

## Measurement properties of the Dutch PROMIS-29 v2.1 profile in people with and without chronic conditions

Ellen BM Elsmann, Leo D Roorda, Nynke Smidt, Henrica CW de Vet, Caroline B Terwee

**Supplementary file 1.** Factor loadings for the seven-factor model of the PROMIS-29 and each of the single-factor models, for the complete sample and samples with and without chronic diseases

| Item          | Factor loadings for the entire PROMIS-29 |  |                                     | Factor loadings for each domain tested separately |  |                                     |
|---------------|--|--|-------------------------------------|---|--|-------------------------------------|
|               | Complete sample<br>(n=63,602)            | Without chronic<br>diseases (n=39,146) | With chronic diseases<br>(n=24,456) | Complete sample<br>(n=63,602)                     | Without chronic<br>diseases (n=39,146) | With chronic diseases<br>(n=24,456) |
| PFA11         | 0.937                                    | 0.916                                  | 0.937                               | 0.896   | 0.860                                  | 0.882                               |
| PFA21         | 0.870                                    | 0.826                                  | 0.858                               | 0.898   | 0.863                                  | 0.885                               |
| PFA23         | 0.916                                    | 0.906                                  | 0.892                               | 0.940   | 0.934                                  | 0.927                               |
| PFA53         | 0.698                                    | 0.957                                  | 0.959                               | 0.961   | 0.955                                  | 0.953                               |
| EDANX01       | 0.872                                    | 0.861                                  | 0.883                               | 0.893   | 0.885                                  | 0.900                               |
| EDANX40       | 0.908                                    | 0.902                                  | 0.909                               | 0.933   | 0.931                                  | 0.932                               |
| EDANX41       | 0.910                                    | 0.902                                  | 0.916                               | 0.883   | 0.876                                  | 0.889                               |
| EDANX53       | 0.914                                    | 0.914                                  | 0.913                               | 0.893   | 0.886                                  | 0.898                               |
| EDDEP04       | 0.896                                    | 0.897                                  | 0.894                               | 0.908   | 0.907                                  | 0.906                               |
| EDDEP06       | 0.947                                    | 0.945                                  | 0.945                               | 0.926   | 0.928                                  | 0.922                               |
| EDDEP29       | 0.915                                    | 0.915                                  | 0.913                               | 0.919   | 0.915                                  | 0.920                               |
| EDDEP41       | 0.943                                    | 0.942                                  | 0.942                               | 0.949   | 0.948                                  | 0.948                               |
| HI7           | 0.969                                    | 0.965                                  | 0.971                               | 0.969   | 0.965                                  | 0.970                               |
| AN3           | 0.969                                    | 0.970                                  | 0.968                               | 0.977   | 0.978                                  | 0.976                               |
| FATEXP41      | 0.925                                    | 0.912                                  | 0.931                               | 0.899   | 0.882                                  | 0.908                               |
| FATEXP40      | 0.923                                    | 0.911                                  | 0.929                               | 0.920   | 0.908                                  | 0.927                               |
| Sleep109      | 0.879                                    | 0.889                                  | 0.879                               | 0.914   | 0.915                                  | 0.916                               |
| Sleep116      | 0.557                                    | 0.515                                  | 0.63                                | 0.508   | 0.470                                  | 0.563                               |
| Sleep20       | 0.915                                    | 0.902                                  | 0.909                               | 0.902   | 0.895                                  | 0.901                               |
| Sleep44       | 0.736                                    | 0.707                                  | 0.753                               | 0.718   | 0.691                                  | 0.739                               |
| SRPPER11_CaPS | 0.866                                    | 0.856                                  | 0.873                               | 0.878   | 0.862                                  | 0.889                               |
| SRPPER18_CaPS | 0.913                                    | 0.902                                  | 0.920                               | 0.927   | 0.918                                  | 0.933                               |
| SRPPER23_CaPS | 0.921                                    | 0.899                                  | 0.932                               | 0.866   | 0.848                                  | 0.875                               |
| SRPPER46_CaPS | 0.921                                    | 0.911                                  | 0.930                               | 0.939   | 0.929                                  | 0.945                               |
| PAININ9       | 0.976                                    | 0.971                                  | 0.975                               | 0.978   | 0.972                                  | 0.978                               |
| PAININ22      | 0.994                                    | 0.993                                  | 0.993                               | 0.994   | 0.994                                  | 0.993                               |
| PAININ31      | 0.942                                    | 0.924                                  | 0.940                               | 0.935   | 0.917                                  | 0.932                               |
| PAININ34      | 0.977                                    | 0.972                                  | 0.975                               | 0.975   | 0.971                                  | 0.973                               |

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**Supplementary file 2.** McFadden’s pseudo R<sup>2</sup> values of the PROMIS-29 for sociodemographic characteristics and presence of chronic diseases

| Item     | McFadden’s pseudo R <sup>2</sup>      |                                       |                                       |                                       |                                       |                                       |
|----------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
|          | Gender                                | Ethnicity                             | Age                                   | Educational level                     | Mode of administration                | Presence of chronic diseases          |
| PFA11    | R <sup>2</sup> <sub>12</sub> = 0.0018 | R <sup>2</sup> <sub>12</sub> = 0.0000 | R <sup>2</sup> <sub>12</sub> = 0.0000 | R <sup>2</sup> <sub>12</sub> = 0.0001 | R <sup>2</sup> <sub>12</sub> = 0.0002 | R <sup>2</sup> <sub>12</sub> = 0.0003 |
|          | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0003 | R <sup>2</sup> <sub>23</sub> = 0.0001 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0003 |
| PFA21    | R <sup>2</sup> <sub>12</sub> = 0.0000 | R <sup>2</sup> <sub>12</sub> = 0.0000 | R <sup>2</sup> <sub>12</sub> = 0.0009 | R <sup>2</sup> <sub>12</sub> = 0.0003 | R <sup>2</sup> <sub>12</sub> = 0.0003 | R <sup>2</sup> <sub>12</sub> = 0.0001 |
|          | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0002 |
| PFA23    | R <sup>2</sup> <sub>12</sub> = 0.0034 | R <sup>2</sup> <sub>12</sub> = 0.0001 | R <sup>2</sup> <sub>12</sub> = 0.0008 | R <sup>2</sup> <sub>12</sub> = 0.0002 | R <sup>2</sup> <sub>12</sub> = 0.0002 | R <sup>2</sup> <sub>12</sub> = 0.0003 |
|          | R <sup>2</sup> <sub>23</sub> = 0.0003 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0001 | R <sup>2</sup> <sub>23</sub> = 0.0001 | R <sup>2</sup> <sub>23</sub> = 0.0000 |
| PFA53    | R <sup>2</sup> <sub>12</sub> = 0.0002 | R <sup>2</sup> <sub>12</sub> = 0.0000 | R <sup>2</sup> <sub>12</sub> = 0.0029 | R <sup>2</sup> <sub>12</sub> = 0.0005 | R <sup>2</sup> <sub>12</sub> = 0.0005 | R <sup>2</sup> <sub>12</sub> = 0.0007 |
|          | R <sup>2</sup> <sub>23</sub> = 0.0001 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0001 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 |
| EDANX01  | R <sup>2</sup> <sub>12</sub> = 0.0023 | R <sup>2</sup> <sub>12</sub> = 0.0000 | R <sup>2</sup> <sub>12</sub> = 0.0003 | R <sup>2</sup> <sub>12</sub> = 0.0007 | R <sup>2</sup> <sub>12</sub> = 0.0013 | R <sup>2</sup> <sub>12</sub> = 0.0002 |
|          | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0001 | R <sup>2</sup> <sub>23</sub> = 0.0001 |
| EDANX40  | R <sup>2</sup> <sub>12</sub> = 0.0000 | R <sup>2</sup> <sub>12</sub> = 0.0001 | R <sup>2</sup> <sub>12</sub> = 0.0006 | R <sup>2</sup> <sub>12</sub> = 0.0001 | R <sup>2</sup> <sub>12</sub> = 0.0004 | R <sup>2</sup> <sub>12</sub> = 0.0000 |
|          | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0001 |
| EDANX41  | R <sup>2</sup> <sub>12</sub> = 0.0003 | R <sup>2</sup> <sub>12</sub> = 0.0002 | R <sup>2</sup> <sub>12</sub> = 0.0002 | R <sup>2</sup> <sub>12</sub> = 0.0007 | R <sup>2</sup> <sub>12</sub> = 0.0003 | R <sup>2</sup> <sub>12</sub> = 0.0000 |
|          | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 |
| EDANX53  | R <sup>2</sup> <sub>12</sub> = 0.0037 | R <sup>2</sup> <sub>12</sub> = 0.0000 | R <sup>2</sup> <sub>12</sub> = 0.0000 | R <sup>2</sup> <sub>12</sub> = 0.0003 | R <sup>2</sup> <sub>12</sub> = 0.0000 | R <sup>2</sup> <sub>12</sub> = 0.0000 |
|          | R <sup>2</sup> <sub>23</sub> = 0.0001 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0002 | R <sup>2</sup> <sub>23</sub> = 0.0000 |
| EDDEP04  | R <sup>2</sup> <sub>12</sub> = 0.0009 | R <sup>2</sup> <sub>12</sub> = 0.0002 | R <sup>2</sup> <sub>12</sub> = 0.0000 | R <sup>2</sup> <sub>12</sub> = 0.0000 | R <sup>2</sup> <sub>12</sub> = 0.0001 | R <sup>2</sup> <sub>12</sub> = 0.0001 |
|          | R <sup>2</sup> <sub>23</sub> = 0.0001 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0001 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0001 | R <sup>2</sup> <sub>23</sub> = 0.0000 |
| EDDEP06  | R <sup>2</sup> <sub>12</sub> = 0.0011 | R <sup>2</sup> <sub>12</sub> = 0.0001 | R <sup>2</sup> <sub>12</sub> = 0.0002 | R <sup>2</sup> <sub>12</sub> = 0.0000 | R <sup>2</sup> <sub>12</sub> = 0.0002 | R <sup>2</sup> <sub>12</sub> = 0.0005 |
|          | R <sup>2</sup> <sub>23</sub> = 0.0001 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 |
| EDDEP29  | R <sup>2</sup> <sub>12</sub> = 0.0010 | R <sup>2</sup> <sub>12</sub> = 0.0000 | R <sup>2</sup> <sub>12</sub> = 0.0000 | R <sup>2</sup> <sub>12</sub> = 0.0001 | R <sup>2</sup> <sub>12</sub> = 0.0002 | R <sup>2</sup> <sub>12</sub> = 0.0000 |
|          | R <sup>2</sup> <sub>23</sub> = 0.0001 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 |
| EDDEP41  | R <sup>2</sup> <sub>12</sub> = 0.0009 | R <sup>2</sup> <sub>12</sub> = 0.0000 | R <sup>2</sup> <sub>12</sub> = 0.0000 | R <sup>2</sup> <sub>12</sub> = 0.0000 | R <sup>2</sup> <sub>12</sub> = 0.0001 | R <sup>2</sup> <sub>12</sub> = 0.0001 |
|          | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 |
| HI7      | R <sup>2</sup> <sub>12</sub> = 0.0000 | R <sup>2</sup> <sub>12</sub> = 0.0000 | R <sup>2</sup> <sub>12</sub> = 0.0007 | R <sup>2</sup> <sub>12</sub> = 0.0005 | R <sup>2</sup> <sub>12</sub> = 0.0001 | R <sup>2</sup> <sub>12</sub> = 0.0000 |
|          | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 |
| AN3      | R <sup>2</sup> <sub>12</sub> = 0.0000 | R <sup>2</sup> <sub>12</sub> = 0.0000 | R <sup>2</sup> <sub>12</sub> = 0.0001 | R <sup>2</sup> <sub>12</sub> = 0.0003 | R <sup>2</sup> <sub>12</sub> = 0.0001 | R <sup>2</sup> <sub>12</sub> = 0.0001 |
|          | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0002 | R <sup>2</sup> <sub>23</sub> = 0.0001 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0004 |
| FATEXP41 | R <sup>2</sup> <sub>12</sub> = 0.0003 | R <sup>2</sup> <sub>12</sub> = 0.0000 | R <sup>2</sup> <sub>12</sub> = 0.0000 | R <sup>2</sup> <sub>12</sub> = 0.0009 | R <sup>2</sup> <sub>12</sub> = 0.0002 | R <sup>2</sup> <sub>12</sub> = 0.0001 |
|          | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0003 | R <sup>2</sup> <sub>23</sub> = 0.0004 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 |

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|               |  |  |  |  |  |  |
|---------------|--|--|--|--|--|--|
| FATEXP40      | $R^2_{12} = 0.0001$<br>$R^2_{23} = 0.0001$ | $R^2_{12} = 0.0000$<br>$R^2_{23} = 0.0000$ | $R^2_{12} = 0.0010$<br>$R^2_{23} = 0.0000$ | $R^2_{12} = 0.0017$<br>$R^2_{23} = 0.0000$ | $R^2_{12} = 0.0007$<br>$R^2_{23} = 0.0000$ | $R^2_{12} = 0.0001$<br>$R^2_{23} = 0.0001$ |
| Sleep109      | $R^2_{12} = 0.0001$<br>$R^2_{23} = 0.0001$ | $R^2_{12} = 0.0000$<br>$R^2_{23} = 0.0000$ | $R^2_{12} = 0.0021$<br>$R^2_{23} = 0.0001$ | $R^2_{12} = 0.0006$<br>$R^2_{23} = 0.0001$ | $R^2_{12} = 0.0007$<br>$R^2_{23} = 0.0000$ | $R^2_{12} = 0.0007$<br>$R^2_{23} = 0.0001$ |
| Sleep116      | $R^2_{12} = 0.0000$<br>$R^2_{23} = 0.0000$ | $R^2_{12} = 0.0001$<br>$R^2_{23} = 0.0001$ | $R^2_{12} = 0.0059$<br>$R^2_{23} = 0.0000$ | $R^2_{12} = 0.0053$<br>$R^2_{23} = 0.0013$ | $R^2_{12} = 0.0000$<br>$R^2_{23} = 0.0001$ | $R^2_{12} = 0.0002$<br>$R^2_{23} = 0.0000$ |
| Sleep20       | $R^2_{12} = 0.0015$<br>$R^2_{23} = 0.0000$ | $R^2_{12} = 0.0001$<br>$R^2_{23} = 0.0000$ | $R^2_{12} = 0.0038$<br>$R^2_{23} = 0.0005$ | $R^2_{12} = 0.0005$<br>$R^2_{23} = 0.0000$ | $R^2_{12} = 0.0000$<br>$R^2_{23} = 0.0001$ | $R^2_{12} = 0.0005$<br>$R^2_{23} = 0.0001$ |
| Sleep44       | $R^2_{12} = 0.0047$<br>$R^2_{23} = 0.0000$ | $R^2_{12} = 0.0000$<br>$R^2_{23} = 0.0000$ | $R^2_{12} = 0.0010$<br>$R^2_{23} = 0.0001$ | $R^2_{12} = 0.0006$<br>$R^2_{23} = 0.0004$ | $R^2_{12} = 0.0015$<br>$R^2_{23} = 0.0002$ | $R^2_{12} = 0.0001$<br>$R^2_{23} = 0.0001$ |
| SRPPER11_CaPS | $R^2_{12} = 0.0007$<br>$R^2_{23} = 0.0000$ | $R^2_{12} = 0.0000$<br>$R^2_{23} = 0.0000$ | $R^2_{12} = 0.0007$<br>$R^2_{23} = 0.0000$ | $R^2_{12} = 0.0002$<br>$R^2_{23} = 0.0000$ | $R^2_{12} = 0.0000$<br>$R^2_{23} = 0.0000$ | $R^2_{12} = 0.0001$<br>$R^2_{23} = 0.0000$ |
| SRPPER18_CaPS | $R^2_{12} = 0.0005$<br>$R^2_{23} = 0.0001$ | $R^2_{12} = 0.0000$<br>$R^2_{23} = 0.0000$ | $R^2_{12} = 0.0002$<br>$R^2_{23} = 0.0001$ | $R^2_{12} = 0.0002$<br>$R^2_{23} = 0.0000$ | $R^2_{12} = 0.0000$<br>$R^2_{23} = 0.0000$ | $R^2_{12} = 0.0001$<br>$R^2_{23} = 0.0000$ |
| SRPPER23_CaPS | $R^2_{12} = 0.0025$<br>$R^2_{23} = 0.0000$ | $R^2_{12} = 0.0000$<br>$R^2_{23} = 0.0000$ | $R^2_{12} = 0.0011$<br>$R^2_{23} = 0.0001$ | $R^2_{12} = 0.0000$<br>$R^2_{23} = 0.0000$ | $R^2_{12} = 0.0000$<br>$R^2_{23} = 0.0001$ | $R^2_{12} = 0.0010$<br>$R^2_{23} = 0.0001$ |
| SRPPER46_CaPS | $R^2_{12} = 0.0000$<br>$R^2_{23} = 0.0000$ | $R^2_{12} = 0.0000$<br>$R^2_{23} = 0.0000$ | $R^2_{12} = 0.0001$<br>$R^2_{23} = 0.0000$ | $R^2_{12} = 0.0005$<br>$R^2_{23} = 0.0000$ | $R^2_{12} = 0.0001$<br>$R^2_{23} = 0.0000$ | $R^2_{12} = 0.0001$<br>$R^2_{23} = 0.0001$ |
| PAININ9       | $R^2_{12} = 0.0018$<br>$R^2_{23} = 0.0000$ | $R^2_{12} = 0.0000$<br>$R^2_{23} = 0.0000$ | $R^2_{12} = 0.0005$<br>$R^2_{23} = 0.0006$ | $R^2_{12} = 0.0002$<br>$R^2_{23} = 0.0001$ | $R^2_{12} = 0.0004$<br>$R^2_{23} = 0.0002$ | $R^2_{12} = 0.0002$<br>$R^2_{23} = 0.0001$ |
| PAININ22      | $R^2_{12} = 0.0001$<br>$R^2_{23} = 0.0000$ | $R^2_{12} = 0.0000$<br>$R^2_{23} = 0.0000$ | $R^2_{12} = 0.0002$<br>$R^2_{23} = 0.0000$ | $R^2_{12} = 0.0000$<br>$R^2_{23} = 0.0001$ | $R^2_{12} = 0.0001$<br>$R^2_{23} = 0.0000$ | $R^2_{12} = 0.0001$<br>$R^2_{23} = 0.0000$ |
| PAININ31      | $R^2_{12} = 0.0005$<br>$R^2_{23} = 0.0000$ | $R^2_{12} = 0.0000$<br>$R^2_{23} = 0.0000$ | $R^2_{12} = 0.0000$<br>$R^2_{23} = 0.0000$ | $R^2_{12} = 0.0012$<br>$R^2_{23} = 0.0000$ | $R^2_{12} = 0.0003$<br>$R^2_{23} = 0.0000$ | $R^2_{12} = 0.0004$<br>$R^2_{23} = 0.0000$ |
| PAININ34      | $R^2_{12} = 0.0057$<br>$R^2_{23} = 0.0000$ | $R^2_{12} = 0.0000$<br>$R^2_{23} = 0.0000$ | $R^2_{12} = 0.0000$<br>$R^2_{23} = 0.0002$ | $R^2_{12} = 0.0000$<br>$R^2_{23} = 0.0000$ | $R^2_{12} = 0.0000$<br>$R^2_{23} = 0.0000$ | $R^2_{12} = 0.0001$<br>$R^2_{23} = 0.0000$ |

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### Supplementary file 3. McFadden's pseudo R<sup>2</sup> values of the PROMIS-29 for chronic diseases

| Item     | McFadden's pseudo R <sup>2</sup>       |  |  |                                       |                                       |
|----------|--|--|--|---------------------------------------|---------------------------------------|
|          | Cardiovascular disease                 | Diabetes                               | COPD                                   | High blood pressure                   | Other                                 |
| PFA11    | R <sup>2</sup> <sub>12</sub> = 0.0001  | R <sup>2</sup> <sub>12</sub> = 0.0002  | R <sup>2</sup> <sub>12</sub> = 0.0002  | R <sup>2</sup> <sub>12</sub> = 0.0001 | R <sup>2</sup> <sub>12</sub> = 0.0022 |
|          | R <sup>2</sup> <sub>23</sub> = -0.0127 | R <sup>2</sup> <sub>23</sub> = 0.0000  | R <sup>2</sup> <sub>23</sub> = -0.0728 | R <sup>2</sup> <sub>23</sub> = 0.0001 | R <sup>2</sup> <sub>23</sub> = 0.0006 |
| PFA21    | R <sup>2</sup> <sub>12</sub> = 0.0013  | R <sup>2</sup> <sub>12</sub> = 0.0009  | R <sup>2</sup> <sub>12</sub> = 0.0031  | R <sup>2</sup> <sub>12</sub> = 0.0008 | R <sup>2</sup> <sub>12</sub> = 0.0002 |
|          | R <sup>2</sup> <sub>23</sub> = 0.0002  | R <sup>2</sup> <sub>23</sub> = -0.0003 | R <sup>2</sup> <sub>23</sub> = -0.0673 | R <sup>2</sup> <sub>23</sub> = 0.0001 | R <sup>2</sup> <sub>23</sub> = 0.0000 |
| PFA23    | R <sup>2</sup> <sub>12</sub> = 0.0000  | R <sup>2</sup> <sub>12</sub> = 0.0005  | R <sup>2</sup> <sub>12</sub> = 0.0001  | R <sup>2</sup> <sub>12</sub> = 0.0000 | R <sup>2</sup> <sub>12</sub> = 0.0025 |
|          | R <sup>2</sup> <sub>23</sub> = 0.0000  | R <sup>2</sup> <sub>23</sub> = 0.0002  | R <sup>2</sup> <sub>23</sub> = 0.0000  | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0003 |
| PFA53    | R <sup>2</sup> <sub>12</sub> = 0.0027  | R <sup>2</sup> <sub>12</sub> = 0.0026  | R <sup>2</sup> <sub>12</sub> = 0.0034  | R <sup>2</sup> <sub>12</sub> = 0.0024 | R <sup>2</sup> <sub>12</sub> = 0.0001 |
|          | R <sup>2</sup> <sub>23</sub> = -0.0010 | R <sup>2</sup> <sub>23</sub> = -0.0006 | R <sup>2</sup> <sub>23</sub> = -0.0004 | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 |
| EDANX01  | R <sup>2</sup> <sub>12</sub> = 0.0002  | R <sup>2</sup> <sub>12</sub> = 0.0001  | R <sup>2</sup> <sub>12</sub> = 0.0001  | R <sup>2</sup> <sub>12</sub> = 0.0003 | R <sup>2</sup> <sub>12</sub> = 0.0000 |
|          | R <sup>2</sup> <sub>23</sub> = 0.0001  | R <sup>2</sup> <sub>23</sub> = 0.0000  | R <sup>2</sup> <sub>23</sub> = 0.0001  | R <sup>2</sup> <sub>23</sub> = 0.0001 | R <sup>2</sup> <sub>23</sub> = 0.0001 |
| EDANX40  | R <sup>2</sup> <sub>12</sub> = 0.0000  | R <sup>2</sup> <sub>12</sub> = 0.0000  | R <sup>2</sup> <sub>12</sub> = 0.0000  | R <sup>2</sup> <sub>12</sub> = 0.0000 | R <sup>2</sup> <sub>12</sub> = 0.0001 |
|          | R <sup>2</sup> <sub>23</sub> = 0.0000  | R <sup>2</sup> <sub>23</sub> = 0.0000  | R <sup>2</sup> <sub>23</sub> = 0.0000  | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 |
| EDANX41  | R <sup>2</sup> <sub>12</sub> = 0.0000  | R <sup>2</sup> <sub>12</sub> = 0.0001  | R <sup>2</sup> <sub>12</sub> = 0.0001  | R <sup>2</sup> <sub>12</sub> = 0.0000 | R <sup>2</sup> <sub>12</sub> = 0.0000 |
|          | R <sup>2</sup> <sub>23</sub> = 0.0000  | R <sup>2</sup> <sub>23</sub> = 0.0000  | R <sup>2</sup> <sub>23</sub> = 0.0000  | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 |
| EDANX53  | R <sup>2</sup> <sub>12</sub> = 0.0000  | R <sup>2</sup> <sub>12</sub> = 0.0000  | R <sup>2</sup> <sub>12</sub> = 0.0000  | R <sup>2</sup> <sub>12</sub> = 0.0000 | R <sup>2</sup> <sub>12</sub> = 0.0000 |
|          | R <sup>2</sup> <sub>23</sub> = 0.0000  | R <sup>2</sup> <sub>23</sub> = 0.0000  | R <sup>2</sup> <sub>23</sub> = 0.0000  | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 |
| EDDEP04  | R <sup>2</sup> <sub>12</sub> = 0.0000  | R <sup>2</sup> <sub>12</sub> = 0.0000  | R <sup>2</sup> <sub>12</sub> = 0.0001  | R <sup>2</sup> <sub>12</sub> = 0.0000 | R <sup>2</sup> <sub>12</sub> = 0.0002 |
|          | R <sup>2</sup> <sub>23</sub> = 0.0000  | R <sup>2</sup> <sub>23</sub> = 0.0000  | R <sup>2</sup> <sub>23</sub> = 0.0000  | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 |
| EDDEP06  | R <sup>2</sup> <sub>12</sub> = 0.0005  | R <sup>2</sup> <sub>12</sub> = 0.0004  | R <sup>2</sup> <sub>12</sub> = 0.0003  | R <sup>2</sup> <sub>12</sub> = 0.0001 | R <sup>2</sup> <sub>12</sub> = 0.0008 |
|          | R <sup>2</sup> <sub>23</sub> = 0.0000  | R <sup>2</sup> <sub>23</sub> = 0.0000  | R <sup>2</sup> <sub>23</sub> = 0.0001  | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 |
| EDDEP29  | R <sup>2</sup> <sub>12</sub> = 0.0002  | R <sup>2</sup> <sub>12</sub> = 0.0001  | R <sup>2</sup> <sub>12</sub> = 0.0000  | R <sup>2</sup> <sub>12</sub> = 0.0000 | R <sup>2</sup> <sub>12</sub> = 0.0000 |
|          | R <sup>2</sup> <sub>23</sub> = 0.0000  | R <sup>2</sup> <sub>23</sub> = 0.0000  | R <sup>2</sup> <sub>23</sub> = 0.0001  | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 |
| EDDEP41  | R <sup>2</sup> <sub>12</sub> = 0.0001  | R <sup>2</sup> <sub>12</sub> = 0.0001  | R <sup>2</sup> <sub>12</sub> = 0.0000  | R <sup>2</sup> <sub>12</sub> = 0.0000 | R <sup>2</sup> <sub>12</sub> = 0.0001 |
|          | R <sup>2</sup> <sub>23</sub> = 0.0000  | R <sup>2</sup> <sub>23</sub> = 0.0000  | R <sup>2</sup> <sub>23</sub> = 0.0000  | R <sup>2</sup> <sub>23</sub> = 0.0000 | R <sup>2</sup> <sub>23</sub> = 0.0000 |
| HI7      | R <sup>2</sup> <sub>12</sub> = 0.0000  | R <sup>2</sup> <sub>12</sub> = 0.0000  | R <sup>2</sup> <sub>12</sub> = 0.0000  | R <sup>2</sup> <sub>12</sub> = 0.0001 | R <sup>2</sup> <sub>12</sub> = 0.0001 |
|          | R <sup>2</sup> <sub>23</sub> = 0.0000  | R <sup>2</sup> <sub>23</sub> = 0.0000  | R <sup>2</sup> <sub>23</sub> = 0.0000  | R <sup>2</sup> <sub>23</sub> = 0.0001 | R <sup>2</sup> <sub>23</sub> = 0.0000 |
| AN3      | R <sup>2</sup> <sub>12</sub> = 0.0002  | R <sup>2</sup> <sub>12</sub> = 0.0002  | R <sup>2</sup> <sub>12</sub> = 0.0001  | R <sup>2</sup> <sub>12</sub> = 0.0000 | R <sup>2</sup> <sub>12</sub> = 0.0003 |
|          | R <sup>2</sup> <sub>23</sub> = 0.0004  | R <sup>2</sup> <sub>23</sub> = 0.0002  | R <sup>2</sup> <sub>23</sub> = 0.0001  | R <sup>2</sup> <sub>23</sub> = 0.0004 | R <sup>2</sup> <sub>23</sub> = 0.0003 |
| FATEXP41 | R <sup>2</sup> <sub>12</sub> = 0.0001  | R <sup>2</sup> <sub>12</sub> = 0.0003  | R <sup>2</sup> <sub>12</sub> = 0.0001  | R <sup>2</sup> <sub>12</sub> = 0.0001 | R <sup>2</sup> <sub>12</sub> = 0.0001 |
|          | R <sup>2</sup> <sub>23</sub> = 0.0000  | R <sup>2</sup> <sub>23</sub> = 0.0001  | R <sup>2</sup> <sub>23</sub> = 0.0001  | R <sup>2</sup> <sub>23</sub> = 0.0002 | R <sup>2</sup> <sub>23</sub> = 0.0000 |
| FATEXP40 | R <sup>2</sup> <sub>12</sub> = 0.0001  | R <sup>2</sup> <sub>12</sub> = 0.0001  | R <sup>2</sup> <sub>12</sub> = 0.0001  | R <sup>2</sup> <sub>12</sub> = 0.0002 | R <sup>2</sup> <sub>12</sub> = 0.0000 |

**Measurement properties of the Dutch PROMIS-29 v2.1 profile in people with and without chronic conditions**

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|               |                     |                      |                      |                     |                     |
|---------------|---------------------|----------------------|----------------------|---------------------|---------------------|
|               | $R^2_{23} = 0.0000$ | $R^2_{23} = 0.0001$  | $R^2_{23} = 0.0001$  | $R^2_{23} = 0.0000$ | $R^2_{23} = 0.0001$ |
| Sleep109      | $R^2_{12} = 0.0004$ | $R^2_{12} = 0.0004$  | $R^2_{12} = 0.0003$  | $R^2_{12} = 0.0005$ | $R^2_{12} = 0.0007$ |
|               | $R^2_{23} = 0.0000$ | $R^2_{23} = 0.0000$  | $R^2_{23} = 0.0001$  | $R^2_{23} = 0.0000$ | $R^2_{23} = 0.0002$ |
| Sleep116      | $R^2_{12} = 0.0002$ | $R^2_{12} = 0.0000$  | $R^2_{12} = 0.0000$  | $R^2_{12} = 0.0003$ | $R^2_{12} = 0.0000$ |
|               | $R^2_{23} = 0.0001$ | $R^2_{23} = 0.0001$  | $R^2_{23} = 0.0000$  | $R^2_{23} = 0.0000$ | $R^2_{23} = 0.0000$ |
| Sleep20       | $R^2_{12} = 0.0004$ | $R^2_{12} = 0.0001$  | $R^2_{12} = 0.0001$  | $R^2_{12} = 0.0005$ | $R^2_{12} = 0.0004$ |
|               | $R^2_{23} = 0.0001$ | $R^2_{23} = 0.0000$  | $R^2_{23} = 0.0000$  | $R^2_{23} = 0.0001$ | $R^2_{23} = 0.0001$ |
| Sleep44       | $R^2_{12} = 0.0001$ | $R^2_{12} = 0.0001$  | $R^2_{12} = 0.0001$  | $R^2_{12} = 0.0001$ | $R^2_{12} = 0.0001$ |
|               | $R^2_{23} = 0.0001$ | $R^2_{23} = 0.0001$  | $R^2_{23} = 0.0001$  | $R^2_{23} = 0.0002$ | $R^2_{23} = 0.0001$ |
| SRPPER11_CaPS | $R^2_{12} = 0.0000$ | $R^2_{12} = 0.0001$  | $R^2_{12} = 0.0000$  | $R^2_{12} = 0.0000$ | $R^2_{12} = 0.0002$ |
|               | $R^2_{23} = 0.0000$ | $R^2_{23} = 0.0000$  | $R^2_{23} = 0.0000$  | $R^2_{23} = 0.0000$ | $R^2_{23} = 0.0001$ |
| SRPPER18_CaPS | $R^2_{12} = 0.0000$ | $R^2_{12} = 0.0000$  | $R^2_{12} = 0.0000$  | $R^2_{12} = 0.0000$ | $R^2_{12} = 0.0003$ |
|               | $R^2_{23} = 0.0000$ | $R^2_{23} = 0.0000$  | $R^2_{23} = 0.0000$  | $R^2_{23} = 0.0001$ | $R^2_{23} = 0.0000$ |
| SRPPER23_CaPS | $R^2_{12} = 0.0003$ | $R^2_{12} = 0.0006$  | $R^2_{12} = 0.0003$  | $R^2_{12} = 0.0002$ | $R^2_{12} = 0.0025$ |
|               | $R^2_{23} = 0.0002$ | $R^2_{23} = 0.0001$  | $R^2_{23} = 0.0001$  | $R^2_{23} = 0.0002$ | $R^2_{23} = 0.0000$ |
| SRPPER46_CaPS | $R^2_{12} = 0.0000$ | $R^2_{12} = 0.0000$  | $R^2_{12} = 0.0001$  | $R^2_{12} = 0.0000$ | $R^2_{12} = 0.0001$ |
|               | $R^2_{23} = 0.0000$ | $R^2_{23} = 0.0000$  | $R^2_{23} = 0.0001$  | $R^2_{23} = 0.0000$ | $R^2_{23} = 0.0000$ |
| PAININ9       | $R^2_{12} = 0.0002$ | $R^2_{12} = 0.0002$  | $R^2_{12} = 0.0001$  | $R^2_{12} = 0.0003$ | $R^2_{12} = 0.0001$ |
|               | $R^2_{23} = 0.0001$ | $R^2_{23} = -0.0031$ | $R^2_{23} = -0.0007$ | $R^2_{23} = 0.0003$ | $R^2_{23} = 0.0001$ |
| PAININ22      | $R^2_{12} = 0.0000$ | $R^2_{12} = 0.0000$  | $R^2_{12} = 0.0001$  | $R^2_{12} = 0.0000$ | $R^2_{12} = 0.0002$ |
|               | $R^2_{23} = 0.0000$ | $R^2_{23} = -0.0107$ | $R^2_{23} = -0.0249$ | $R^2_{23} = 0.0000$ | $R^2_{23} = 0.0000$ |
| PAININ31      | $R^2_{12} = 0.0007$ | $R^2_{12} = 0.0007$  | $R^2_{12} = 0.0005$  | $R^2_{12} = 0.0004$ | $R^2_{12} = 0.0004$ |
|               | $R^2_{23} = 0.0000$ | $R^2_{23} = -0.0004$ | $R^2_{23} = -0.0005$ | $R^2_{23} = 0.0000$ | $R^2_{23} = 0.0000$ |
| PAININ34      | $R^2_{12} = 0.0000$ | $R^2_{12} = 0.0000$  | $R^2_{12} = 0.0001$  | $R^2_{12} = 0.0001$ | $R^2_{12} = 0.0002$ |
|               | $R^2_{23} = 0.0000$ | $R^2_{23} = 0.0000$  | $R^2_{23} = -0.0060$ | $R^2_{23} = 0.0000$ | $R^2_{23} = 0.0000$ |

COPD: chronic obstructive pulmonary disease

## Measurement properties of the Dutch PROMIS-29 v2.1 profile in people with and without chronic conditions

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### Supplementary file 4. Mean domain T-scores<sup>a</sup> with SD for groups differing in gender, age, and chronic diseases

|   | Physical function | Ability to participate in social roles and activities | Anxiety           | Depression        | Fatigue           | Sleep disturbance | Pain interference | Pain intensity <sup>b</sup> |
|---|-------------------|---|-------------------|-------------------|-------------------|-------------------|-------------------|-----------------------------|
| <b>Gender</b>                           |                   |   |                   |                   |                   |                   |                   |                             |
| Male                                    | 53.8 (6.1)        | 55.8 (7.8)  | 46.5 (7.6)        | 45.0 (6.7)        | 44.1 (9.0)        | 45.4 (6.6)        | 46.9 (7.6)        | 1.6 (2.1)                   |
| Female                                  | 52.3 (7.0)        | 54.7 (8.1)  | 49.1 (8.4)        | 46.4 (7.5)        | 46.2 (9.6)        | 47.7 (7.0)        | 48.2 (8.3)        | 2.0 (2.4)                   |
| Mean difference (95%-CI)                | 1.5 (1.4; 1.6)    | 1.1 (1.0; 1.3)  | -2.5 (-2.7; -2.4) | -1.4 (-1.5; -1.3) | -2.1 (-2.3; -2.0) | -2.3 (-2.4; -2.2) | -1.3 (-1.4; -1.1) | -0.5 (-0.5; -0.4)           |
| <b>Age</b>                              |                   |   |                   |                   |                   |                   |                   |                             |
| 18-39                                   | 54.7 (5.3)        | 55.2 (8.0)  | 48.4 (8.3)        | 45.9 (7.3)        | 47.6 (9.2)        | 46.5 (6.4)        | 45.6 (6.9)        | 1.4 (2.1)                   |
| 40-64                                   | 53.1 (6.4)        | 54.9 (8.0)  | 48.0 (8.2)        | 46.0 (7.3)        | 45.5 (9.4)        | 47.0 (7.1)        | 47.7 (8.1)        | 1.9 (2.3)                   |
| ≥65                                     | 51.0 (7.8)        | 55.8 (7.9)  | 47.7 (8.0)        | 45.5 (6.8)        | 43.3 (9.1)        | 46.5 (7.1)        | 48.9 (8.4)        | 2.1 (2.3)                   |
| Mean difference 18-39 vs 40-64 (95%-CI) | 1.6 (1.4; 1.8)    | 0.3 (0.1; 0.6)  | 0.3 (0.1; 0.5)    | -0.1 (-0.3; 0.1)  | 2.1 (1.9; 2.4)    | -0.5 (-0.7; -0.3) | -2.1 (-2.4; -1.9) | -0.5 (-0.5; -0.4)           |
| Mean difference 40-64 vs ≥65 (95%-CI)   | 2.2 (2.0; 2.3)    | -0.9 (-1.0; -0.7)                                     | 0.3 (0.2; 0.5)    | 0.5 (0.3; 0.6)    | 2.2 (1.9; 2.4)    | 0.5 (0.3; 0.7)    | -1.2 (-1.4; -1.0) | -0.2 (-0.3; -0.2)           |
| <b>Chronic disease</b>                  |                   |   |                   |                   |                   |                   |                   |                             |
| No                                      | 54.7 (5.0)        | 56.2 (7.5)  | 47.4 (7.9)        | 45.3 (6.8)        | 44.0 (8.8)        | 46.1 (6.6)        | 45.8 (6.8)        | 1.4 (1.9)                   |
| Yes                                     | 50.0 (8.0)        | 53.4 (8.5)  | 49.0 (8.6)        | 46.8 (7.8)        | 47.4 (10.0)       | 47.9 (7.3)        | 50.6 (9.0)        | 2.6 (2.5)                   |
| Mean difference (95%-CI)                | 4.6 (4.5; 4.8)    | 2.8 (2.6; 2.9)  | -1.6 (-1.8; -1.5) | -1.6 (-1.7; -1.4) | -3.5 (-3.6; -3.3) | -1.8 (-1.9; -1.7) | -4.8 (-5.0; -4.7) | -1.3 (-1.3; -1.3)           |

<sup>a</sup> T-scores, higher scores represent more anxiety/depression; please note that these are not Dutch reference scores, as the sample was not representative for the general Dutch population

<sup>b</sup> Pain intensity is not a T-score but a 0-10 numeric rating scale

Green: hypothesis confirmed; Red: hypothesis unconfirmed

CI: confidence interval, SD: standard deviation

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**Supplementary file 5.** Pearson correlations among PROMIS-29 domains and the pain intensity item

|   | Pain interference | Physical function | Pain intensity | Ability to participate in social roles and activities | Anxiety | Depression | Fatigue | Sleep disturbance |
|---|-------------------|-------------------|----------------|---|---------|------------|---------|-------------------|
| Pain interference                                     | 1.00              | -0.62             | 0.83           | -0.40   | 0.23    | 0.25       | 0.41    | 0.28              |
| Physical function                                     | -0.62             | 1.00              | -0.55          | 0.43  | -0.22   | -0.24      | -0.43   | -0.25             |
| Pain intensity  | 0.83              | -0.55             | 1.00           | -0.36   | 0.24    | 0.26       | 0.41    | 0.31              |
| Ability to participate in social roles and activities | -0.40             | 0.43              | -0.36          | 1.00  | -0.44   | -0.46      | -0.58   | -0.31             |
| Anxiety   | 0.23              | -0.22             | 0.24           | -0.44   | 1.00    | 0.66       | 0.44    | 0.35              |
| Depression  | 0.25              | -0.24             | 0.26           | -0.46   | 0.66    | 1.00       | 0.46    | 0.35              |
| Fatigue   | 0.41              | -0.43             | 0.41           | -0.58   | 0.44    | 0.46       | 1.00    | 0.42              |
| Sleep disturbance                                     | 0.28              | -0.25             | 0.31           | -0.31   | 0.35    | 0.35       | 0.42    | 1.00              |

Green: hypothesis confirmed; Red: hypothesis unconfirmed