**Supplementary Material.**

**Supplementary Table S1. Comparison of characteristics of older adults aged 75+ diagnosed with dementia born outside Sweden with the native born (N=59042).**

|  |  |  |  |
| --- | --- | --- | --- |
| **Characteristics** | **Born in Sweden*****n* (%)****(N = 51 995)** | **Born outside Sweden*****n* (%)****(N = 7 047)** | **P-value1** |
| **Age 85+**  | 21 578 (42) | 2365 (34) | <0.001 |
| **Home care**  | 19 074 (37) | 2366 (34) | <0.01 |
| **Serious depression**  | 3153 (6) | 431 (6) | 0.86 |
| **Previous self-harm** | 277 (0.5) | 48 (0.7) | 0.11 |
| **HFRS≥5**  | 20 853 (40) | 2875 (41) | 0.26 |
| **MMSE** **score >20**  | 27 864 (54) | 2773 (39) | <0.001 |
| **Use of antidepressants**6 | 23 177 (45) | 2837 (40) | <0.001 |
| **Use of anxiolytics** 6 | 13 774 (27) | 1796 (26) | 0.07 |
| **Use of hypnotics**  | 12 631 (24) | 1801 (26) | 0.02 |

1Chi2-test for comparison between those who were born in Sweden and outside Sweden to establish if there are differences between categories.

**Supplementary Table S2. Cox hazard ratios for factors associated with suicidal behaviour**1 **in Swedish residents aged 75+ and diagnosed with dementia between 2007-2017 (N=59042).**

| **Variables** | **Total cohort** | **Men** | **Women** |
| --- | --- | --- | --- |
|  | **Univariate regression****HR (95%CI)** | **Multivariate**2 **regression** **HR (95%CI)** | **Univariate regression****HR (95%CI)** | **Multivariate**2 **regression** **HR (95%CI)** | **Univariate regression****HR (95%CI)** | **Multivariate**2 **regression** **HR (95%CI)** |
| **Age 85+ (Ref: 75-84)** | 0.31 (0.22-0.42)\*\*\* | 0.37 (0.27-0.52)\*\*\* | 0.37 (0.23-0.6)\*\*\* | 0.45 (0.27-0.74)\*\* | 0.26 (0.17-0.4)\*\*\* | 0.33 (0.21-0.51)\*\*\* |
| **Gender women (Ref: men)** | 0.8 (0.58-1.09) | 0.85 (0.6-1.2) | - | - | - | - |
| **Unmarried/No partner (Ref: with partner)**3 | 1.1 (0.76-1.58) | 1.05 (0.74-1.49) | 1.51 (0.95-2.39) | 1.3 (0.8-2.12) | 0.8 (0.49-1.29) | 0.9 (0.57-1.42) |
| **Born outside Sweden (Ref: Sweden)** | 1.62 (1.09-2.41)\* | 1.59 (1.06-2.38)\* | 1.94 (1.09-3.43)\* | 1.87 (1.04-3.36)\* | 1.41 (0.82-2.42) | 1.44 (0.83-2.48) |
| **Home care (Ref: no home care)**4 | 0.55 (0.4-0.75)\*\* | 0.51 (0.37-0.7)\*\*\* | 0.49 (0.31-0.77)\*\* | 0.45 (0.28-0.7)\*\* | 0.6 (0.39-0.92)\* | 0.56 (0.36-0.86)\*\* |
| **Depression (Ref: no depression)**5 | 5.82 (4.12-8.24)\*\*\* | 4.01 (2.71-5.92)\*\*\* | 4.04 (2.25-7.25)\*\*\* | 2.72 (1.44-5.14)\*\* | 7.41 (4.75-11.58)\*\*\* | 5.1 (3.07-8.48)\*\*\* |
| **Previous SH (Ref: no previous SH)**5 | 39.83 (19.96-79.48)\*\*\* | 11.08 (4.97-24.69)\*\*\* | 24.41 (7.24-82.25)\*\*\* | 7.98 (1.89-33.62)\*\* | 59.39 (26.26-134.3)\*\*\* | 14.53 (5.72-36.9)\*\*\* |
| **HFRS≥5 (Ref: HFRS<5)**5 | 1.69 (1.24-2.31)\*\* | 1.68 (1.22-2.3)\*\* | 1.3 (0.82-2.06) | 1.32 (0.83-2.09) | 2.04 (1.33-3.12)\*\* | 2.06 (1.35-3.16)\*\* |
| **MMSE score >20 (Ref: MMSE≤20)** | 1.41 (1-1.99)\* | 1.33 (0.94-1.87) | 1.13 (0.68-1.85) | 1.09 (0.66-1.79) | 1.66 (1.04-2.66)\* | 1.57 (0.98-2.51) |
| **Use of antidepressants (Ref: no use)**6 | 1.47 (1.08-2.01)\* | 1.08 (0.78-1.5) | 1.47 (0.94-2.32) | 1.2 (0.75-1.93) | 1.47 (0.96-2.25) | 1 (0.65-1.56) |
| **Use of anxiolytics (Ref: no use)**6 | 1.4 (1.01-1.94)\* | 1.48 (1.07-2.06)\* | 1.46 (0.9-2.37) | 1.52 (0.93-2.48) | 1.39 (0.89-2.17) | 1.45 (0.93-2.27) |
| **Use of hypnotics (Ref: no use)**6 | 2.61 (1.91-3.56)\*\*\* | 2.05 (1.49-2.83)\*\*\* | 2.8 (1.77-4.43)\*\*\* | 2.3 (1.45-3.65)\*\* | 2.44 (1.59-3.75)\*\*\* | 1.86 (1.2-2.88)\*\* |

HFRS: Hospital frailty risk score; Ref: Reference group; SH: self-harm; HR: Sub-hazard ratio, CI: confidence interval, MMSE: Mini mental state exam.

1Non fatal-self-harm or suicide identified during the study period.

2Adjusted for all variables with significant associations in the univariate regression, as well as gender and marital status.

3Last status recorded prior to the end of study.

4Last status recorded prior to the end of study. Defined as getting care at own residence, which could include advanced healthcare by visiting medical personnel.

5Based on diagnoses in specialised care within 5 years prior the end of study.

6Refilled within three months prior the end of study.

\*p<0.05; \*\*p<0.01; \*\*\*p<0.001

**Supplementary Table S3. Fine and Gray sub-hazard ratios and Cox hazard ratios for factors associated with suicide in in Swedish residents aged 75+ and diagnosed with dementia between 2007-2017 (N=59042).**

|  | **Fine and Gray Sub-Hazard Ratio (95% CI)** | **Cox Hazard Ratio (95% CI)** |
| --- | --- | --- |
|  | **Univariate regression** | **Multivariate regression**1 | **Univariate regression** | **Multivariate regression**1 |
| **Model 1** |
| **Age 85+ (Ref: 75-84)** | 0.24 (0.1-0.55)\*\* | 0.26 (0.11-0.6)\*\* | 0.23 (0.1-0.51)\*\* | 0.25 (0.11-0.55)\*\* |
| **Gender women (Ref: men)** | 0.62 (0.29-1.33) | 0.58 (0.27-1.26) | 0.57 (0.27-1.19) | 0.54 (0.26-1.12) |
| **Depression (Ref: no depression)**2 | 8.52 (4.05-17.9)\*\*\* | 8.34 (4.09-17.03)\*\*\* | 9.24 (4.42-19.34)\*\*\* | 9.09 (4.02-20.56)\*\*\* |
| **Use of antidepressants (Ref: no use)**3 | 1.37 (0.66-2.85) | 0.82 (0.4-1.67) | 1.34 (0.64-2.8) | 0.78 (0.35-1.73) |
| **Use of hypnotics (Ref: no use)**3 | 2.18 (1.03-4.6)\* | 1.88 (0.92-3.85) | 2.39 (1.14-5)\* | 2.08 (0.98-4.42) |
| **Use of anxiolytics (Ref: no use)3** | 1.39 (0.65-3.01) | 1.49 (0.69-3.21) | 1.44 (0.67-3.09) | 1.56 (0.72-3.35) |
| **Model 2** |
| **Age 85+ (Ref: 75-84)** | 0.24 (0.1-0.55)\*\* | 0.32 (0.14-0.73)\*\* | 0.23 (0.1-0.51)\*\* | 0.3 (0.13-0.66)\*\* |
| **Gender women (Ref: men)** | 0.62 (0.29-1.33) | 0.6 (0.28-1.3) | 0.57 (0.27-1.19) | 0.55 (0.26-1.16) |
| **Depression (Ref: no depression)**2 | 8.52 (4.05-17.9)\*\*\* | 6.57 (2.7-15.96)\*\*\* | 9.24 (4.42-19.34)\*\*\* | 7.21 (3.22-16.14)\*\*\* |
| **Born outside Sweden (Ref: Sweden)** | 2.2 (0.92-5.29) | 2.16 (0.91-5.14) | 2.14 (0.9-5.12) | 2.19 (0.93-5.13) |
| **Home care (Ref: no home care)**4 | 0.4 (0.19-0.82)\* | 0.4 (0.19-0.82)\* | 0.41 (0.2-0.84)\* | 0.4 (0.19-0.82)\* |
| **Previous SH (Ref: no previous SH)**2 | 36.64 (12.61-106.48)\*\*\* | 15.1 (4.19-54.36)\*\*\* | 41.52 (14.4-119.7)\*\*\* | 18.15 (5.86-56.21)\*\*\* |

CI: Confidence interval; Ref: Reference group; SH: self-harm.

1Adjusted for variables with significant associations in the main analysis, gender and marital status.

2Based on diagnoses in specialised care within 5 years prior the end of study.

3Refilled within three months prior the end of study.

4Last status recorded prior to the end of study. Defined as getting care at own residence, which could include advanced healthcare by visiting medical personnel.

\*p<0.05; \*\*p<0.01; \*\*\*p<0.001

**Supplementary Table S4. Adjusted Fine and Gray sub-hazard ratios and Cox Hazard ratios for factors associated with suicidal behaviour in Swedish residents aged 75+ diagnosed with Alzheimer disease or other types1 of dementia (N=59042).**

|  | **Alzheimer disease** | **Other types of dementia1** |
| --- | --- | --- |
|  | **Fine and Gray Sub-Hazard Ratio2 (95% CI)** | **Cox Hazard Ratio2** **(95% CI)** | **Fine and Gray Sub-Hazard Ratio2 (95% CI)** | **Cox Hazard Ratio2** **(95% CI)** |
| **Age 85+ (Ref: 75-84)** | 0.46 (0.29-0.72)\*\* | 0.44 (0.28-0.69)\*\* | 0.27 (0.17-0.43)\*\*\* | 0.26 (0.16-0.41)\*\*\* |
| **Gender women (Ref: men)** | 0.81 (0.52-1.27) | 0.76 (0.48-1.19) | 0.86 (0.55-1.35) | 0.8 (0.52-1.25) |
| **Depression (Ref: no depression)**3 | 4.14 (2.45-7)\*\*\* | 4.6 (2.61-8.11)\*\*\* | 4.04 (2.31-7.08)\*\*\* | 4.42 (2.61-7.49)\*\*\* |
| **Use of antidepressants (Ref: no use)**4 | 0.92 (0.59-1.42) | 0.86 (0.54-1.37) | 1.2 (0.75-1.95) | 1.13 (0.7-1.82) |
| **Use of hypnotics (Ref: no use)**4 | 1.55 (0.98-2.44) | 1.69 (1.06-2.69)\* | 2.73 (1.76-4.23)\*\*\* | 2.96 (1.9-4.63)\*\*\* |
| **Born outside Sweden (Ref: Sweden)** | 1.81 (1.04-3.15)\* | 1.79 (1.03-3.11)\* | 1.52 (0.86-2.67) | 1.43 (0.81-2.5) |
| **Previous SH (Ref: no previous SH)**3 | 14.46 (5.62-37.22)\*\*\* | 18.46 (8.03-42.41)\*\*\* | 14.46 (5.62-37.22)\*\*\* | 18.46 (8.03-42.41)\*\*\* |

1Includesvascular dementia, dementia with Lewy bodies, Parkinson’s disease dementia, frontotemporal dementia, and unspecified dementia.

2Adjusted for variables included in the univariate analysis.

3Based on diagnoses in specialised care within 5 years prior to the end of study.

4Refilled within three months prior to suicidal behaviour or end of study.

\*p<0.05; \*\*p<0.01; \*\*\*p<0.001

**Supplementary Table S5. Fine and Gray sub-hazard ratios for factors associated with non-suicide deaths in in Swedish residents aged 75+ and diagnosed with dementia between 2007-2017 and who did not have a self-harm episode (N=59 042)**

| **Variables** | **Total cohort** | **Men** | **Women** |
| --- | --- | --- | --- |
|  | **Univariate regression****SHR (95%CI)** | **Multivariate**2 **regression** **SHR (95%CI)** | **Univariate regression****SHR (95%CI)** | **Multivariate**2 **regression****SHR (95%CI)** | **Univariate regression****SHR (95%CI)** | **Multivariate**2 **regression****SHR (95%CI)** |
| **Age 85+ (Ref: 75-84)** | 0.98 (0.95-1.01) | 0.94 (0.92-0.96)\*\*\* | 0.98 (0.95-1.02) | 0.95 (0.92-0.98)\*\* | 0.98 (0.95-1.01) | 0.93 (0.9-0.96)\*\*\* |
| **Gender women (Ref: men)** | 0.78 (0.76-0.79)\*\*\* | 0.76 (0.74-0.78)\*\*\* | - | - | - | - |
| **Unmarried/No partner (Ref: with partner)**3 | 1.07 (1.04-1.1)\*\*\* | 1.23 (1.2-1.26)\*\*\* | 1.05 (1.02-1.09)\*\* | 1.14 (1.1-1.18)\*\*\* | 1.09 (1.05-1.13)\*\*\* | 1.31 (1.27-1.35)\*\*\* |
| **Born outside Sweden (Ref: Sweden)** | 0.86 (0.83-0.89)\*\*\* | 0.84 (0.82-0.87)\*\*\* | 0.88 (0.83-0.93)\*\*\* | 0.87 (0.82-0.92)\*\*\* | 0.85 (0.81-0.89)\*\*\* | 0.83 (0.79-0.87)\*\*\* |
| **Home care (Ref: no home care)**4 | 1.24 (1.21-1.27)\*\*\* | 1.21 (1.18-1.24)\*\*\* | 1.25 (1.2-1.29)\*\*\* | 1.19 (1.15-1.24)\*\*\* | 1.24 (1.2-1.28)\*\*\* | 1.23 (1.19-1.27)\*\*\* |
| **Depression (Ref: no depression)**5 | 1.35 (1.29-1.41)\*\*\* | 1.2 (1.14-1.25)\*\*\* | 1.29 (1.21-1.39)\*\*\* | 1.17 (1.08-1.25)\*\*\* | 1.39 (1.31-1.46)\*\*\* | 1.21 (1.15-1.29)\*\*\* |
| **Previous SH (Ref: no previous SH)**5 | 1.84 (1.4-2.4)\*\*\* | 1.39 (1.05-1.84)\* | 1.61 (1.1-2.36)\* | 1.29 (0.89-1.88) | 2.04 (1.41-2.96)\*\* | 1.45 (0.95-2.22) |
| **HFRS≥5 (Ref: HFRS<5)**5 | 1.74 (1.71-1.78)\*\*\* | 1.7 (1.67-1.74)\*\*\* | 1.66 (1.6-1.71)\*\*\* | 1.61 (1.55-1.66)\*\*\* | 1.82 (1.77-1.87)\*\*\* | 1.78 (1.73-1.84)\*\*\* |
| **MMSE score>20 (Ref: MMSE≤20)** | 0.58 (0.57-0.6)\*\*\* | 0.57 (0.56-0.59)\*\*\* | 0.55 (0.53-0.57)\*\*\* | 0.55 (0.53-0.57)\*\*\* | 0.59 (0.57-0.61)\*\*\* | 0.59 (0.57-0.61)\*\*\* |
| **Use of antidepressants (Ref: no use)**6 | 0.97 (0.95-0.99)\*\* | 0.89 (0.88-0.91)\*\*\* | 0.97 (0.94-1) | 0.89 (0.86-0.92)\*\*\* | 0.97 (0.94-0.99)\* | 0.9 (0.87-0.92)\*\*\* |
| **Use of anxiolytics (Ref: no use)**6 | 1.21 (1.18-1.24)\*\*\* | 1.17 (1.14-1.2)\*\*\* | 1.23 (1.19-1.28)\*\*\* | 1.18 (1.14-1.22)\*\*\* | 1.19 (1.16-1.23)\*\*\* | 1.16 (1.13-1.2)\*\*\* |
| **Use of hypnotics (Ref: no use)**6 | 1.27 (1.23-1.3)\*\*\* | 1.19 (1.16-1.22)\*\*\* | 1.31 (1.27-1.36)\*\*\* | 1.23 (1.18-1.28)\*\*\* | 1.23 (1.19-1.27)\*\*\* | 1.15 (1.12-1.19)\*\*\* |

HFRS: Hospital Frailty Risk Score; Ref: Reference group; SH: self-harm; SHR: Sub-hazard ratio, CI: confidence interval, MMSE: mini mental state exam.

1Non fatal-self-harm or suicide identified during the study period.

2Adjusted for all variables with significant associations in the univariate regression, as well as gender and marital status.

3Last status recorded prior to the end of study.

4Last status prior to the end of study. Defined as getting care at own residence, which could include advanced healthcare by visiting medical personnel.

5Based on diagnoses in specialised care within 5 years prior the end of study.

6Refilled within three months prior the end of study.

\*p<0.05; \*\*p<0.01; \*\*\*p<0.001