) | **< .001** | -1.1 (0.98) | **< .001** | 0.06 (0.03) | **< .001** | 2.99 (1) | **0.084** | **0.070** | **0.98** | **0.022** |
| WPAI Overall >0 | 192 | 29.44 (13.25) | **< .001** | -4.64 (3.99) | **< .001** | 0.25 (0.3) | **< .001** | 13.34 (1) | < .001 | 0.253 | 0.71 | 0.089 |
| WPAI Overall (all) | 345 | 16.08 (14.66) | **< .001** | -2.26 (2.59) | **< .001** | 0.11 (0.2) | **0.002** | 14.22 (1) | < .001 | 0.192 | 0.84 | 0.066 |
| WPAI Work >0 | 187 | 27.32 (14.00) | **< .001** | -4.94 (4.23) | **< .001** | 0.29 (0.26) | **< .001** | 9.75 (1) | 0.002 | 0.216 | 0.69 | 0.080 |
| WPAI Work (all) | 345 | 14.41 (13.21) | **< .001** | -2.24 (2.79) | **< .001** | 0.12 (0.18) | **< .001** | 9.66 (1) | 0.002 | 0.155 | 0.88 | 0.055 |
| WPAI Time >0 | 51 | 23.25 (28.33) | **< .001** | -3.73 (7.1) | **< .001** | 0.17 (0.38) | 0.002 | 6.03 (1) | 0.014 | 0.314 | 0.81 | 0.855 |
| WPAI Time (all) | 345 | 3.24 (12.21) | **< .001** | -0.39 (3.4) | 0.138 | 0.01 (0.25) | 0.575 | 49.87 (1) | < .001 | 0.368 | 0.68 | 0.243 |
| WPAI Activity >0 | 295 | 32.67 (12.66) | **< .001** | -5.34 (3.33) | **< .001** | 0.27 (0.19) | **< .001** | 32.1 (1) | < .001 | 0.325 | 0.74 | 0.082 |
| WPAI Activity (all) | 403 | 23.66 (13.23) | **< .001** | -3.66 (2.44) | **< .001** | 0.18 (0.15) | **< .001** | 22.2 (1) | < .001 | 0.229 | 0.86 | 0.065 |
| ***Abbreviations****: ODI, Oswestry Disability Index; GAD-7, Generalized Anxiety Disorder 7-item scale; PHQ-9, Patient Health 9-item questionnaire; FABQ-PA, Fear-Avoidance Beliefs Questionnaire for physical activity; WPAI, Work Productivity and Activity Impairment questionnaire.**Note: Significant p-values are presented in bold. If a significant chi-square is found for a model, then CFI values > .9, or RMSEA values < .08, or SRMR values <.05 signify models with acceptable fit (presented in bold).68,69* |

*Supplementary Table S4. Unconditional Latent Growth Curve analysis per risk group (intent-to-treat)*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|   |   | Intercept | 95% - CI | p | Slope | 95% - CI | p | Curve | 95% - CI | p | Chi-sq (df) | p | RMSEA | CFI | SRMR |
| ODI | Low | 9.62 | (8.49, 10.75) | **< .001** | -0.63 | (-1.05, -0.21) | **0.003** | 0.02 | (-0.01, 0.05) | 0.294 | 23.83 (3) | < .001 | 0.131 | **0.94** | **0.044** |
| Medium | 15.76 | (14.4, 17.12) | **< .001** | -1.65 | (-2.13, -1.17) | **< .001** | 0.08 | (0.04, 0.12) | **< .001** |
| High | 24.17 | (21.43, 26.9) | **< .001** | -3.79 | (-4.77, -2.82) | **< .001** | 0.21 | (0.14, 0.28) | **< .001** |
| Pain Level | Low | 2.32 | (2.18, 2.45) | **< .001** | -0.14 | (-0.24, -0.04) | **0.005** | 0.00 | (-0.01, 0.01) | 0.544 | 28.25 (3) | < .001 | 0.144 | **0.97** | 0.056 |
| Medium | 5.00 | (4.88, 5.12) | **< .001** | -0.77 | (-0.87, -0.68) | **< .001** | 0.04 | (0.03, 0.05) | **< .001** |
| High | 7.6 | (7.42, 7.78) | **< .001** | -1.17 | (-1.39, -0.95) | **< .001** | 0.06 | (0.04, 0.08) | **< .001** |
| Surgery Intent | Low | 2.76 | (1.15, 4.37) | **< .001** | 0.09 | (-0.66, 0.84) | 0.811 | -0.02 | (-0.08, 0.04) | 0.462 | 2.21 (3) | 0.531 | **0.000** | **1** | **0.016** |
| Medium | 5.12 | (3.49, 6.76) | **< .001** | -1.32 | (-1.91, -0.73) | **< .001** | 0.09 | (0.04, 0.14) | **< .001** |
| High | 5.12 | (3.49, 6.76) | **< .001** | -1.32 | (-1.91, -0.73) | **< .001** | 0.09 | (0.04, 0.14) | **< .001** |
| FABQ-PA | Low | 10.59 | (8.76, 12.42) | **< .001** | -1.09 | (-1.62, -0.56) | **< .001** | 0.06 | (0.02, 0.09) | **< .001** | 3.32 (3) | 0.345 | **0.016** | **1** | **0.017** |
| Medium | 10.94 | (9.31, 12.57) | **< .001** | -1.04 | (-1.53, -0.54) | **< .001** | 0.05 | (0.01, 0.09) | **0.007** |
| High | 13.19 | (10.94, 15.44) | **< .001** | -1.35 | (-2.08, -0.61) | **< .001** | 0.08 | (0.02, 0.13) | **0.004** |
| GAD-7 | Low | 2.65 | (2.08, 3.22) | **< .001** | -0.25 | (-0.38, -0.11) | **< .001** | 0.01 | (0, 0.02) | 0.067 | 5.96 (3) | 0.114 | **0.049** | **0.99** | **0.021** |
| Medium | 2.96 | (2.43, 3.5) | **< .001** | -0.25 | (-0.41, -0.09) | **0.002** | 0.01 | (0, 0.02) | 0.094 |
| High | 3.35 | (2.39, 4.32) | **< .001** | -0.34 | (-0.6, -0.08) | **0.012** | 0.02 | (0, 0.04) | 0.095 |
| PHQ-9 | Low | 1.93 | (1.45, 2.41) | **< .001** | -0.11 | (-0.23, 0) | 0.059 | 0.00 | (-0.01, 0.01) | 0.739 | 3.63 (3) | 0.304 | **0.023** | **1** | **0.016** |
| Medium | 2.5 | (2, 3.01) | **< .001** | -0.19 | (-0.33, -0.05) | **0.008** | 0.01 | (-0.01, 0.02) | 0.319 |
| High | 2.92 | (2.05, 3.79) | **< .001** | -0.5 | (-0.76, -0.24) | **< .001** | 0.03 | (0.01, 0.04) | **0.002** |
| WPAI Overall | Low | 8.44 | (5.69, 11.18) | **< .001** | -0.9 | (-1.95, 0.15) | 0.092 | 0.04 | (-0.04, 0.11) | 0.358 | 16.59 (3) | < .001 | 0.106 | 0.89 | 0.058 |
| Medium | 16.08 | (12.77, 19.39) | **< .001** | -2.19 | (-3.4, -0.98) | **< .001** | 0.11 | (0, 0.22) | **0.047** |
| High | 31.88 | (24.81, 38.95) | **< .001** | -5.33 | (-7.55, -3.12) | **< .001** | 0.29 | (0.12, 0.46) | **< .001** |
| WPAI Work | Low | 7.64 | (5.23, 10.05) | **< .001** | -0.89 | (-1.77, -0.02) | **0.044** | 0.04 | (-0.02, 0.1) | 0.206 | 10.18 (3) | 0.017 | **0.077** | **0.94** | **0.045** |
| Medium | 13.81 | (11.02, 16.61) | **< .001** | -2.15 | (-3.15, -1.15) | **< .001** | 0.13 | (0.04, 0.22) | **0.007** |
| High | 29.66 | (23.4, 35.92) | **< .001** | -5.28 | (-7.31, -3.26) | **< .001** | 0.29 | (0.14, 0.44) | **< .001** |
| WPAI Time  | Low | 1.71 | (-0.07, 3.49) | 0.059 | -0.25 | (-1, 0.5) | 0.507 | 0.01 | (-0.04, 0.06) | 0.716 | 54.64 (3) | < .001 | 0.206 | 0.68 | 0.174 |
| Medium | 2.95 | (0.99, 4.9) | **0.003** | -0.04 | (-0.83, 0.75) | 0.925 | -0.02 | (-0.08, 0.05) | 0.605 |
| High | 7.07 | (2.28, 11.85) | **0.004** | -1.59 | (-2.72, -0.45) | **0.006** | 0.09 | (0.02, 0.16) | **0.016** |
| WPAI Activity | Low | 12.99 | (10.25, 15.73) | **< .001** | -1.56 | (-2.54, -0.58) | **0.002** | 0.08 | (0, 0.15) | **0.042** | 22.22 (3) | < .001 | 0.126 | **0.92** | 0.051 |
| Medium | 24.08 | (20.96, 27.2) | **< .001** | -3.61 | (-4.61, -2.61) | **< .001** | 0.17 | (0.1, 0.24) | **< .001** |
| High | 44.04 | (38.43, 49.64) | **< .001** | -8.25 | (-10.47, -6.02) | **< .001** | 0.45 | (0.3, 0.61) | **< .001** |
| ***Abbreviations****: ODI, Oswestry Disability Index; GAD-7, Generalized Anxiety Disorder 7-item scale; PHQ-9, Patient Health 9-item questionnaire; FABQ-PA, Fear-Avoidance Beliefs Questionnaire for physical activity; WPAI, Work Productivity and Activity Impairment questionnaire.**Note: Significant p-values are presented in bold. If a significant chi-square is found for a model, then CFI values > .9, or RMSEA values < .08, or SRMR values <.05 signify models with acceptable fit (presented in bold).68,69* |

*Supplementary Table S5. Intent-to-treat Conditional Latent Growth Curve Model, with age, sex and body mass index as covariates*

|  |  |  |  |
| --- | --- | --- | --- |
|   | Age | Female | BMI |
| Outcome | Intercept | Slope | Curve | Intercept | Slope | Curve | Intercept | Slope | Curve |
| ODI | 0.06 (0.150) | 0.02 (0.148) | 0 (0.255) | **5.02 (< .001)** | **-0.96 (0.006)** | **0.07 (0.014)** | **0.22 (0.005)** | 0.03 (0.268) | 0 (0.173) |
| Pain Level | 0 (0.800) | 0 (0.116) | 0 (0.233) | **0.64 (0.002)** | **-0.15 (0.042)** | 0.01 (0.086) | **0.04 (0.005)** | 0 (0.879) | 0 (0.807) |
| Surgery Intent >0 | -0.06 (0.525) | **0.06 (0.049)** | **-0.01 (0.020)** | -0.43 (0.894) | -0.28 (0.835) | 0.09 (0.387) | **0.73 (0.006)** | **-0.24 (0.013)** | **0.02 (0.015)** |
| Surgery Intent (all) | 0.02 (0.558) | -0.01 (0.617) | 0 (0.504) | **-2.26 (0.040)** | 0.26 (0.532) | 0.02 (0.668) | **0.27 (0.009)** | **-0.08 (0.028)** | 0 (0.135) |
| GAD-7 ≥5 | -0.05 (0.159) | 0.01 (0.395) | 0 (0.117) | 0.81 (0.250) | 0.21 (0.407) | -0.01 (0.669) | 0.01 (0.851) | 0.01 (0.510) | 0 (0.890) |
| GAD-7 (all) | **-0.05 (0.002)** | **0.01 (0.008)** | **0 (0.010)** | **1.41 (< .001)** | -0.08 (0.442) | 0 (0.515) | 0.04 (0.184) | 0 (0.597) | 0 (0.806) |
| PHQ-9 ≥5 | -0.05 (0.330) | 0 (0.976) | 0 (0.686) | 0.84 (0.360) | -0.12 (0.777) | -0.01 (0.716) | 0.04 (0.503) | **0.05 (0.012)** | **0 (< .001)** |
| PHQ-9 (all) | -0.02 (0.275) | 0.01 (0.147) | **0 (0.048)** | **0.88 (0.009)** | -0.04 (0.689) | 0 (0.904) | **0.09 (0.002)** | 0.01 (0.329) | 0 (0.154) |
| FABQ-PA | 0.05 (0.368) | -0.02 (0.210) | 0 (0.142) | 2.23 (0.085) | -0.75 (0.052) | 0.05 (0.074) | -0.06 (0.367) | 0.03 (0.167) | 0 (0.187) |
| WPAI Overall >0 | 0.17 (0.230) | **-0.15 (0.011)** | **0.01 (0.015)** | 5.44 (0.122) | 0.25 (0.874) | -0.09 (0.526) | 0.22 (0.397) | 0.2 (0.175) | -0.02 (0.199) |
| WPAI Overall (all) | 0.06 (0.574) | -0.06 (0.058) | 0.01 (0.052) | 1.53 (0.546) | 0.18 (0.843) | -0.03 (0.730) | 0.18 (0.325) | 0.09 (0.269) | -0.01 (0.205) |
| WPAI Work >0 | 0.12 (0.358) | **-0.12 (0.028)** | **0.01 (0.031)** | 4.62 (0.132) | 0.44 (0.748) | -0.09 (0.413) | -0.01 (0.943) | 0.15 (0.186) | -0.01 (0.208) |
| WPAI Work (all) | 0.02 (0.848) | -0.05 (0.113) | 0 (0.082) | 1.27 (0.569) | 0.31 (0.711) | -0.04 (0.568) | 0.03 (0.865) | 0.08 (0.251) | -0.01 (0.237) |
| WPAI Time >0 | -0.03 (0.931) | -0.05 (0.516) | 0 (0.310) | 2.62 (0.749) | -1 (0.621) | 0.06 (0.558) | 0.95 (0.257) | -0.08 (0.710) | 0 (0.705) |
| WPAI Time (all) | 0.04 (0.372) | -0.02 (0.184) | 0 (0.212) | 1.09 (0.476) | 0.27 (0.613) | -0.03 (0.481) | 0.16 (0.203) | 0.04 (0.464) | 0 (0.343) |
| WPAI Activity >0 | -0.05 (0.631) | -0.02 (0.606) | 0 (0.648) | **5.25 (0.031)** | -1.13 (0.194) | 0.06 (0.329) | -0.01 (0.976) | 0.17 (0.062) | -0.01 (0.075) |
| WPAI Activity (all) | -0.11 (0.214) | 0 (0.918) | 0 (0.756) | **7.64 (< .001)** | **-1.74 (0.021)** | 0.09 (0.079) | 0.18 (0.316) | 0.12 (0.105) | -0.01 (0.069) |
| ***Abbreviations****: BMI, body mass index; ODI, Oswestry Disability Index; GAD-7, Generalized Anxiety Disorder 7-item scale; PHQ-9, Patient Health 9-item questionnaire; FABQ-PA, Fear-Avoidance Beliefs Questionnaire for physical activity; WPAI, Work Productivity and Activity Impairment questionnaire.**Note: Significant p-values are presented in bold.* |

*Supplementary Table S6.*

*A. Responder analysis for primary outcome (ODI) considering the MCID of 30% of change*

*B. Association of baseline variables with odds of being a responder*

*A.*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Responded | Did not Respond | Odds Ratio (Responded) | 95% CI | Probability (Responded) | z | *p* |
| 86 | 27 | 3.19 | 2.10; 5.00 | 0.761 | 5.25 | <.001 |

*B.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | OR being a responder | 95% CI | z | *p* |
| Intercept | 3.12 | 1.96; 5.18 | 4.63 | **< .001** |
| Age | 0.99 | 0.95; 1.03 | -0.65 | 0.519 |
| BMI | 0.95 | 0.87; 1.03 | -1.19 | 0.234 |
| GAD-7 | 1.03 | 0.87; 1.24 | 0.29 | 0.770 |
| PHQ-9 | 0.93 | 0.79; 1.09 | -0.85 | 0.396 |
| ***Abbreviations****: BMI, body mass index; GAD-7, Generalized Anxiety Disorder 7-item scale; PHQ-9, Patient Health 9-item questionnaire.**Note: Significant p-values are presented in bold.* |

*Supplementary Table S7. Comparison between outcome changes of participants with and without radiating pain to lower limb following an intent-to-treat approach*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Without Pain radiating to lower limb | With Pain radiating to lower limb |  |  |
| Outcome | Change(95% CI) | p | Change(95% CI) | p | Difference(95% CI) | p |
| ODI | 9.71(7.29; 12.14) | **<.001** | 7.67(6.09; 9.26) | **<.001** | 2.037(-0.86; 4.93) | 0.168 |
| Pain Level | 3.02 (2.34; 3.69) | **<.001** | 2.67(2.29; 3.05) | **<.001** | 0.343(-0.43; 1.12) | 0.387 |
| Surgery Intent | 3.03 (0.00; 6.07) | 0.051 | 2.7(1.14; 4.26) | **<.001** | 0.327(-3.09; 3.74) | 0.851 |
| GAD-7 | 0.97(0.11; 1.83) | **0.028** | 1.81(1.38; 2.24) | **<.001** | -0.84(-1.80; 0.12) | 0.088 |
| PHQ-9 | 1.32 (0.54; 2.11) | **<.001** | 1.47(1.12; 1.83) | **<.001** | -0.148(-1.01; 0.71) | 0.737 |
| FABQ-PA | 5.27 (3.91; 6.62) | **<.001** | 4.65 (2.33; 6.96) | **<.001** | -0.62(-3.30; 2.07) | 0.651 |
| WPAI Overall | 13.69 (7.13; 20.25) | **<.001** | 9.12 (5.26; 12.98) | **<.001** | 4.566(-3.04; 12.18) | 0.240 |
| WPAI Work | 12.02(6.72; 17.31) | **<.001** | 7.74 (4.08; 11.40) | **<.001** | 4.28(-2.16; 10.72) | 0.192 |
| WPAI Activity | 23.51(18.12;28.91) | **<.001** | 15.00 (12.10; 17.91) | **<.001** | 8.51(2.38; 14.64) | **0.006** |
| ***Abbreviations****: ODI, Oswestry Disability Index; GAD-7, Generalized Anxiety Disorder 7-item scale; PHQ-9, Patient Health 9-item questionnaire; FABQ-PA, Fear-Avoidance Beliefs Questionnaire for physical activity; WPAI, Work Productivity and Activity Impairment questionnaire.**Note: Significant p-values are presented in bold.* |