**Supplementary table I.** Associations of physical impairments (A), mental impairments (B), activity limitations (C) and participation restrictions (D) with sociodemographic and health-related factors

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | A. PHYSICAL IMPAIRMENTS | | | | | | | | | | | |
|  | **General pain** | | | | | | **Knee-specific pain** | | | | | |
|  | Model 1 |  | Model 2 |  | Model 3 |  | Model 1 |  | Model 2 |  | Model 3 |  |
| B (95% CI) | P-value | B (95% CI) | P-value | B (95% CI) | P-value | B (95% CI) | P-value | B (95% CI) | P-value | B (95% CI) | P-value |
| Intercept | 39.5 (36.1,43.0) | **<0.001** | -15.1 (-45.9,15.8) | 0.3 | -26.8 (-55.2,1.5) | 0.06 | 42.2 (39.5, 44.9) | **<0.001** | 8.1 (-17.5, 33.6) | 0.53 | 5.6 (-23.6, 34.9) | 0.70 |
| Time  T0  T1  T2  T3  T4  T5 | Ref  5.0 (1.0, 9.0)  24.1 (20.1, 28.1)  32.4 (28.3, 36.4)  37.2 (33.1, 41.3)  38.0 (33.7, 42.4) | **0.01**  **<0.001**  **<0.001**  **<0.001**  **<0.001** | Ref  5.3 (1.2,9.3)  24.5 (20.4,28.6) 32.3 (28.1,36.4)  37.1 (32.9,41.3)  38.2 (33.7,42.7) | **0.01**  **<0.001**  **<0.001**  **<0.001**  **<0.001** | Ref  5.3 (1.1,9.6) 23.8 (19.5,28.1) 32.8 (28.4,37.1) 38.0 (33.6,42.5) 39.9 (35.2,44.6) | **0.01**  **<0.001**  **<0.001**  **<0.001**  **<0.001** | Ref  30.5 (27.5, 33.5)  36.6 (33.5, 39.7)  42.1 (38.9, 45.2)  45.0 (41.9, 48.2)  45.2 (41.8, 48.5) | **<0.001**  **<0.001**  **<0.001**  **<0.001**  **<0.001** | Ref  30.7 (27.6, 33.8)  36.7 (33.5, 39.8)  41.9 (38.8, 45.1)  44.9 (41.7, 48.1)  45.0 (41.6, 48.4) | **<0.001**  **<0.001**  **<0.001**  **<0.001**  **<0.001** | Ref  30.6 (27.3, 33.9)  36.8 (33.4, 40.2)  42.6 (39.2, 40.2)  45.5 (42.0, 48.9)  45.7 (42.1, 49.4) | **<0.001**  **<0.001**  **<0.001**  **<0.001**  **<0.001** |
| Age |  |  | 0.9 (0.4, 1.5) | **0.001** | 1.05 (0.50, 1.6) | **<0.001** |  |  | 0.6 (0.13, 1.1) | **0.01** | 0.6 (0.1, 1.2) | **0.01** |
| Gender (male) |  |  | 5.3 (0.07, 10.5) | **0.05** | 3.7 (-1.6, 9.0) | 0.17 |  |  | 6.1 (1.8, 10.4) | **0.006** | 4.7 (-0.2, 9.5) | 0.06 |
| Education low medium high |  |  | 7.5 (0.5, 14.5)  5.9 (-0.6, 12.5)  Ref | **0.04**  0.08 | 7.0 (-0.9, 14.9)  3.9 (-3.3, 11.1)  Ref | 0.08  0.29 |  |  | 4.2 (-1.5, 10.0)  3.8 (-1.6, 9.3)  Ref | 0.15  0.17 | 4.5 (-2.3, 11.3)  2.4 (-3.8, 8.7)  Ref | 0.19  0.44 |
| Home situation alone  partner  partner & children |  |  | -5.5 (-15.2, 4.1) -5.8 (-15.0, 3.3)  Ref | 0.26  0.21 |  |  |  |  | -5.1 (-13.0, 2.9)  -5.1 (-12.7, 2.4)  Ref | 0.21  0.18 | -7.7 (-17.8, 2.4)  -8.1 (-17.7, 1.6)  Ref | 0.13  0.10 |
| BMI  normal  overweight  obese |  |  |  |  | -0.4 (8.0, 7.1) 3.1 (-2.6, 8.8)  Ref | 0.91  0.29 |  |  |  |  | 3.6 (-3.0, 10.2)  3.2 (-1.7, 8.1)  Ref | 0.28  0.20 |
| Comorbidity  0  1  >2 |  |  |  |  | 6.8 (-2.9, 16.5)  6.6 (0.5, 12.8)  Ref | 0.17  **0.04** |  |  |  |  | 4.8 (-3.6, 13.2)  3.1 (-2.3, 8.5)  Ref | 0.26  0.26 |
| -2 log likelihood ratio | 6285.9 |  | 6039.4 |  | 5375.7 |  | 5885.7 |  | 5652.3 |  | 5045.3 |  |
| BIC | 6299.2 |  | 6052.5 |  | 5388.5 |  | 5898.9 |  | 5665.3 |  | 5067.2 |  |
|  | **Stiffness** | | | | | | **Vitality** | | | | | |
|  | Model 1 |  | Model 2 |  | Model 3 |  | Model 1 |  | Model 2 |  | Model 3 |  |
| B (95% CI) | P-value | B (95% CI) | P-value | B (95% CI) | P-value | B (95% CI) | P-value | B (95% CI) | P-value | B (95% CI) | P-value |
| Intercept | 42.3 (39.1, 45.6) | **<0.001** | 7.1 (-23.2, 37.4) | 0.64 | 1.2 (-25.9, 28.3) | 0.93 | 60.4 (57.3, 63.4) | **<0.001** | 21.0 (-10.0, 52.1) | 0.18 | 4.2 (-21.0,29.5) | 0.74 |
| Time  T0  T1  T2  T3  T4  T5 | Ref  16.3 (12.6, 20.0)  19.7 (15.9, 23.4) 27.9 (24.1, 31.7)  32.9 (29.1, 36.8) 32.6 (28.6, 36.7) | **<0.001**  **<0.001**  **<0.001**  **<0.001**  **<0.001** | Ref  16.4 (12.7, 20.2)  19.7 (15.9, 23.6) 27.7 (23.9, 31.7)  32.6 (28.9, 36.7)  32.6 (28.5, 36.7) | **<0.001**  **<0.001**  **<0.001**  **<0.001**  **<0.001** | Ref  16.0 (12.1, 20.0)  20.1 (16.1, 24.2)  28.5(24.4, 32.6)  32.9 (28.8, 37.1) 33.5 (29.1, 37.8) | **<0.001**  **<0.001**  **<0.001**  **<0.001**  **<0.001** | Ref  1.0 (-2.1, 4.0) 6.4 (3.4, 9.5)  9.2 (6.1, 12.3)  9.6 (6.7, 13.0)  7.7 (4.4, 11.1) | 0.53  **<0.001**  **<0.001**  **<0.001**  **<0.001** | Ref  0.5 (-2.6, 3.6) 6.3 (3.2, 9.5)  8.8 (5.6, 12.0)  9.3 (6.1, 12.5) 7.8 (4.4, 11.2) | 0.73  **<0.001**  **<0.001**  **<0.001**  **<0.001** | Ref  0.5 (-2.7,3.7) 7.1 (3.9,10.3)  9.4 (6.2,12.7)  10.2(6.9,13.5) 7.7 (4.2,11.2) | 0.77  **<0.001**  **<0.001**  **<0.001**  **<0.001** |
| Age |  |  | 0.5 (0.01, 1.1) | **0.05** | 0.7 (0.2, 1.2) | **0.008** |  |  | 0.6 (0.0, 1.1) | **0.05** | 0.9 (0.5, 1.4) | **<0.001** |
| Gender (male) |  |  | 8.5 (3.4, 13.6) | **0.001** | 6.8 (1.7, 11.8) | **0.009** |  |  | 7.7 (2.4, 12.9) | **0.004** | 4.3 (-0.4, 9.0) | 0.07 |
| Education low medium high |  |  | 3.3 (-3.6, 10.1) 2.6 (-3.9, 9.1)  Ref | 0.35  0.42 |  |  |  |  | -0.9 (-7.9, 6.1)  2.9 (-3.7, 9.5)  Ref | 0.81  0.39 |  |  |
| Home situation alone  partner  partner & children |  |  | -1.7 (-11.2, 7.8)  -1.0 (-9.9, 8.0)  Ref | 0.72  0.83 |  |  |  |  | 3.8 (-5.9, 13.5) 5.6 (-3.6, 14.8)  Ref | 0.44  0.23 |  |  |
| BMI  normal  overweight  obese |  |  |  |  | 3.1 (-4.1, 10.3) -0.5 (-6.0, 5.0)  Ref | 0.40  0.85 |  |  |  |  | 5.5 (-1.3, 12.2)  1.4 (-3.8, 6.5)  Ref | 0.11  0.60 |
| Comorbidity  0  1  >2 |  |  |  |  | 1.5 (-8.0, 11.2)  3.8 (-2.2, 9.7)  Ref | 0.75  0.21 |  |  |  |  | 8.2 (-0.8, 17.1)  7.7 (2.2, 13.2)  Ref | 0.07  **0.007** |
| -2 log likelihood ratio | 6170.9 |  | 5922.9 |  | 5465.8 |  | 5964.9 |  | 5736.7 |  | 5240.2 |  |
| BIC | 6184.0 |  | 5936.0 |  | 5477.8 |  | 5978.1 |  | 5749.8 |  | 5253.1 |  |
|  | **B. MENTAL IMPAIRMENTS** | | | | | | | | | | | |
|  | **Mental health** | | | | | | **Depressive symptoms** | | | | |  |
|  | Model 1 |  | Model 2 |  | Model 3 |  | Model 1 |  | Model 2 |  | Model 3 |  |
| B (95% CI) | P-value | B (95% CI) | P-value | B (95% CI) | P-value | B (95% CI) | P-value | B (95% CI) | P-value | B (95% CI) | P-value |
| Intercept | 78.5(76.2, 80.7 | **<0.001** | 57.1 (32.8, 81.4) | **<0.001** | 46.8 (26.3,67.3) | **<0.001** | 85.3 (83.0,87.6) | **<0.001** | 56.1 (33.1, 79.1) | **<0.001** | 48.0 (29.2, 66.9) | **<0.001** |
| Time  T0  T1  T2  T3  T4  T5 | Ref  1.6 (-0.6, 3.8)  6.1 (3.9, 8.3) 6.0 (3.7, 8.2) 4.7(2.4, 6.9) 5.6(3.2, 8.0) | 0.15  **<0.001**  **<0.001**  **<0.001**  **<0.001** | Ref  1.7 (-0.5, 3.9) 6.3 (4.0, 8.5) 6.3 (4.0, 8.5)  4.8 (2.5, 7.1) 5.9 (3.5, 8.4) | 0.13  **<0.001**  **<0.001**  **<0.001**  **<0.001** | Ref  1.2 (-1.2, 3.6) 6.4 (4.1, 8.8)  6.2 (3.8, 8.6) 5.1 (2.7, 7.6) 6.0 (3.4, 8.6) | 0.32  **<0.001**  **<0.001**  **<0.001**  **<0.001** | Ref  -3.9 (-6.4, -1.4) 1.2 (-1.3, 3.7) 5.8 (3.3, 8.4) 4.2 (1.6, 6.8)  5.4 (2.6, 8.1) | **0.002**  0.357  **<0.001**  **0.002**  **<0.001** | Ref  -4.0 (-6.6, -1.5)  1.4 (-1.2, 3.9) 5.7 (3.0, 8.3) 4.1 (1.4, 6.7) 5.3 (2.4, 8.1) | **0.002**  0.30  **<0.001**  **0.003**  **<0.001** | Ref  -3.8 (-6.5, -1.1) 1.6 (-1.1, 4.2) 6.2 (3.5, 9.0) 4.2 (1.5, 7.0) 5.4 (2.4, 8.4) | **0.006**  0.26  **<0.001**  **0.003**  **<0.001** |
| Age |  |  | 0.3 (-0.2, 0.7) | 0.26 | 0.5 (0.1, 0.9) | **0.007** |  |  | 0.4 (0.01, 0.8) | **0.05** | 0.6 (0.3, 1.0) | **<0.001** |
| Gender (male) |  |  | 5.1 (1.0, 9.2) | **0.02** | 4.2 (0.4, 8.0) | **0.03** |  |  | 3.8 (-0.1, 7.7) | **0.05** | 2.5 (-1.0, 6.0) | 0.16 |
| Education low medium high |  |  | 0.7 (-4.8, 6.2) 0.5 (-4.7, 5.7) Ref | 0.80  0.86 |  |  |  |  | 0.9 (-4.3,6.1) 1.6 (-3.3,6.5) Ref | 0.73  0.52 |  |  |
| Home situation alone  partner  partner & children |  |  | 4.0 (-3.6, 11.6) 5.6 (-1.6, 12.8)  Ref | 0.30  0.13 |  |  |  |  | 2.8 (-4.4,9.9) 4.0 (-2.8,10.8)  Ref | 0.45  0.25 |  |  |
| BMI  normal  overweight  obese |  |  |  |  | 1.9 (-3.5,7.3) 0.3 (-3.9,4.4)  Ref | 0.49  0.90 |  |  |  |  | 1.8 (-3.2, 6.8) -0.01 (-3.8, 3.8) ref | 0.48  0.99 |
| Comorbidity  0  1  >2 |  |  |  |  | 3.0 (-4.3,10.3) 4.1 (-0.4,8.6)  Ref | 0.42  0.07 |  |  |  |  | 1.6 (-5.0,8.3) 3.8 (-0.3, 8.0) | 0.63  0.07 |
| -2 log likelihood ratio | 5506.7 |  | 5305.1 |  | 4873.8 |  |  |  | 5275.8 |  | 4839.1 |  |
| BIC | 5519.8 |  | 5318.2 |  | 4886.7 |  |  |  | 5288.8 |  | 4851.9 |  |
|  | **C. ACTIVITY LIMITATIONS** | | | | | | | | | | | |
|  | **General physical functioning** | | | | | | **Knee-specific physical functioning** | | | | | |
|  | Model 1 |  | Model 2 |  | Model 3 |  | Model 1 |  | Model 2 |  | Model 3 |  |
| B (95% CI) | P-value | B (95% CI) | P-value | B (95% CI) | P-value | B (95% CI) | P-value | B (95% CI) | P-value | B (95% CI) | P-value |
| Intercept | 31.9 (28.6, 35.3) | **<0.001** | -16.4 (-48.1, 15.3) | 0.31 | -31.9 (-58.1, -5.7) | **0.02** | 48.5 (45.7, 51.2) | **<0.001** | 18.0 (-8.9, 44.8) | 0.19 | 8.3 (-16.6, 33.3) | 0.51 |
| Time  T0  T1  T2  T3  T4  T5 | Ref  11.7 (8.0, 15.4)  23.7 (19.9, 27.5)  32.5 (28.7, 36.3) 36.8 (32.9, 40.6) 36.5 (32.4, 40.6) | **<0.001**  **<0.001**  **<0.001**  **<0.001**  **<0.001** | Ref  11.9 (8.2, 15.7)  23.9 (20.0, 27.7) 32.5 (28.7, 36.4)  36.8 (32.9, 40.7)  36.1 (32.0, 40.3 | **<0.001**  **<0.001**  **<0.001**  **<0.001**  **<0.001** | Ref  12.1 (8.1, 16.1) 24.2 (20.2, 28.3) 32.9 (28.8, 37.0) 37.8 (33.7, 41.9) 37.5 (33.1, 42.0) | **<0.001**  **<0.001**  **<0.001**  **<0.001**  **<0.001** | Ref  20.4 (17.5, 23.4)  25.8 (22.8, 28.8)  32.1 (29.1, 35.2)  35.8 (32.7, 38.9)  36.3 (33.1, 39.6) | **<0.001**  **<0.001**  **<0.001**  **<0.001**  **<0.001** | Ref  20.7 (17.7, 23.7)  25.9 (22.8, 28.9)  31.9 (28.8, 35.0)  35.7 (32.6, 38.8)  36.1 (32.8, 39.4) | **<0.001**  **<0.001**  **<0.001**  **<0.001**  **<0.001** | Ref  20.9 (17.7, 24.2)  26.4 (23.1, 29.7)  32.3 (32.3, 35.6)  36.0 (32.7, 39.4)  36.8 (33.2, 40.4) | **<0.001**  **<0.001**  **<0.001**  **<0.001**  **<0.001** |
| Age |  |  | 0.8 (0.2, 1.4) | **0.006** | 1.0 (0.5, 1.5) | **<0.001** |  |  | 0.5 (0.0, 0.9) | **0.05** | 0.6 (0.1, 1.0) | **0.01** |
| Gender (male) |  |  | 7.9 (2.6, 13.3) | **0.004** | 4.9 (0.0, 9.8) | **0.05** |  |  | 7.0 (2.4, 11.5) | **0.003** | 3.8 (-0.8, 8.5) | 0.1 |
| Education low medium high |  |  | 2.5 (-4.7, 9.7)  2.1 (-4.7, 8.9)  Ref | 0.49  0.54 |  |  |  |  | 5.0 (-1.0, 11.1) 4.3 (-1.4, 10.1)  Ref | 0.10  0.14 | 4.5 (-2.5, 11.4)  1.7 (-4.7, 8.0)  Ref | 0.20  0.60 |
| Home situation alone  partner  partner & children |  |  | -1.6 (-11.5, 8.3) -0.8 (-10.2, 8.6) Ref | 0.75  0.86 |  |  |  |  | -4.5 (-12.9, 3.9)  -3.2 (-11.2, 4.7)  Ref | 0.29  0.42 |  |  |
| BMI  normal  overweight  obese |  |  |  |  | 2.9 (-4.1, 9.9) 5.1 (-0.2, 10.4)  Ref | 0.42  0.06 |  |  |  |  | 5.2 (-1.4, 11.9)  4.2 (-0.8, 9.2)  Ref | 0.12  0.1 |
| Comorbidity  0  1  >2 |  |  |  |  | 12.5 (3.3, 21.8)  8.0 (2.3, 13.8)  ref | **0.009**  **0.007** |  |  |  |  | 7.3 (-1.3, 15.9)  4.2 (-1.2, 9.7)  Ref | 0.09  0.13 |
| -2 log likelihood ratio | 6193.2 |  | 5942.1 |  | 5467.9 |  | 5923.3 |  | 5110.0 |  | 5085.5 |  |
| BIC | 6206.4 |  | 5955.1 |  | 5480.8 |  | 5936.5 |  | 5122.8 |  | 5098.3 |  |
|  | **D. PARTICIPATION RESTRICTIONS** | | | | | | | | | | | |
|  | **Social functioning** | | | | | | **Work functioning** | | | | | |
|  | Model 1 |  | Model 2 |  | Model 3 |  | Model 1 |  | Model 2 |  | Model 3 |  |
| B (95% CI) | P-value | B (95% CI) | P-value | B (95% CI) | P-value | B (95% CI) | P-value | B (95% CI) | P-value | B (95% CI) | P-value |
| Intercept | 70.3 (66.7, 73.9) | **<0.001** | 14.8 (-18.0, 47.6) | 0.37 | -3.9 (-33.8, 26.1) | 0.80 | 79.2 (75.9,82.4) | **<0.001** | 49.0 (14.6, 83.5) | **0.006** | 40.8 (12.2, 69.4) | **0.006** |
| Time  T0  T1  T2  T3  T4  T5 | Ref  -4.7 (-8.8, -0.7)  10.6 (6.5, 14.7)  16.8 (12.6, 20.9)  16.2 (12.0, 20.4)  17.1 (12.6, 21.5) | **0.02**  **<0.001**  **<0.001**  **<0.001**  **<0.001** | Ref  -4.6 (-8.7, -0.5)  11.0 (6.8, 15.1)  16.7 (12.5, 21.0)  15.9 (11.6, 20.1)  16.8 (12.3, 21.3) | **0.03**  **<0.001**  **<0.001**  **<0.001**  **<0.001** | Ref  -3.9 (-8.3, 0.6)  11.3 (6.9, 15.8)  17.1 (12.6, 21.6)  16.6 (12.1, 21.2)  17.4 (12.5, 22.3) | **<0.001**  **<0.001**  **<0.001**  **<0.001**  **<0.001** | Ref  n.a.  3.8 (-0.2,7.7)  6.2 (2.7,9.7)  10.5 (7.0,13.9)  8.3 (4.5,12.0) | **0.05**  **0.001**  **<0.001**  **<0.001** | Ref  n.a.  3.8 (-0.2, 7.7)  6.3 (2.7, 10.0)  10.3 (6.7, 13.9)  8.1 (4.2, 12.0) | 0.06  **0.001**  **<0.001**  **<0.001** | Ref  n.a.  4.1 (-0.0, 8.2)  6.6 (2.9, 10.3)  11.6 (7.9, 15.4)  9.4 (5.4, 13.4) | **0.05**  **0.001**  **<0.001**  **<0.001** |
| Age |  |  | 0.9 (0.3, 1.4) | **0.005** | 1.1 (0.6, 1.6) | **<0.001** |  |  | 0.4 (-0.2, 1.0) | 0.20 | 0.7 (0.2, 1.2) | **0.01** |
| Gender (male) |  |  | 4.2 (-1.3, 9.8) | 0.13 | 2.0 (-3.6, 7.6) | 0.48 |  |  | 0.8 (-6.4, 4.9) | 0.78 |  |  |
| Education low medium high |  |  | 11.5 (4.1, 18.9)  9.4 (2.4, 16.4)  Ref | **0.003**  **0.009** | 12.4 (4.0, 20.7) 7.6 (-0.1, 15.2)  Ref | **0.004**  **0.05** |  |  | -0.1 (-7.5, 7.3)  3.9 (-2.9, 10.7)  Ref | 0.97  0.26 |  |  |
| Home situation alone  partner  partner & children |  |  | -3.7 (-13.9, 6.6)  -1.1 (-10.8, 8.6)  Ref | 0.48  0.82 |  |  |  |  | 6.8 (-3.3, 17.0)  6.9 (-2.9, 16.6)  Ref | 0.19  0.16 |  |  |
| BMI  normal  overweight  obese |  |  |  |  | 2.7 (-5.3, 10.7)  1.7 (-4.4, 7.7)  Ref | 0.50  0.58 |  |  |  |  | 2.6 (-4.8, 10.0)  1.0 (-4.4, 6.4)  Ref | 0.49  0.72 |
| Comorbidity  0  1  >2 |  |  |  |  | 6.6 (-3.7, 16.9)  7.5 (0.9, 14.0)  Ref | 0.21  **0.03** |  |  |  |  | 0.8 (-8.7, 10.4)  5.3 (-0.6, 11.1)  Ref | 0.86  0.07 |
| -2 log likelihood ratio | 6327.4 |  | 6071.2 |  | 5423.4 |  | 3431.6 |  | 3260.9 |  | 2936.1 |  |
| BIC | 6340.5 |  | 6084.3 |  | 5436.2 |  | 3443.2 |  | 3272.9 |  | 2947.8 |  |
| All dependent outcomes are scaled from 0-100, whereby higher value represent less impairments, limitations or restrictions.  Bold values represent significant associations (p≤0.05).  BMI, Body Mass Index. | | | | | | | | | | | | |