**SUPPLEMENTARY MATERIAL**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item | Main question | Response options - main question | Additional question | Response options - additional question |
| Depression | In the last month, have you been sad or depressed? | 1. Yes5. No |  |  |
| Pessimism | What are your hopes for the future? | 1. Any hopes mentioned 2. No hopes mentioned |  |  |
| Suicidality | In the last month, have you felt that you would rather be dead? | 1. Any mention of suicidal feelings or wishing to be dead2. No such feelings |  |  |
| Guilt | Do you tend to blame yourself or feel guilty about anything? | 1. Obvious excessive guilt or self-blame2. No such feelings3. Mentions guilt or self-blame, but it is unclear if these constitute obvious or excessive guilt or self-blame | [If Guilt==3] So, for what do you blame yourself? | 1. Example(s) given constitute obvious excessive guilt or self-blame 2. Example(s) do not constitute obvious excessive guilt or self-blame, or it remains unclear if these constitute obvious or excessive guilt or self-blame |
| Sleep | Have you had trouble sleeping recently? | 1. Trouble with sleep or recent change in pattern2. No trouble sleeping  |  |  |
| Interest | In the last month, what is your interest in things? | 1. Less interest than usual mentioned2. No mention of loss of interest3. Non-specific or uncodeable response  | [If Interest==3] So, do you keep up your interests? | 1. Yes5. No |
| Irritability | Have you been irritable recently? | 1. Yes5. No |  |  |

Table A1: List of questions and response options of the EURO-D scale in SHARE

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item | Main question | Response options - main question | Additional question | Response options - additional question |
| Appetite | What has your appetite been like? | 1. Diminution in desire for food2. No diminution in desire for food3. Non-specific or uncodeable response | [If Appetite==3] So, have you been eating more or less than usual? | 1. Less2. More3. Neither more nor less |
| Fatigue | In the last month, have you had too little energy to do the things you wanted to do? | 1. Yes5. No |  |  |
| Concentration | How is your concentration? For example, can you concentrate on a television programme, film or radio programme?  | 1. Difficulty in concentrating on entertainment2. No such difficulty mentioned | Can you concentrate on something you read? | 1. Difficulty in concentrating on reading 2. No such difficulty mentioned |
| Enjoyment | What have you enjoyed doing recently? | 1. Fails to mention any enjoyable activity2. Mentions ANY enjoyment from activity |  |  |
| Tearfulness | In the last month, have you cried at all? | 1. Yes5. No |  |  |

Table A1: List of questions and response options of the EURO-D scale in SHARE (continued)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  | LC |  |  |  |  |  |  |  |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| Gender (women) | 47.4% | 67.8% | 52.3% | 76.7% | 55.3% | 76.7% | 72.2% | 43.9% | 74.1% | 54.5% | 64.7% | 66.2% | 52.4% | 66.5% | 74.2% |
| Average age | 65.6 | 65.3 | 67.8 | 65.7 | 67.5 | 69.1 | 68.6 | 69.2 | 65.7 | 71.6 | 73.0 | 71.1 | 73.7 | 70.7 | 73.2 |
| Average household size | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.1 | 2.0 | 2.1 | 2.1 | 2.2 | 2.0 | 1.9 | 2.0 | 2.0 | 1.9 |
| *Occupation* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Retired | 57.0% | 55.3% | 62.4% | 54.1% | 60.3% | 55.7% | 60.1% | 64.1% | 50.1% | 66.1% | 60.7% | 68.7% | 71.4% | 70.6% | 56.2% |
| Worker  | 30.4% | 29.7% | 24.5% | 24.7% | 21.2% | 12.9% | 20.0% | 16.9% | 17.0% | 12.2% | 8.8% | 8.7% | 8.9% | 12.0% | 4.8% |
| Housemaker | 7.6% | 8.0% | 7.1% | 9.8% | 8.4% | 17.7% | 12.2% | 8.6% | 13.2% | 13.1% | 18.8% | 9.5% | 9.2% | 9.7% | 19.9% |
| Other | 5.0% | 7.0% | 6.0% | 11.4% | 10.1% | 13.7% | 7.7% | 10.4% | 19.7% | 8.6% | 11.7% | 13.1% | 10.5% | 7.7% | 19.1% |
| *Education* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Low | 35.7% | 30.9% | 39.6% | 39.0% | 44.1% | 59.8% | 47.5% | 52.0% | 54.9% | 56.0% | 74.0% | 58.7% | 60.9% | 44.9% | 72.6% |
| Medium | 34.5% | 36.5% | 33.5% | 34.2% | 32.6% | 23.7% | 30.1% | 30.2% | 28.0% | 26.7% | 17.8% | 26.6% | 25.3% | 32.6% | 17.8% |
| High | 29.8% | 32.6% | 26.9% | 26.8% | 23.3% | 16.5% | 22.4% | 17.8% | 17.1% | 17.3% | 8.2% | 14.7% | 13.8% | 22.5% | 9.6% |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2+ chronic diseases | 35.0% | 44.7% | 52.7% | 63.4% | 59.9% | 73.1% | 52.4% | 46.0% | 74.1% | 62.4% | 73.4% | 72.5% | 64.2% | 66.8% | 80.9% |
| 1+ ADL limitation | 3.1% | 6.9% | 10.8% | 17.5% | 15.5% | 25.7% | 11.8% | 9.2% | 32.8% | 19.8% | 32.7% | 30.9% | 26.0% | 22.3% | 47.6% |
| 3+ mobility limitations | 9.6% | 18.4% | 27.4% | 41.1% | 37.2% | 58.5% | 29.5% | 24.7% | 60.6% | 44.1% | 63.2% | 55.7% | 53.3% | 47.6% | 76.9% |

Table B1: Distribution of some demographic and socio-economic characteristics of the individuals belonging to each latent class

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  | LC |  |  |  |  |  |  |  |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| Austria | 5.9% | 5.4% | 4.3% | 3.9% | 3.6% | 4.4% | 5.6% | 3.6% | 2.1% | 5.3% | 1.6% | 2.2% | 1.0% | 7.9% | 3.7% |
| Germany | 6.3% | 10.0% | 6.4% | 7.9% | 6.5% | 5.3% | 8.4% | 3.1% | 4.8% | 4.9% | 1.6% | 3.7% | 2.0% | 7.0% | 1.7% |
| Sweden | 6.4% | 5.7% | 8.3% | 5.0% | 4.0% | 3.7% | 6.2% | 3.3% | 2.3% | 5.6% | 1.1% | 2.7% | 3.7% | 7.0% | 1.2% |
| Spain | 9.2% | 4.8% | 7.5% | 4.2% | 5.9% | 11.7% | 8.2% | 9.9% | 8.0% | 6.8% | 15.9% | 7.4% | 11.0% | 6.0% | 16.0% |
| Italy | 7.9% | 4.9% | 7.6% | 6.5% | 9.7% | 12.3% | 5.9% | 9.2% | 10.6% | 13.7% | 14.2% | 3.8% | 8.6% | 4.9% | 17.9% |
| France  | 4.4% | 6.0% | 5.8% | 7.8% | 6.9% | 4.7% | 8.1% | 8.5% | 8.4% | 5.3% | 4.0% | 16.8% | 8.8% | 5.3% | 3.5% |
| Denmark | 7.0% | 5.7% | 7.3% | 5.5% | 3.2% | 2.8% | 3.6% | 1.8% | 4.5% | 3.4% | 0.4% | 0.9% | 0.9% | 4.8% | 1.2% |
| Greece | 8.4% | 4.8% | 4.5% | 3.3% | 7.6% | 11.7% | 10.1% | 11.7% | 6.1% | 13.5% | 24.4% | 5.2% | 10.0% | 4.2% | 17.3% |
| Switzerland | 4.9% | 6.1% | 3.8% | 3.9% | 2.8% | 1.8% | 4.1% | 2.7% | 1.7% | 3.1% | 0.3% | 2.4% | 1.8% | 5.6% | 0.6% |
| Belgium | 8.0% | 9.3% | 9.0% | 12.3% | 6.6% | 9.1% | 11.3% | 5.6% | 11.3% | 11.0% | 3.9% | 10.9% | 7.8% | 11.8% | 2.7% |
| Israel | 3.2% | 1.8% | 2.5% | 2.4% | 2.7% | 4.0% | 1.8% | 2.0% | 2.4% | 6.1% | 3.2% | 1.2% | 2.7% | 3.7% | 3.3% |
| Czech Republic | 7.6% | 8.8% | 7.3% | 7.6% | 5.8% | 4.8% | 5.4% | 4.7% | 3.7% | 3.3% | 2.5% | 8.5% | 5.1% | 10.6% | 6.0% |
| Poland | 1.7% | 2.2% | 1.9% | 2.9% | 5.3% | 3.1% | 2.9% | 8.9% | 5.6% | 2.4% | 5.3% | 4.0% | 5.0% | 2.4% | 3.9% |
| Luxembourg | 2.1% | 2.9% | 2.3% | 3.3% | 2.6% | 2.2% | 2.5% | 2.0% | 2.3% | 2.1% | 0.9% | 1.7% | 1.3% | 2.2% | 0.8% |
| Portugal | 1.6% | 2.0% | 1.4% | 1.9% | 3.2% | 4.4% | 5.1% | 5.9% | 5.5% | 0.8% | 5.1% | 6.0% | 3.5% | 0.8% | 6.0% |
| Slovenia | 6.7% | 7.2% | 5.5% | 5.3% | 7.2% | 4.0% | 4.2% | 6.0% | 5.1% | 5.2% | 4.9% | 7.8% | 6.8% | 4.4% | 2.7% |
| Estonia | 5.1% | 8.8% | 11.0% | 11.6% | 12.3% | 6.2% | 4.6% | 8.1% | 10.2% | 5.4% | 7.5% | 10.7% | 15.7% | 6.9% | 6.0% |
| Croatia | 3.7% | 3.5% | 3.6% | 4.6% | 4.3% | 3.7% | 2.3% | 3.0% | 5.3% | 2.4% | 3.3% | 4.2% | 4.3% | 4.5% | 5.8% |

Table B2: Distribution of the country of the individuals belonging to each latent class

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  | Category |  |  |  |
|  | Very low risk | Low risk | Middle risk | High risk | Depressed | Severely depressed | Extremely depressed |
| Gender (women) | 48.3% | 43.9% | 66.7% | 60.7% | 59.0% | 70.3% | 74.2% |
| Average age | 66.0 | 69.2 | 65.8 | 67.3 | 73.3 | 68.2 | 73.2 |
| Average household size | 2.2 | 2.1 | 2.1 | 2.2 | 2.0 | 2.0 | 1.9 |
| *Occupation* |  |  |  |  |  |  |  |
| Retired | 57.8% | 64.1% | 56.0% | 59.4% | 65.7% | 58.8% | 56.2% |
| Worker  | 29.1% | 16.9% | 28.3% | 22.8% | 8.9% | 13.1% | 4.8% |
| Housemaker | 7.9% | 8.6% | 8.6% | 9.0% | 14.3% | 11.5% | 19.9% |
| Other | 5.2% | 10.4% | 7.1% | 8.8% | 11.1% | 16.6% | 19.1% |
| *Education* |  |  |  |  |  |  |  |
| Low | 36.8% | 52.0% | 33.3% | 42.2% | 67.9% | 56.7% | 72.6% |
| Medium | 34.1% | 30.2% | 35.6% | 32.6% | 21.2% | 27.3% | 17.8% |
| High | 29.1% | 17.8% | 31.1% | 25.2% | 10.9% | 16.0% | 9.6% |
|  |  |  |  |  |  |  |  |
| 2+ chronic diseases | 37.1% | 46.0% | 45.8% | 58.5% | 69.1% | 73.4% | 80.9% |
| 1+ ADL limitation | 4.4% | 9.2% | 7.6% | 14.7% | 29.6% | 32.0% | 47.6% |
| 3+ mobility limitations | 12.2% | 24.7% | 20.0% | 35.3% | 58.6% | 58.3% | 76.9% |

Table C1: Distribution of some demographic and socio-economic characteristics of the individuals belonging to each category

|  |  |
| --- | --- |
| Categories based on 15 LCs | Categories based on 16 LCs |
| Very low risk | Low risk | Middle risk | High risk | Depressed | Severely depressed | Extremely depressed |
| Very low risk | 70.7 | 1.2 | 27.9 | 0.2 | 0.0 | 0.0 | 0.0 |
| Low risk | 2.5 | 95.9 | 0.9 | 0.3 | 0.0 | 0.4 | 0.0 |
| Middle risk | 0.0 | 0.0 | 98.4 | 1.0 | 0.0 | 0.6 | 0.0 |
| High risk | 3.0 | 17.0 | 10.3 | 58.9 | 0.9 | 9.9 | 0.0 |
| Depressed | 35.4 | 4.4 | 3.4 | 1.8 | 54.5 | 0.5 | 0.0 |
| Severely depressed | 0.0 | 0.0 | 0.2 | 74.0 | 3.3 | 6.2 | 16.3 |
| Extremely depressed | 0.0 | 0.0 | 0.0 | 0.0 | 8.7 | 1.9 | 89.4 |

Table D1: Percentage of concordance of the categories (by row) between the approach based on 15 LCs and the one based on 16 LCs

|  |  |  |
| --- | --- | --- |
| Categories basedon 15 LCs | Categories based on 16 LCs | Total |
| Verylow risk | Low risk | Middle risk | High risk | Depressed | Severely depressed | Extremely depressed |
| Very low risk | 2.5 | 0.0 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 3.3 |
| Low risk | 1.2 | 46.6 | 0.2 | 0.1 | 0.0 | 0.1 | 0.0 | 48.2 |
| Middle risk | 0.0 | 0.0 | 13.6 | 0.1 | 0.0 | 0.1 | 0.0 | 13.8 |
| High risk | 1.3 | 6.0 | 2.3 | 17.4 | 0.3 | 1.7 | 0.0 | 29.0 |
| Depressed | 1.2 | 0.1 | 0.1 | 0.1 | 1.4 | 0.0 | 0.0 | 2.9 |
| Severely depressed | 0.0 | 0.0 | 0.0 | 1.7 | 0.1 | 0.1 | 0.4 | 2.3 |
| Extremely depressed | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.4 | 0.5 |
| Total | 6.2 | 52.7 | 17.0 | 19.4 | 1.9 | 2.0 | 0.8 | 100 |

Table D2: Percentage of concordance of the categories (on the total) between the approach based on 15 LCs and the one based on 16 LCs, for males

|  |  |  |
| --- | --- | --- |
| Categories based on 15 LCs | Categories based on 16 LCs | Total |
| Very low risk | Low risk | Middle risk | High risk | Depressed | Severely depressed | Extremely depressed |
| Very low risk | 1.2 | 0.0 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 1.9 |
| Low risk | 0.9 | 32.8 | 0.4 | 0.1 | 0.0 | 0.2 | 0.0 | 34.4 |
| Middle risk | 0.0 | 0.0 | 20.6 | 0.2 | 0.0 | 0.2 | 0.0 | 21.0 |
| High risk | 0.8 | 5.0 | 4.0 | 19.9 | 0.3 | 4.2 | 0.0 | 34.2 |
| Depressed | 1.0 | 0.1 | 0.1 | 0.1 | 1.9 | 0.0 | 0.0 | 3.2 |
| Severely depressed | 0.0 | 0.0 | 0.0 | 3.1 | 0.1 | 0.3 | 0.7 | 4.2 |
| Extremely depressed | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 1.0 | 1.1 |
| Total | 3.9 | 37.9 | 25.8 | 23.4 | 2.4 | 4.9 | 1.7 | 100 |

Table D3: Percentage of concordance of the categories (on the total) between the approach based on 15 LCs and the one based on 16 LCs, for females

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Model |  |  | Point estimate |  |
| A: Binary indicator for depression based on the cut-off (depressed vs non-depressed) |  |  |  |  |
| EURO-D dummy |  | – 0.875 \*\*\* | – | – |
| B: Continuous indicator for depression based on the total number of reported EURO-D symptoms  |  |  |  |  |
| Total EURO-D items |  | – | – 0.299 \*\*\* | – |
| (Total EURO-D items)2 |  | – | 0.028 \* | – |
| (Total EURO-D items)3 |  | – | – 0.003 \*\* | – |
| C: Categories of our two-step approach |  |  |  |  |
| Low risk of depression |  | – | – | – 1.955 \*\*\* |
| Middle risk of depression |  | – | – | 0.166 \*\* |
| High risk of depression |  | – | – | – 0.520 \*\*\* |
| Depressed |  | – | – | – 2.417 \*\*\* |
| Severely depressed |  | – | – | – 1.402 \*\*\* |
| Extremely depressed |  | – | – | – 2.645 \*\*\* |

Table E1: Parameter estimates of linear regression models of the fluency variable on: being depressed according to a dummy variable (Model A); being depressed according to the total number of reported depressive symptoms (Model B); belonging to different depression categories obtained by our approach (Model C). We control for gender, age, education, household size, physical health, job status, country of residence (these estimates are not reported, but available on request).

Note: \*\*\* = 1%; \*\* = 5%; \* = 10%



Figure A1: Distribution of the categories of our approach within each group of respondents classified as depressed or non-depressed according to the EURO-D scale, by gender



Figure A2: ROC curve of the categories of our approach, assuming as a benchmark the depression status provided by the EURO-D scale