Appendix

***Figure 1s. Associations between selected factors and reversion of MCI***

Table

Description automatically generated

*Note:*

1. *ADL: activities of daily living; IADL: instrumental activities of daily living; BEPA: bronchitis, emphysema, asthma, pneumonia; TB: pulmonary tuberculosis.*

***Table 1s . The Schoenfeld residual test results for Cox regression model.***

|  |  |  |  |
| --- | --- | --- | --- |
|  | Schoenfeld residual test | | |
| Chi-square | Degree of freedom | p-value |
| **Modifiable factors** | | | |
| Staple food | 6.44 | 3 | 0.092 |
| Intake of staple food | 0.15 | 1 | 0.695 |
| Intake of fresh fruit | 2.65 | 1 | 0.104 |
| Intake of fresh vegetable | 0.36 | 1 | 0.550 |
| Intake of meat | 0.21 | 1 | 0.647 |
| Intake of egg | <0.01 | 1 | 0.991 |
| Intake of salt-preserved vegetable | 2.71 | 1 | 0.100 |
| Intake of tea | 0.68 | 1 | 0.408 |
| Cigarette smoking | 0.42 | 1 | 0.518 |
| Duration of alcohol consumption | 0.01 | 1 | 0.929 |
| Doing housework | 2.04 | 1 | 0.153 |
| Reading books / newspaper | 0.17 | 1 | 0.681 |
| Raising domestic animals | 0.43 | 1 | 0.511 |
| Playing cards / mah-jong | 0.54 | 1 | 0.464 |
| Watching TV / listening to the radio | 1.33 | 1 | 0.250 |
| Systolic blood pressure | 0.55 | 1 | 0.460 |
| Heart rate | 0.31 | 1 | 0.580 |
| **Covariates** | | | |
| MMSE | 3.32 | 1 | 0.068 |
| Age | 8.33 | 1 | 0.004 |
| Gender | 0.60 | 1 | 0.440 |
| Education | 0.44 | 1 | 0.506 |
| Current marital status | 1.19 | 1 | 0.276 |
| Visionary function | 1.36 | 1 | 0.243 |
| Chewing ability | 0.58 | 1 | 0.448 |
| ADL score | 3.21 | 1 | 0.073 |
| IADL score | 6.56 | 1 | 0.011 |
| History of heart disease | 0.40 | 1 | 0.525 |
| History of cerebrovascular disease | 0.83 | 1 | 0.363 |
| History of bronchitis, emphysema, asthma, pneumonia | 0.42 | 1 | 0.518 |
| History of pulmonary tuberculosis | 0.11 | 1 | 0.743 |
| Global | 45.50 | 33 | 0.072 |

***Table 2s. Results of using stepwise cox regression model to select variables***

|  |  |  |
| --- | --- | --- |
|  | HR (95% CI) and p-value for Mild Cognitive Impairment | |
| HR (95% CI) | p-value |
| **Modifiable factors** | | |
| Intake of staple food (50 grams) | 1.02 (1.00 (1.04) | 0.073 |
| Intake of fresh fruit |  | |
| Sometimes or never | 1.00 (reference) | <0.001 |
| Daily | 1.26 (1.14,1.39) |
| Intake of meat |  | |
| Sometimes or never | 1.00 (reference) | 0.04 |
| Daily | 0.89 (0.79,0.99) |
| Cigarette smoking (10 times/day) | 0.91 (0.83,1.00) | 0.041 |
| Duration of alcohol consumption (10 years) | 0.97 (0.94,0.99) | 0.011 |
| Doing housework |  | |
| Occasionally or never | 1.00 (reference) | 0.001 |
| Almost daily | 1.22 (1.09,1.37) |
| Reading books / newspaper |  | |
| Occasionally or never | 1.00 (reference) | 0.127 |
| Almost daily | 1.21 (0.95,1.53) |
| Playing cards / mah-jong |  | |
| Occasionally or never | 1.00 (reference) | 0.002 |
| Almost daily | 1.23 (1.08,1.40) |
| Watching TV / listening to the radio |  | |
| Occasionally or never | 1.00 (reference) | 0.191 |
| Almost daily | 1.10 (0.95,1.28) |
| Systolic blood pressure (SD) | 1.06 (0.99,1.14) | 0.095 |
| **Covariates** | | |
| MMSE (point) | 0.89 (0.86,0.92) | <0.001 |
| Age (years) | 0.96 (0.96,0.96) | <0.001 |
| Gender |  | |
| Male | 1.00 (reference) | <0.001 |
| Female | 0.69 (0.60,0.80) |
| Education (years) | 1.04 (1.02,1.06) | <0.001 |
| ADL score (point) | 0.91 (0.81,1.03) | 0.123 |
| IADL score (point) | 0.98 (0.95,1.00) | 0.101 |
| History of cerebrovascular disease |  | |
| No | 1.00 (reference) | 0.103 |
| Yes | 0.81 (0.63,1.04) |

***Figure 2s. The hazard ratio (95% CI) and p-values for selected modifiable variables from Cox regression with LASSO method (MMSE change ≥ 2 as additional restriction).***

Table

Description automatically generated

***Figure 3s. The hazard ratio (95% CI) and p-values for selected modifiable variables from Cox regression with LASSO method (MMSE change ≥ 3 as additional restriction).***

Table

Description automatically generated

**Figure 4s. The hazard ratio (95% CI) and p-values for selected modifiable variables from Cox regression with LASSO method using listwise deletion.**



**Figure 5s. The subdistribution hazard ratio (95% CI) and p-values for selected modifiable variables from Fine and Gray competing risks method.**

Graphical user interface, table

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**Table 3s. The association between selected variables and reversion of MCI according to age groups.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | HR (95% CI) for Mild Cognitive Impairment | | | |
| 65-79 years | 80-89 years | 90-99 years | 100 and above |
| Number of subjects | 1086 | 2231 | 2528 | 1577 |
| Number of events | 589 (54.2%) | 636 (28.5%) | 290 (11.5%) | 89 (5.6%) |
| Number of person-years | 4002 | 6971 | 6612 | 3671 |
| **Modifiable factors** | | | | |
| Staple food |  | | | |
| Rice | 1.00 (reference) | 1.00 (reference) | 1.00 (reference) | 1.00 (reference) |
| Wheat | 0.92 (0.71,1.18) | 1.09 (0.82,1.48) | 1.28 (0.98,1.65) | 1.64 (0.66,4.07) |
| Corn | 0.72 (0.45,1.16) | 1.28 (0.94,1.74) | 1.19 (0.52,2.74) | # |
| Others | 1.01 (0.81,1.25) | 0.92 (0.70,1.20) | 0.78 (0.43,1.41) | 1.42 (0.93,2.17) |
| Intake of staple food (50 grams) | 1.04 (1.01,1.08)\* | 1.02 (0.99,1.05) | 1.01 (0.97,1.06) | 0.90 (0.81,1.00) |
| Intake of fresh fruit |  | | | |
| Sometimes or never | 1.00 (reference) | 1.00 (reference) | 1.00 (reference) | 1.00 (reference) |
| Daily | 1.36 (1.12,1.64)\*\* | 1.30 (1.10,1.52)\*\* | 1.18 (0.89,1.56) | 1.12 (0.76,1.65) |
| Intake of fresh vegetables |  | | | |
| Sometimes or never | 1.00 (reference) | 1.00 (reference) | 1.00 (reference) | 1.00 (reference) |
| Daily | 0.95 (0.78,1.14) | 0.83 (0.64,1.11) | 0.82 (0.59,1.16) | 2.24 (0.87,5.77) |
| Intake of meat |  | | | |
| Sometimes or never | 1.00 (reference) | 1.00 (reference) | 1.00 (reference) | 1.00 (reference) |
| Daily | 0.82 (0.67,1.00)\* | 0.83 (0.69,1.00) | 1.11 (0.87,1.41) | 1.37 (0.91,2.05) |
| Intake of egg |  | | | |
| Sometimes or never | 1.00 (reference) | 1.00 (reference) | 1.00 (reference) | 1.00 (reference) |
| Daily | 0.96 (0.81,1.13) | 0.95 (0.79,1.15) | 0.86 (0.67,1.11) | 0.69 (0.39,1.22) |
| Intake of salt-preserved vegetables |  | | | |
| Sometimes or never | 1.00 (reference) | 1.00 (reference) | 1.00 (reference) | 1.00 (reference) |
| Daily | 0.93 (0.77,1.14) | 1.04 (0.86,1.25) | 0.81 (0.59,1.11) | 0.86 (0.37,1.99) |
| Intake of tea |  | | | |
| Sometimes or never | 1.00 (reference) | 1.00 (reference) | 1.00 (reference) | 1.00 (reference) |
| Daily | 1.07 (0.92,1.26) | 1.09 (0.90,1.33) | 1.07 (0.86,1.33) | 1.20 (0.77,1.86) |
| Cigarette smoking (10 times/day) | 0.91 (0.78,1.06) | 0.95 (0.85,1.07) | 0.88 (0.60,1.30) | 1.33 (0.81,2.16) |
| Duration of alcohol consumption (10 years) | 0.96 (0.92,1.01) | 0.95 (0.93,0.98)\*\*\* | 0.99 (0.95,1.02) | 0.94 (0.88,1.01) |
| Doing housework |  | | | |
| Occasionally or never | 1.00 (reference) | 1.00 (reference) | 1.00 (reference) | 1.00 (reference) |
| Almost daily | 1.23 (1.02,1.48)\* | 1.20 (1.04,1.39)\* | 1.25 (0.93,1.68) | 1.13 (0.68,1.87) |
| Reading books / newspaper |  | | | |
| Occasionally or never | 1.00 (reference) | 1.00 (reference) | 1.00 (reference) | 1.00 (reference) |
| Almost daily | 1.38 (1.03,1.86)\* | 1.19 (0.86,1.65) | 0.98 (0.50,1.93) | 1.66 (0.46,5.93) |
| Raising domestic animals |  | | | |
| Occasionally or never | 1.00 (reference) | 1.00 (reference) | 1.00 (reference) | 1.00 (reference) |
| Almost daily | 1.14 (0.97,1.34) | 1.03 (0.85,1.23) | 1.15 (0.77,1.72) | 0.83 (0.39,1.76) |
| Playing cards / mah-jong |  | | | |
| Occasionally or never | 1.00 (reference) | 1.00 (reference) | 1.00 (reference) | 1.00 (reference) |
| Almost daily | 1.11 (0.91, 1.37) | 1.23 (0.91,1.68) | 1.49 (0.87,2.53) | 0.75 (0.27,2.07) |
| Watching TV / listening to the radio |  | | | |
| Occasionally or never | 1.00 (reference) | 1.00 (reference) | 1.00 (reference) | 1.00 (reference) |
| Almost daily | 0.98 (0.83, 1.15) | 1.10 (0.86,1.40) | 1.26 (0.93,1.69) | 1.75 (1.32,2.31)\*\*\* |
| Systolic blood pressure (SD) | 1.09 (0.99,1.21) | 1.02 (0.95,1.11) | 1.05 (0.91,1.21) | 1.02 (0.90,1.15) |
| Heart rate (SD) | 1.08 (0.95,1.23) | 1.01 (0.93,1.09) | 1.02 (0.88,1.19) | 1.14 (0.96,1.35) |
| **Covariates** | | | | |
| MMSE (point) | 0.89 (0.84,0.95)\*\*\* | 0.90 (0.87,0.94)\*\*\* | 0.89 (0.81,0.97)\*\* | 0.86 (0.76,0.97)\* |
| Gender |  | | | |
| Male | 1.00 (reference) | 1.00(reference) | 1.00(reference) | 1.00(reference) |
| Female | 0.83 (0.70,0.98)\* | 0.70 (0.55,0.88)\*\* | 0.67 (0.54,0.84)\*\*\* | 0.42 (0.25,0.69) |
| Ethnic group |  | | | |
| Han | 1.00 (reference) | 1.00 (reference) | 1.00 (reference) | 1.00 (reference) |
| Other minorities | 0.76 (0.62,0.93)\*\* | 1.00 (0.82,1.21) | 0.55 (0.44,0.68)\*\*\* | 0.69 (0.34,1.40) |
| Education (years) | 1.05 (1.01, 1.08)\* | 1.04 (1.01,1.08)\* | 1.05 (1.02,1.08)\*\* | 1.02 (0.88,1.18) |
| Current marital status |  | | | |
| Unmarried | 1.00 (reference) | 1.00 (reference) | 1.00 (reference) | 1.00 (reference) |
| Married | 1.24 (1.09, 1.40)\*\*\* | 0.95 (0.78,1.16) | 1.41 (1.01,1.97)\* | 0.33 (0.15,0.72)\*\* |
| Visionary function |  | | | |
| Poor | 1.00 (reference) | 1.00 (reference) | 1.00 (reference) | 1.00 (reference) |
| Good | 0.90 (0.69, 1.17) | 1.17 (0.93,1.48) | 1.03 (0.78,1.35) | 1.13 (0.67,1.88) |
| Chewing ability |  | | | |
| Poor | 1.00 (reference) | 1.00 (reference) | 1.00 (reference) | 1.00 (reference) |
| Good | 1.10 (0.96, 1.26) | 1.03 (0.86,1.23) | 0.99 (0.72,1.36) | 1.41 (0.76,2.62) |
| ADL score (point) | 1.01 (0.84, 1.21) | 0.91 (0.78,1.07) | 0.95 (0.82,1.10) | 0.74 (0.58,0.94)\* |
| IADL score (point) | 0.96 (0.91, 1.01) | 0.97 (0.94,1.01) | 0.98 (0.94,1.01) | 1.01 (0.88,1.16) |
| History of heart disease |  | | | |
| No | 1.00 (reference) | 1.00 (reference) | 1.00 (reference) | 1.00 (reference) |
| Yes | 1.15 (0.90, 1.45) | 1.25 (0.96,1.62) | 0.75 (0.42,1.34) | 1.91 (0.71,5.11) |
| History of cerebrovascular disease |  | | | |
| No | 1.00 (reference) | 1.00 (reference) | 1.00 (reference) | 1.00 (reference) |
| Yes | 0.52 (0.34,0.79)\*\* | 0.84 (0.52,1.38) | 1.68 (0.88,3.22) | 1.80 (0.58,5.60) |
| History of bronchitis, emphysema, asthma, pneumonia |  | | | |
| No | 1.00 (reference) | 1.00 (reference) | 1.00 (reference) | 1.00 (reference) |
| Yes | 1.19 (0.96, 1.48) | 1.18 (0.86,1.62) | 1.19 (0.85,1.67) | # |

*Note: \*p ≤ .05, \*\*p ≤ .01, \*\*\*p ≤ .001. # no available due to small sample size.*

***Table 4s. Association between selected variables and reversion of MCI according to gender.***

|  |  |  |
| --- | --- | --- |
|  | HR (95% CI) for Mild Cognitive Impairment | |
| Male | Female |
| Number of subjects | 2584 | 4838 |
| Number of events | 633 (24.5%) | 971 (20.1%) |
| Number of person-years | 6924 | 14331 |
| ***Modifiable factors*** | | |
| Staple food |  | |
| Rice | 1.00 (reference) | 1.00 (reference) |
| Wheat | 1.21 (0.91,1.62) | 1.02 (0.78,1.32) |
| Corn | 0.85 (0.65,1.12) | 1.04 (0.71,1.52) |
| Others | 0.86 (0.66,1.14) | 1.01 (0.80,1.27) |
| Intake of staple food (50 grams) | 1.02 (0.99,1.06) | 1.01 (0.99,1.03) |
| Intake of fresh fruit |  | |
| Sometimes or never | 1.00 (reference) | 1.00 (reference) |
| Daily | 1.15 (0.94,1.41) | 1.34 (1.16,1.54)*\*\*\** |
| Intake of fresh vegetables |  | |
| Sometimes or never | 1.00 (reference) | 1.00 (reference) |
| Daily | 0.94 (0.74,1.18) | 0.89 (0.72,1.09) |
| Intake of meat |  | |
| Sometimes or never | 1.00 (reference) | 1.00 (reference) |
| Daily | 0.84 (0.67,1.05) | 0.93 (0.77,1.12) |
| Intake of egg |  | |
| Sometimes or never | 1.00 (reference) | 1.00 (reference) |
| Daily | 1.04 (0.91,1.20) | 0.88 (0.77,1.00)\* |
| Intake of salt-preserved vegetables |  | |
| Sometimes or never | 1.00 (reference) | 1.00 (reference) |
| Daily | 0.98 (0.81,1.18) | 0.94 (0.82,1.08) |
| Intake of tea |  | |
| Sometimes or never | 1.00 (reference) | 1.00 (reference) |
| Daily | 1.20 (0.98,1.47) | 1.00 (0.84,1.18) |
| Cigarette smoking (10 times/day) | 0.91 (0.82,1.01) | 0.97 (0.83,1.14) |
| Duration of alcohol consumption (10 years) | 0.96 (0.93,0.98)*\*\** | 0.99 (0.84,1.04) |
| Doing housework |  | |
| Occasionally or never | 1.00 (reference) | 1.00 (reference) |
| Almost daily | 1.28 (1.12,1.47)*\*\*\** | 1.11 (0.95,1.30) |
| Reading books/newspaper |  | |
| Occasionally or never | 1.00 (reference) | 1.00 (reference) |
| Almost daily | 1.32 (0.98,1.77) | 1.13 (0.83,1.55) |
| Raising domestic animals |  | |
| Occasionally or never | 1.00 (reference) | 1.00 (reference) |
| Almost daily | 1.34 (1.07,1.67)*\*\** | 0.92 (0.80,1.07) |
| Playing cards/mah-jong |  | |
| Occasionally or never | 1.00 (reference) | 1.00 (reference) |
| Almost daily | 1.12 (0.90,1.38) | 1.42 (1.12,1.80)*\*\** |
| Watching TV/listening to the radio |  | |
| Occasionally or never | 1.00 (reference) | 1.00 (reference) |
| Almost daily | 1.09 (0.93,1.26) | 1.11 (0.93,1.32) |
| Systolic blood pressure (SD) | 1.04 (0.96,1.13) | 1.06 (0.97,1.15) |
| Heart rate (SD) | 1.00 (0.91,1.10) | 1.06 (1.00,1.13) |
| ***Covariates*** | | |
| MMSE (point) | 0.90 (0.85,0.94)*\*\*\** | 0.88 (0.85,0.92)*\*\*\** |
| Age (year) | 0.97 (0.97,0.98)*\*\*\** | 0.95 (0.95,0.96)*\*\*\** |
| Ethnic group |  | |
| Han | 1.00 (reference) | 1.00 (reference) |
| Other minorities | 0.92 (0.70,1.22) | 0.82 (0.67,1.02) |
| Education (years) | 1.04 (1.02,1.07)*\*\*\** | 1.03 (0.99,1.08) |
| Current marital status |  | |
| Unmarried | 1.00 (reference) | 1.00 (reference) |
| Married | 1.01 (0.85,1.20) | 1.11 (1.00,1.24) |
| Visionary function |  | |
| Poor | 1.00 (reference) | 1.00 (reference) |
| Good | 1.04 (0.84,1.29) | 1.09 (0.90,1.32) |
| Chewing ability |  | |
| Poor | 1.00 (reference) | 1.00 (reference) |
| Good | 1.06 (0.93,1.21) | 0.99 (0.87,1.14) |
| ADL score (point) | 1.01 (0.84,1.21) | 0.87 (0.75,1.01) |
| IADL score (point) | 0.96 (0.92,1.01) | 0.98 (0.95,1.02) |
| History of heart disease |  | |
| No | 1.00 (reference) | 1.00 (reference) |
| Yes | 1.24 (0.98,1.57) | 1.11 (0.93,1.32) |
| History of cerebrovascular disease |  | |
| No | 1.00 (reference) | 1.00 (reference) |
| Yes | 0.75 (0.61,1.12) | 0.75 (0.54,1.07) |
| History of bronchitis, emphysema, asthma, pneumonia |  | |
| No | 1.00 (reference) | 1.00 (reference) |
| Yes | 1.38 (1.12,1.71)*\*\** | 0.98 (0.78,1.23) |
| History of pulmonary tuberculosis |  | |
| No | 1.00 (reference) | 1.00 (reference) |
| Yes | 0.70 (0.21,2.37) | 0.64 (0.19,2.12) |

*Note: \*p ≤ .05, \*\*p ≤ .01, \*\*\*p ≤ .001*