**SUPPLEMENTARY MATERIAL**

Pertaining to the article:

**Types of non-kin networks and their association with survival in late adulthood:**

**A latent-class approach**

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Table SM1

Life-table of respondents

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Observation period(follow-up) |   |   | Number |   |   | Survival |
| Start | End |  | Eligible a | Included b | Deaths | Lost to follow-up |  | Rate | 95% CI |
| 1992/3 | 1995/6 |  | 2,561 | 2,440 | 220 | 319  |  | 0.904 | 0.891—0.915 |
| 1995/6 | 1998/9 |  | 1,987 | 1,901 | 165 | 278  |  | 0.819 | 0.802—0.835 |
| 1998/9 | 2001/2 |  | 1,526 | 1,458 | 112 | 193  |  | 0.752 | 0.732—0.770 |
| 2001/2 | 2005/6 |  | 1,200 | 1,153 | 142 | 206  |  | 0.650 | 0.627—0.672 |
| 2005/6 | 2008/9 |  | 842 | 805 | 71 | 130  |  | 0.588 | 0.562—0.612 |
| 2008/9 | 2011/2 |  | 634 | 604 | 57 | 148  |  | 0.524 | 0.497—0.551 |
| 2011/2 | 1-11-2013 |   | 426 | 399 | 17 | n/a  |  | 0.482 | 0.450—0.513 |

*Notes.* a Confirmed eligible when information on vital status was available and respondents reported a minimum of two non-kin contacts in their personal network.b Based on valid observations without missing values.

Table SM2

Means, standard deviations and correlations among the continuous non-kin network variables (*N*ind=2,440, *N*obs=7,304)

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | *Variable* | *Mean* | *SD* | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|  | *Amount* |  |  |  |  |  |  |  |  |  |
| 1 | Non-kin relations | 6.90 | 5.04 |  |  |  |  |  |  |  |
| 2 | Emotional support | 2.47 | 0.87 | 0.03\*\* |  |  |  |  |  |  |
| 3 | Instrumental support | 1.63 | 0.76 | 0.02 | 0.24\*\*\* |  |  |  |  |  |
| 4 | Contact frequency | 5.62 | 1.09 | -0.24\*\*\* | 0.01 | 0.13\*\*\* |  |  |  |  |
|  | *Variation* |  |  |  |  |  |  |  |  |  |
| 5 | Non-kin relations | 2.45 | 1.07 | 0.61\*\*\* | 0.07\*\*\* | 0.05\*\*\* | -0.24\*\*\* |  |  |  |
| 6 | Emotional support | 0.52 | 0.49 | 0.12\*\*\* | 0.06\*\*\* | 0.04\*\*\* | -0.04\*\*\* | 0.20\*\*\* |  |  |
| 7 | Instrumental support | 0.43 | 0.53 | 0.10\*\*\* | 0.11\*\*\* | 0.48\*\*\* | 0.03\*\* | 0.17\*\*\* | 0.23\*\*\* |  |
| 8 | Contact frequency | 1.09 | 0.68 | 0.23\*\*\* | 0.03\* | 0.05\*\*\* | -0.26\*\*\* | 0.36\*\*\* | 0.16\*\*\* | 0.17\*\*\* |

*Notes*. \**p* < 0.05, \*\**p* < 0.01, \*\*\**p* < 0.001. Data pooled across all follow-ups.

Table SM3

Model fit statistics for seven unconditional LCA

|  |  |
| --- | --- |
|  | Fit statistics |
| Number of classes | *G-squared* | *AIC* | *BIC* | *df* | *Loglikelihood* | *Relative entropy* |
| 1 | 30,946 | 30,978 | 31,088 | 45,910 | -61,674 | 1.00 |
| 2 | 24,724 | 24,802 | 25,071 | 45,887 | -58,563 | 0.73 |
| 3 | 20,723 | 20,847 | 21,275 | 45,864 | -56,562 | 0.86 |
| 4 | 17,735 | 17,905 | 18,491 | 45,841 | -55,068 | 0.85 |
| 5 | 17,405 | 17,621 | 18,366 | 45,818 | -54,903 | 0.85 |
| 6 | 17,125 | 17,387 | 18,290 | 45,795 | -54,763 | 0.80 |
| 7 | 16,974 | 17,282 | 18,344 | 45,772 | -54,688 | 0.80 |

Table SM4

Hazard ratios (HR) and confidence intervals (CI) from Cox proportional hazard regression models on mortality risk: **men** only (*N*ind=1,156, *N*obs=3,315)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Model 1 | Model 2 | Model 3 | Model 4 |
|  | HR | CI | HR | CI | HR | CI | HR | CI |
| *Latent non-kin network types*1 |  |  |  |  |  |  |  |  |
| Class 1 (ref.) | *ref.* |  | *ref.* |  | *ref.* |  | *ref.* |  |
| Class 2 | 1.564\*\* | 1.162, 2.107 | 1.423\* | 1.054, 1.920 | 1.390\* | 1.027, 1.881 | 1.367\* | 1.008, 1.854 |
| Class 3 | 1.764\*\*\* | 1.299, 2.397 | 1.607\*\* | 1.181, 2.187 | 1.596\*\* | 1.172, 2.173 | 1.554\*\* | 1.139, 2.121 |
| Class 4 | 1.394\* | 1.004, 1.935 | 1.382 | 0.995, 1.920 | 1.387 | 0.997, 1.928 | 1.400\* | 1.007, 1.947 |
| *Socio-demographic variable*2 |  |  |  |  |  |  |  |  |
| Education | 0.976 | 0.931, 1.023 | 0.994 | 0.948, 1.042 | 1.010 | 0.961, 1.060 | 1.009 | 0.961, 1.060 |
| *Health variables* |  |  |  |  |  |  |  |  |
| Chronic diseases |  |  | 1.262\*\*\* | 1.162, 1.371 | 1.261\*\*\* | 1.159, 1.371 | 1.261\*\*\* | 1.160, 1.371 |
| Physical functioning |  |  | 0.933\*\*\* | 0.914, 0.952 | 0.944\*\*\* | 0.924, 0.965 | 0.945\*\*\* | 0.925, 0.966 |
| Depression |  |  |  |  | 1.017 | 0.998, 1.037 | 1.014 | 0.995, 1.034 |
| Anxiety |  |  |  |  | 0.987 | 0.945, 1.030 | 0.989 | 0.947, 1.033 |
| Cognitive functioning (MMSE) |  |  |  |  | 0.959\* | 0.927, 0.993 | 0.961\* | 0.928, 0.995 |
| *Social variables* |  |  |  |  |  |  |  |  |
| Partner |  |  |  |  |  |  | 0.873 | 0.696, 1.094 |
| Size of kin-network |  |  |  |  |  |  | 0.988 | 0.969, 1.007 |

*Notes*. 1 Class 1 = large-supportive, Class 2 = small-unsupportive, Class 3 = small-supportive, Class 4 = large-unsupportive. 2 All models were stratified by age groups. Table SM5

Hazard ratios (HR) and confidence intervals (CI) from Cox proportional hazard regression models on mortality risk: **women** only (*N*ind=1,284, *N*obs=3,989)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Model 1 | Model 2 | Model 3 | Model 4 |
|  | HR | CI | HR | CI | HR | CI | HR | CI |
| *Latent non-kin network types*1 |  |  |  |  |  |  |  |  |
| Class 1 (ref.) | *ref.* |  | *ref.* |  | *ref.* |  | *ref.* |  |
| Class 2 | 1.447\* | 1.037, 2.020 | 1.603\*\* | 1.144, 2.244 | 1.554\* | 1.104, 2.186 | 1.562\* | 1.107, 2.206 |
| Class 3 | 1.325 | 0.930, 1.887 | 1.380 | 0.966, 1.970 | 1.357 | 0.949, 1.942 | 1.351 | 0.942, 1.938 |
| Class 4 | 1.278 | 0.888, 1.838 | 1.413 | 0.980, 2.037 | 1.444 | 1.000, 2.084 | 1.465\* | 1.013, 2.120 |
| *Socio-demographic variable*2 |  |  |  |  |  |  |  |  |
| Education | 0.953 | 0.897, 1.014 | 0.985 | 0.924, 1.049 | 1.000 | 0.938, 1.067 | 1.000 | 0.937, 1.067 |
| *Health variables* |  |  |  |  |  |  |  |  |
| Chronic diseases |  |  | 1.220\*\*\* | 1.110, 1.342 | 1.203\*\*\* | 1.092, 1.324 | 1.202\*\*\* | 1.092, 1.324 |
| Physical functioning |  |  | 0.947\*\*\* | 0.928, 0.966 | 0.956\*\*\* | 0.936, 0.976 | 0.956\*\*\* | 0.936, 0.977 |
| Depression |  |  |  |  | 1.029\*\* | 1.010, 1.048 | 1.028\*\* | 1.008, 1.048 |
| Anxiety |  |  |  |  | 0.954\* | 0.914, 0.997 | 0.957\* | 0.916, 0.999 |
| Cognitive functioning (MMSE) |  |  |  |  | 0.964\* | 0.931, 0.999 | 0.965\* | 0.931, 0.999 |
| *Social variables* |  |  |  |  |  |  |  |  |
| Partner |  |  |  |  |  |  | 0.891 | 0.684, 1.161 |
| Size of kin-network |  |  |  |  |  |  | 0.999 | 0.978, 1.021 |

*Notes*. 1 Class 1 = large-supportive, Class 2 = small-unsupportive, Class 3 = small-supportive, Class 4 = large-unsupportive. 2 All models were stratified by age groups.

Table SM6

Hazard ratios (HR) and confidence intervals (CI) from Cox proportional hazard regression models on mortality risk: **54-59 years** at baseline (*N*ind=419, *N*obs=1,776)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Model 1 | Model 2 | Model 3 | Model 4 |
|  | HR | CI | HR | CI | HR | CI | HR | CI |
| *Latent non-kin network types*1 |  |  |  |  |  |  |  |  |
| Class 1 (ref.) | *ref.* |  | *ref.* |  | *ref.* |  | *ref.* |  |
| Class 2 | 2.918\*\* | 1.333, 6.389 | 3.155\*\* | 1.426, 6.981 | 2.986\*\* | 1.339, 6.658 | 3.046\*\* | 1.341, 6.916 |
| Class 3 | 3.238\*\* | 1.432, 7.324 | 3.253\*\* | 1.428, 7.408 | 3.171\*\* | 1.382, 7.273 | 2.903\* | 1.245, 6.770 |
| Class 4 | 1.623 | 0.690, 3.819 | 1.976 | 0.831, 4.700 | 1.935 | 0.812, 4.614 | 2.037 | 0.855, 4.853 |
| *Socio-demographic variable*2 |  |  |  |  |  |  |  |  |
| Education | 0.971 | 0.852, 1.107 | 1.022 | 0.897, 1.164 | 1.026 | 0.897, 1.173 | 1.041 | 0.910, 1.191 |
| *Health variables* |  |  |  |  |  |  |  |  |
| Chronic diseases |  |  | 1.412\*\* | 1.133, 1.759 | 1.405\*\* | 1.129, 1.748 | 1.398\*\* | 1.123, 1.739 |
| Physical functioning |  |  | 0.918\*\* | 0.868, 0.972 | 0.915\*\* | 0.861, 0.973 | 0.922\* | 0.867, 0.981 |
| Depression |  |  |  |  | 1.029 | 0.976, 1.086 | 1.014 | 0.959, 1.073 |
| Anxiety |  |  |  |  | 0.902 | 0.799, 1.018 | 0.918 | 0.810, 1.041 |
| Cognitive functioning (MMSE) |  |  |  |  | 0.952 | 0.835, 1.086 | 0.955 | 0.836, 1.090 |
| *Social variables* |  |  |  |  |  |  |  |  |
| Partner |  |  |  |  |  |  | 0.516 | 0.265, 1.006 |
| Size of kin-network |  |  |  |  |  |  | 0.987 | 0.939, 1.038 |

*Notes*. 1 Class 1 = large-supportive, Class 2 = small-unsupportive, Class 3 = small-supportive, Class 4 = large-unsupportive. 2 All models were stratified by gender.

Table SM7

Hazard ratios (HR) and confidence intervals (CI) from Cox proportional hazard regression models on mortality risk: **60-64 years** at baseline (*N*ind=453, *N*obs=1,698)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Model 1 | Model 2 | Model 3 | Model 4 |
|  | HR | CI | HR | CI | HR | CI | HR | CI |
| *Latent non-kin network types*1 |  |  |  |  |  |  |  |  |
| Class 1 (ref.) | *ref.* |  | *ref.* |  | *ref.* |  | *ref.* |  |
| Class 2 | 1.787\* | 1.044, 3.059 | 1.748\* | 1.016, 3.010 | 1.735\* | 1.008, 2.985 | 1.729 | 0.993, 3.012 |
| Class 3 | 1.305 | 0.732, 2.325 | 1.138 | 0.632, 2.046 | 1.107 | 0.614, 1.997 | 1.070 | 0.589, 1.942 |
| Class 4 | 0.880 | 0.474, 1.631 | 0.936 | 0.503, 1.740 | 0.945 | 0.508, 1.759 | 0.967 | 0.519, 1.802 |
| *Socio-demographic variable*2 |  |  |  |  |  |  |  |  |
| Education | 0.954 | 0.860, 1.058 | 0.966 | 0.870, 1.072 | 0.966 | 0.868, 1.075 | 0.972 | 0.873, 1.083 |
| *Health variables* |  |  |  |  |  |  |  |  |
| Chronic diseases |  |  | 1.172 | 0.987, 1.393 | 1.151 | 0.967, 1.371 | 1.157 | 0.972, 1.377 |
| Physical functioning |  |  | 0.925\*\* | 0.881, 0.972 | 0.940\* | 0.891, 0.991 | 0.943\* | 0.894, 0.996 |
| Depression |  |  |  |  | 1.029 | 0.989, 1.071 | 1.023 | 0.982, 1.065 |
| Anxiety |  |  |  |  | 0.983 | 0.900, 1.074 | 0.991 | 0.906, 1.083 |
| Cognitive functioning (MMSE) |  |  |  |  | 1.005 | 0.926, 1.090 | 1.009 | 0.929, 1.095 |
| *Social variables* |  |  |  |  |  |  |  |  |
| Partner |  |  |  |  |  |  | 0.785 | 0.484, 1.273 |
| Size of kin-network |  |  |  |  |  |  | 0.980 | 0.941, 1.022 |

*Notes*. 1 Class 1 = large-supportive, Class 2 = small-unsupportive, Class 3 = small-supportive, Class 4 = large-unsupportive. 2 All models were stratified by gender.

Table SM8

Hazard ratios (HR) and confidence intervals (CI) from Cox proportional hazard regression models on mortality risk: **65-74 years** at baseline (*N*ind=791, *N*obs=2,302)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Model 1 | Model 2 | Model 3 | Model 4 |
|  | HR | CI | HR | CI | HR | CI | HR | CI |
| *Latent non-kin network types*1 |  |  |  |  |  |  |  |  |
| Class 1 (ref.) | *ref.* |  | *ref.* |  | *ref.* |  | *ref.* |  |
| Class 2 | 1.529\* | 1.028, 2.274 | 1.542\* | 1.037, 2.293 | 1.433 | 0.960, 2.138 | 1.474 | 0.984, 2.209 |
| Class 3 | 1.997\*\*\* | 1.336, 2.984 | 1.969\*\*\* | 1.316, 2.944 | 1.916\*\* | 1.280, 2.867 | 1.913\*\* | 1.274, 2.873 |
| Class 4 | 1.553\* | 1.018, 2.369 | 1.708\* | 1.117, 2.611 | 1.676\* | 1.095, 2.564 | 1.718\* | 1.122, 2.630 |
| *Socio-demographic variable*2 |  |  |  |  |  |  |  |  |
| Education | 0.940 | 0.878, 1.007 | 0.972 | 0.906, 1.043 | 0.997 | 0.928, 1.071 | 1.000 | 0.931, 1.075 |
| *Health variables* |  |  |  |  |  |  |  |  |
| Chronic diseases |  |  | 1.355\*\*\* | 1.212, 1.516 | 1.375\*\*\* | 1.228, 1.539 | 1.372\*\*\* | 1.225, 1.536 |
| Physical functioning |  |  | 0.948\*\*\* | 0.923, 0.973 | 0.956\*\* | 0.930, 0.983 | 0.956\*\* | 0.930, 0.982 |
| Depression |  |  |  |  | 1.008 | 0.984, 1.034 | 1.005 | 0.980, 1.030 |
| Anxiety |  |  |  |  | 0.980 | 0.929, 1.034 | 0.986 | 0.934, 1.041 |
| Cognitive functioning (MMSE) |  |  |  |  | 0.925\*\* | 0.883, 0.970 | 0.926\*\* | 0.883, 0.970 |
| *Social variables* |  |  |  |  |  |  |  |  |
| Partner |  |  |  |  |  |  | 0.770 | 0.575, 1.031 |
| Size of kin-network |  |  |  |  |  |  | 1.001 | 0.977, 1.026 |

*Notes*. 1 Class 1 = large-supportive, Class 2 = small-unsupportive, Class 3 = small-supportive, Class 4 = large-unsupportive. 2 All models were stratified by gender.

Table SM9

Hazard ratios (HR) and confidence intervals (CI) from Cox proportional hazard regression models on mortality risk: **75-85 years** at baseline (*N*ind=777, *N*obs=1,528)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Model 1 | Model 2 | Model 3 | Model 4 |
|  | HR | CI | HR | CI | HR | CI | HR | CI |
| *Latent non-kin network types*1 |  |  |  |  |  |  |  |  |
| Class 1 (ref.) | *ref.* |  | *ref.* |  | *ref.* |  | *ref.* |  |
| Class 2 | 1.242 | 0.890, 1.735 | 1.239 | 0.884, 1.735 | 1.236 | 0.878, 1.740 | 1.221 | 0.866, 1.722 |
| Class 3 | 1.176 | 0.827, 1.674 | 1.172 | 0.821, 1.674 | 1.172 | 0.819, 1.677 | 1.163 | 0.812, 1.665 |
| Class 4 | 1.342 | 0.923, 1.951 | 1.323 | 0.909, 1.926 | 1.380 | 0.945, 2.015 | 1.371 | 0.939, 2.002 |
| *Socio-demographic variable*2 |  |  |  |  |  |  |  |  |
| Education | 0.983 | 0.933, 1.036 | 1.001 | 0.949, 1.056 | 1.019 | 0.964, 1.077 | 1.018 | 0.963, 1.076 |
| *Health variables* |  |  |  |  |  |  |  |  |
| Chronic diseases |  |  | 1.174\*\*\* | 1.071, 1.287 | 1.162\*\* | 1.059, 1.276 | 1.163\*\* | 1.059, 1.276 |
| Physical functioning |  |  | 0.942\*\*\* | 0.923, 0.960 | 0.952\*\*\* | 0.933, 0.972 | 0.952\*\*\* | 0.932, 0.971 |
| Depression |  |  |  |  | 1.029\*\* | 1.010, 1.048 | 1.029\*\* | 1.010, 1.049 |
| Anxiety |  |  |  |  | 0.969 | 0.927, 1.012 | 0.967 | 0.925, 1.010 |
| Cognitive functioning (MMSE) |  |  |  |  | 0.968\* | 0.937, 1.000 | 0.970 | 0.938, 1.002 |
| *Social variables* |  |  |  |  |  |  |  |  |
| Partner |  |  |  |  |  |  | 1.096 | 0.852, 1.412 |
| Size of kin-network |  |  |  |  |  |  | 0.992 | 0.971, 1.014 |

*Notes*. 1 Class 1 = large-supportive, Class 2 = small-unsupportive, Class 3 = small-supportive, Class 4 = large-unsupportive. 2 All models were stratified by gender.