# Supplemental Material

## Characteristics of missing data

**Supplemental Table 1**

*Missing Data For All Variables In The Analyses*

|  |  |
| --- | --- |
| Variable | Percent Missing |
| SCREEN-8 score follow-up | 19.73 |
| Self-rated social standing | 14.70 |
| SCREEN-8 score at baseline | 13.12 |
| Frequency of contact with children | 12.80 |
| Frequency of contact with neighbours | 11.40 |
| Oral health | 10.31 |
| Frequency of contact with siblings | 8.97 |
| Frequency of contact with friends | 6.63 |
| Household income | 6.45 |
| Social support | 5.55 |
| Frequency of contact with relatives | 2.76 |
| Number of people known through other activities | 1.99 |
| Number of living relatives | 1.61 |
| Number of people known through work or school | 1.24 |
| Number of neighbours | 1.07 |
| Number of people known through community activities | 1.01 |
| Social participation | 1.00 |
| Disability | .68 |
| Education | .39 |
| Number of close friends | .30 |
| Depression | .22 |
| Number of siblings | .11 |
| Marital status | .03 |
| Number of living children | .01 |
| Sex assigned at birth | - |
| Oral health | - |
| Self-rated health | - |
| Self-rated mental health | - |
| Age | - |
| Living situation | - |

**Supplemental Table 2**

Characteristics Of Complete Cases Vs Cases With Any Missing Data

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | Missing\* | Not missing\* | Test statistic\*\* | Effect size\*\*\* | *p*-value\*\* |
| SCREEN-8 score at baseline | 37.86 (6.82) | 39.20 (5.89) | -16.265 | -.239 | <.001 |
| SCREEN-8 score at follow-up | 37.08 (6.80) | 38.49 (6.39) | -13.993 | -.215 | <.001 |
| Social participation | 9.34 (4.70) | 10.94 (4.46) | -23.863 | -.330 | <.001 |
| Self-rated social standing | 5.30 (2.21) | 5.84 (2.00) | -16.203 | -.241 | <.001 |
| Social support | 80.86 (19.58) | 86.03 (14.71) | -20.223 | -.284 | <.001 |
| Number of living children | 2.07 (1.67) | 2.60 (1.27) | -28.281 | -.389 | <.001 |
| Number of living siblings | 2.94 (2.54) | 3.29 (2.29) | -11.538 | -.159 | <.001 |
| Number of living relatives | 35.47 (30.24) | 41.97 (30.67) | -13.127 | -.182 | <.001 |
| Number of close friends | 5.46 (8.38) | 6.32 (7.51) | -9.158 | -.126 | <.001 |
| Number of neighbours | 9.95 (14.04) | 12.29 (14.30) | -12.827 | -.177 | <.001 |
| Number of people known through work or school | 45.44 (40.87) | 56.10 (40.27) | -17.734 | -.245 | <.001 |
| Number of people known through community involvement | 29.96 (36.87) | 38.89 (38.38) | -16.146 | -.223 | <.001 |
| Number of people known through other activities | 20.30 (32.03) | 25.68 (34.34) | -11.425 | -.159 | <.001 |
| Frequency of contact with children |  |  | 33.932 | .043 | <.001 |
| High contact | 89.8 | 88.1 |  |  |  |
| Low contact | 10.2 | 11.9 |  |  |  |
| Frequency of contact with siblings |  |  | 35.975 | .043 | <.001 |
| High contact | 58.5 | 54.2 |  |  |  |
| Low contact | 41.5 | 45.8 |  |  |  |
| Frequency of contact with relatives |  |  | 45.105 | .047 | <.001 |
| High contact | 57.2 | 53.1 |  |  |  |
| Low contact | 42.8 | 46.9 |  |  |  |
|  |  |  |  |  |  |
| Frequency of contact with friends |  |  | 19.592 | .031 | <.001 |
| High contact | 88.6 | 87.0 |  |  |  |
| Low contact | 11.4 | 13.0 |  |  |  |
| Frequency of contact with neighbours |  |  | 2.450 | .011 | .118 |
| High contact | 64.2 | 63.3 |  |  |  |
| Low contact | 35.8 | 36.7 |  |  |  |
| Household income |  |  | 656.733 | .181 | <.001 |
| $100,000 or more | 38.0 | 25.8 |  |  |  |
| $50,000 - 99,999 | 37.0 | 35.9 |  |  |  |
| $20,000 – 49,999 | 21.5 | 29.7 |  |  |  |
| Less than $20,000 | 3.5 | 8.6 |  |  |  |
| Age | 60.99 (10.81) | 58.51 (9.42) | 17.341 | .239 | <.001 |
| Sex |  |  | .437 | .005 | .509 |
| Female | 48.0 | 47.6 |  |  |  |
| Male | 52.0 | 52.4 |  |  |  |
| Marital status |  |  | 912.541 | .207 | <.001 |
| Married/partnered | 84.2 | 66.1 |  |  |  |
| Single | 10.4 | 26.1 |  |  |  |
| Widowed | 5.4 | 7.9 |  |  |  |
| Highest educational level |  |  | 141.432 | .082 | <.001 |
| Post-secondary degree/diploma | 60.9 | 57.3 |  |  |  |
| Some post-secondary | 9.1 | 8.9 |  |  |  |
| Secondary | 14.7 | 13.7 |  |  |  |
| Less than secondary | 15.3 | 20.2 |  |  |  |
| Living situation |  |  | 821.118 | .197 | <.001 |
| Does not live alone | 90.8 | 76.7 |  |  |  |
| Lives alone | 9.2 | 23.3 |  |  |  |
| Depression |  |  | 143.632 | .082 | <.001 |
| Screened negative for depression | 85.7 | 79.4 |  |  |  |
| Screened positive for depression | 14.3 | 20.6 |  |  |  |
| Self-rated general health |  |  | 346.296 | .128 | <.001 |
| Very good/excellent | 62.4 | 52.5 |  |  |  |
| Good | 28.0 | 32.2 |  |  |  |
| Fair/poor | 9.6 | 15.2 |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| Self-rated mental health |  |  | 180.377 | .092 | <.001 |
| Very good/excellent | 72.0 | 66.1 |  |  |  |
| Good | 24.1 | 27.7 |  |  |  |
| Fair/poor | 3.9 | 6.2 |  |  |  |
| Self-rated healthy aging |  |  | 205.389 | .098 | <.001 |
| Very good/excellent | 62.3 | 55.6 |  |  |  |
| Good | 29.5 | 32.1 |  |  |  |
| Fair/poor | 8.2 | 12.3 |  |  |  |
| Disability |  |  | 58.907 | .053 | <.001 |
| Mild/no impairment | 99.2 | 98.4 |  |  |  |
| Moderate impairment | .5 | 1.2 |  |  |  |
| Total/severe impairment | .3 | .5 |  |  |  |
| Self-rated oral health |  |  | 128.802 | .082 | <.001 |
| Very good/excellent | 70.1 | 65.3 |  |  |  |
| Good | 23.1 | 24.3 |  |  |  |
| Fair/poor | 6.8 | 10.4 |  |  |  |

\* mean and standard deviation for continuous variables, percentage for categorical variables, \*\*t-test for continuous variables and Chi-squared test for categorical variables, \*\*\*Cohen’s d for continuous variables and Cramer’s V for categorical variables

**Supplemental Table 3**

*Binomial Logistic Regression Analysis Examining High Nutrition Risk at Baseline in All Participants*

|  |  |  |  |
| --- | --- | --- | --- |
| Characteristic | Odds ratio | 95% CI | *p*-value |
| Social participation | .970\*\* | .959, .981 | <.0001 |
| Self-rated social standing | .955\*\* | .931, .976 | <.0001 |
| Social support | .991\*\* | .988, .994 | <.0001 |
| Number of living children | 1.008 | .970, 1.044 | .637 |
| Number of living siblings | 1.004 | .980, 1.025 | .697 |
| Number of living relatives | 1.008 | 1.002, 1.013 | .007 |
| Number of close friends | 1.000 | .999, 1.002 | .716 |
| Number of neighbours | .998 | .995, 1.001 | .148 |
| Number of people known through work or school | 1.001 | 1.000, 1.003 | .029 |
| Number of people known through community involvement | 1.001 | .999, 1.002 | .448 |
| Number of people known through other activities | 1.000 | .999, 1.002 | .654 |
| Frequency of contact with children |  |  |  |
| High contact | — | — |  |
| Low contact | 1.014 | .883, 1.162 | .844 |
| Frequency of contact with siblings |  |  |  |
| High contact | — | — |  |
| Low contact | .997 | .908, 1.096 | .957 |
| Frequency of contact with relatives |  |  |  |
| High contact | — | — |  |
| Low contact | .926 | .801, 1.068 | .293 |
| Frequency of contact with friends |  |  |  |
| High contact | — | — |  |
| Low contact | 1.016 | .925, 1.115 | .743 |
| Frequency of contact with neighbours |  |  |  |
| High contact | — | — |  |
| Low contact | .940 | .855, 1.032 | .193 |
| Household income |  |  |  |
| $100,000 or more | — | — |  |
| $50,000 - 99,999 | 1.066 | .960, 1.186 | .236 |
| $20,000 – 49,999 | 1.128 | .980, 1.294 | .087 |
| Less than $20,000 | 1.270 | .970, 1.666 | .084 |
| Age | .980\* | .970, .990 | <.001 |
| Sex |  |  |  |
| Female | — | — |  |
| Male | 1.139 | 1.041, 1.247 | .005 |
| Marital status |  |  |  |
| Married/partnered | — | — |  |
| Single | 1.215 | 1.023, 1.442 | .026 |
| Widowed | 1.436 | 1.137, 1.811 | .002 |
| Highest educational level |  |  |  |
| Post-secondary degree/diploma | — | — |  |
| Some post-secondary | 1.224 | 1.039, 1.440 | .015 |
| Secondary | 1.240\* | 1.099, 1.416 | <.001 |
| Less than secondary | 1.391\* | 1.157, 1.672 | <.001 |
| Living situation |  |  |  |
| Does not live alone | — | — |  |
| Lives alone | 1.51\*\* | 1.23, 1.85 | .0001 |
| Depression |  |  |  |
| Screened negative for depression | — | — |  |
| Screened positive for depression | 1.369\*\* | 1.204, 1.555 | <.0001 |
| Self-rated general health |  |  |  |
| Very good/excellent | — | — |  |
| Good | 1.399\*\* | 1.248, 1.569 | <.0001 |
| Fair/poor | 1.895\*\* | 1.576, 2.279 | <.0001 |
| Self-rated mental health |  |  |  |
| Very good/excellent | — | — |  |
| Good | .960 | .862, 1.076 | .5 |
| Fair/poor | .990 | .782, 1.246 | >.9 |
| Self-rated healthy aging |  |  |  |
| Very good/excellent | — | — |  |
| Good | 1.476\*\* | 1.322, 1.647 | <.0001 |
| Fair/poor | 1.481\*\* | 1.222, 1.794 | .0001 |
| Disability |  |  |  |
| Mild/no impairment | — | — |  |
| Moderate impairment | 1.593 | .936, 2.754 | .090 |
| Total/severe impairment | 1.399 | .450, 4.704 | .566 |
| Self-rated oral health |  |  |  |
| Very good/excellent | — | — |  |
| Good | 1.420\*\* | 1.280, 1.574 | <.0001 |
| Fair/poor | 1.860\*\* | 1.566, 2.209 | <.0001 |

\* *p* ≤ .001, \*\* *p* ≤ .0001

**Supplemental Table 4**

*Binomial Logistic Regression Analysis Examining High Nutrition Risk at Follow-up in All Participants*

|  |  |  |  |
| --- | --- | --- | --- |
| Characteristic | Odds ratio | 95% CI | *p*-value |
| Social participation | .970\*\* | .959, .982 | <.0001 |
| Self-rated social standing | .953\*\* | .931, 0.976 | .0001 |
| Social support | .992\*\* | .989, .995 | <.0001 |
| Number of living children | 1.035 | 1.000, 1.071 | .051 |
| Number of living siblings | .992 | .972, 1.013 | .465 |
| Number of living relatives | 1.007 | 1.002, 1.013 | .011 |
| Number of close friends | .999 | .997, 1.000 | .175 |
| Number of neighbours | 1.001 | 0.998, 1.004 | .432 |
| Number of people known through work or school | 1.001 | 1.000, 1.002 | .162 |
| Number of people known through community involvement | 1.002 | 1.000, 1.003 | .028 |
| Number of people known through other activities | 1.000 | .999, 1.002 | .703 |
| Frequency of contact with children |  |  |  |
| High contact | — | — |  |
| Low contact | .932 | .810, 1.070 | .316 |
| Frequency of contact with siblings |  |  |  |
| High contact | — | — |  |
| Low contact | 1.003 | .913, 1.102 | .949 |
| Frequency of contact with relatives |  |  |  |
| High contact | — | — |  |
| Low contact | .996 | .907, 1.093 | .931 |
| Frequency of contact with friends |  |  |  |
| High contact | — | — |  |
| Low contact | .925 | .800, 1.067 | .286 |
| Frequency of contact with neighbours |  |  |  |
| High contact | — | — |  |
| Low contact | 1.007 | .916, 1.105 | .892 |
| Household income |  |  |  |
| $100,000 or more | — | — |  |
| $50,000 - 99,999 | 1.029 | .926, 1.143 | .594 |
| $20,000 – 49,999 | 1.208 | 1.053, 1.386 | .007 |
| Less than $20,000 | 1.466 | 1.100, 1.959 | .009 |
| Age | .992 | .986, .997 | .003 |
| Sex |  |  |  |
| Male | — | — |  |
| Female | 1.020 | .932, 1.166 | .663 |
| Marital status |  |  |  |
| Married/partnered | — | — |  |
| Single | 1.451\*\* | 1.218, 1.727 | <.0001 |
| Widowed | 1.328 | 1.044, 1.688 | .021 |
| Highest educational level |  |  |  |
| Post-secondary degree/diploma | — | — |  |
| Some post-secondary | 1.226 | 1.039, 1.445 | .015 |
| Secondary | 1.293\*\* | 1.136, 1.471 | <.0001 |
| Less than secondary | 1.322 | 1.087, 1.607 | .005 |
| Living situation |  |  |  |
| Does not live alone | — | — |  |
| Lives alone | 1.212 | .981, 1.496 | .074 |
| Depression |  |  |  |
| Screened negative for depression | — | — |  |
| Screened positive for depression | 1.488\*\* | 1.303, 1.699 | <.0001 |
| Self-rated general health |  |  |  |
| Very good/excellent | — | — |  |
| Good | 1.258\*\* | 1.120, 1.411 | .0001 |
| Fair/poor | 1.609\*\* | 1.323, 1.956 | <.0001 |
| Self-rated mental health |  |  |  |
| Very good/excellent | — | — |  |
| Good | .949 | .847, 1.063 | .368 |
| Fair/poor | 1.189 | .926, 1.528 | .175 |
| Self-rated healthy aging |  |  |  |
| Very good/excellent | — | — |  |
| Good | 1.359\*\* | 1.215, 1.519 | <.0001 |
| Fair/poor | 1.744\*\* | 1.423, 2.138 | <.0001 |
| Disability |  |  |  |
| Mild/no impairment | — | — |  |
| Moderate impairment | 1.204 | .657, 2.257 | .553 |
| Total/severe impairment | .907 | .274, 3.266 | .874 |
| Self-rated oral health |  |  |  |
| Very good/excellent | — | — |  |
| Good | 1.390\*\* | 1.252, 1.543 | <.0001 |
| Fair/poor | 1.628\*\* | 1.358, 1.952 | <.0001 |

\* *p* ≤ .001, \*\* *p* ≤ .0001

## Bivariate analysis

**Supplemental Table 5**

*Bivariate Relationships Between High Nutrition Risk at Follow-Up, and the Social Network, Demographic, and Health-Indicator Variables at Baseline*

|  |  |  |  |
| --- | --- | --- | --- |
| Characteristic | Odds ratio | 95% CI | *p*-value |
| SCREEN-8 score at baseline | .81\*\* | .80, .83 | <.0001 |
| Social participation | .95\*\* | .94, .95 | <.0001 |
| Self-rated social standing | .91\*\* | .89, .92 | <.0001 |
| Social support | .98\*\* | .98, .99 | <.0001 |
| Number of living children | .98 | .96, 1.005 | .128 |
| Number of living siblings | .99 | .98, 1.007 | .383 |
| Number of living relatives | .999 | .997, 1.000 | .005 |
| Number of close friends | .99\* | .99, .997 | .001 |
| Number of neighbours | .996\* | .99, .998 | <.001 |
| Number of people known through work or school | .998\*\* | .997, .998 | <.0001 |
| Number of people known through community involvement | .997\*\* | .996, .998 | <.0001 |
| Number of people known through other activities | .998\*\* | .997, .999 | <.0001 |
| Frequency of contact with children |  |  |  |
| High contact | — | — |  |
| Low contact | 1.123 | 1.014, 1.243 | .026 |
| Frequency of contact with siblings |  |  |  |
| High contact | — | — |  |
| Low contact | 1.078 | 1.010, 1.151 | .023 |
| Frequency of contact with relatives |  |  |  |
| High contact | — | — |  |
| Low contact | 1.116 | 1.008, 1.235 | .034 |
| Frequency of contact with friends |  |  |  |
| High contact | — | — |  |
| Low contact | 1.071 | 1.005, 1.141 | .033 |
| Frequency of contact with neighbours |  |  |  |
| High contact | — | — |  |
| Low contact | 1.032 | .96, 1.106 | .369 |
| Household income |  |  |  |
| $100,000 or more | — | — |  |
| $50,000 - 99,999 | 1.214\*\* | 1.124, 1.313 | <.0001 |
| $20,000 – 49,999 | 1.716\*\* | 1.577, 1.868 | <.0001 |
| Less than $20,000 | 2.479\*\* | 2.140, 2.871 | <.0001 |
| Age | 1.001 | .998, 1.004 | .560 |
| Sex |  |  |  |
| Female | — | — |  |
| Male | .99 | .928, 1.050 | .676 |
| Marital status |  |  |  |
| Married/partnered | — | — |  |
| Single | 1.862\*\* | 1.723, 2.012 | <.0001 |
| Widowed | 1.802\*\* | 1.603, 2.024 | <.0001 |
| Highest educational level |  |  |  |
| Post-secondary degree/diploma | — | — |  |
| Some post-secondary | 1.434\*\* | 1.276, 1.611 | <.0001 |
| Secondary | 1.447\*\* | 1.319, 1.587 | <.0001 |
| Less than secondary | 1.844\*\* | 1.629, 2.087 | <.0001 |
| Living situation |  |  |  |
| Does not live alone | — | — |  |
| Lives alone | 1.816\*\* | 1.680, 1.963 | <.0001 |
| Depression |  |  |  |
| Screened negative for depression | — | — |  |
| Screened positive for depression | 1.939\*\* | 1.791, 2.099 | <.0001 |
| Self-rated general health |  |  |  |
| Very good/excellent | — | — |  |
| Good | 1.873\*\* | 1.746, 2.010 | <.0001 |
| Fair/poor | 2.725\*\* | 2.479, 2.995 | <.0001 |
| Self-rated mental health |  |  |  |
| Very good/excellent | — | — |  |
| Good | 1.685\*\* | 1.569, 1.810 | <.0001 |
| Fair/poor | 2.438\*\* | 2.142, 2.776 | <.0001 |
| Self-rated healthy aging |  |  |  |
| Very good/excellent | — | — |  |
| Good | 1.925\*\* | 1.796, 2.063 | <.0001 |
| Fair/poor | 2.816\*\* | 2.546, 3.116 | <.0001 |
| Disability |  |  |  |
| Mild/no impairment | — | — |  |
| Moderate impairment | 2.081\*\* | 1.508, 2.868 | <.0001 |
| Total/severe impairment | 1.643 | 0.863, 3.093 | .125 |
| Self-rated oral health |  |  |  |
| Very good/excellent | — | — |  |
| Good | 1.714\*\* | 1.593, 1.844 | <.0001 |
| Fair/poor | 2.200\*\* | 1.970, 2.456 | <.0001 |

\* *p* ≤ .001, \*\* *p* ≤ .0001

## Analysis after multiple imputation

**Supplemental Table 6**

*Logistic Regression Analysis Examining the Development of High Nutrition Risk at Follow-Up in Those Not at High Risk at Baseline*

|  |  |  |  |
| --- | --- | --- | --- |
| Characteristic | Odds ratio | 95% CI | *p*-value |
| Social participation | .98\*\* | .97, .99 | .0001 |
| Self-rated social standing | .98 | .96, 1.009 | .219 |
| Social support | .99\*\* | .99, .997 | .0001 |
| Number of living children | 1.037 | 1.005, 1.070 | .023 |
| Number of living siblings | .98 | .96, 1.004 | .111 |
| Number of living relatives | 1.004 | .997, 1.010 | .242 |
| Number of close friends | 1.000 | .998, 1.001 | .628 |
| Number of neighbours | 1.001 | .998, 1.004 | .656 |
| Number of people known through work or school | 1.000 | .999, 1.001 | .959 |
| Number of people known through community involvement | 1.000 | .999, 1.002 | .826 |
| Number of people known through other activities | .999 | .998, 1.001 | .406 |
| Frequency of contact with children |  |  |  |
| High contact | — | — |  |
| Low contact | 1.023 | .844, 1.240 | .805 |
| Frequency of contact with siblings |  |  |  |
| High contact | — | — |  |
| Low contact | 1.036 | .935, 1.147 | .501 |
| Frequency of contact with relatives |  |  |  |
| High contact | — | — |  |
| Low contact | 1.005 | .856, 1.180 | .954 |
| Frequency of contact with friends |  |  |  |
| High contact | — | — |  |
| Low contact | .97 | .881, 1.077 | .612 |
| Frequency of contact with neighbours |  |  |  |
| High contact | — | — |  |
| Low contact | .98 | .883, 1.078 | .625 |
| Household income |  |  |  |
| $100,000 or more | — | — |  |
| $50,000 - 99,999 | 1.045 | .936, 1.167 | .436 |
| $20,000 – 49,999 | 1.129 | .98, 1.301 | .095 |
| Less than $20,000 | 1.107 | .819, 1.495 | .507 |
| Age | .996 | .99, 1.001 | .132 |
|  |  |  |  |
| Sex |  |  |  |
| Female | — | — |  |
| Male | .854\* | .779, .937 | <.001 |
| Marital status |  |  |  |
| Married/partnered | — | — |  |
| Single | 1.435\*\* | 1.213, 1.697 | <.0001 |
| Widowed | 1.407 | 1.114, 1.777 | .004 |
| Highest educational level |  |  |  |
| Post-secondary degree/diploma | — | — |  |
| Some post-secondary | 1.301 | 1.098, 1.542 | .002 |
| Secondary | 1.248 | 1.087, 1.432 | .002 |
| Less than secondary | 1.542\*\* | 1.270, 1.874 | <.0001 |
| Living situation |  |  |  |
| Does not live alone | — | — |  |
| Lives alone | 1.114 | .920, 1.349 | .269 |
| Depression |  |  |  |
| Screened negative for depression | — | — |  |
| Screened positive for depression | 1.277 | 1.112, 1.466 | <.001 |
| Self-rated general health |  |  |  |
| Very good/excellent | — | — |  |
| Good | 1.232\* | 1.094, 1.388 | <.001 |
| Fair/poor | 1.421\* | 1.163, 1.736 | <.001 |
| Self-rated mental health |  |  |  |
| Very good/excellent | — | — |  |
| Good | 1.073 | .96, 1.204 | .227 |
| Fair/poor | 1.174 | .898, 1.535 | .240 |
| Self-rated healthy aging |  |  |  |
| Very good/excellent | — | — |  |
| Good | 1.305\*\* | 1.162, 1.464 | <.0001 |
| Fair/poor | 1.604\*\* | 1.295, 1.988 | <.0001 |
| Disability |  |  |  |
| Mild/no impairment | — | — |  |
| Moderate impairment | 1.049 | .530, 2.076 | .890 |
| Total/severe impairment | .462 | .096, 2.238 | .338 |
| Self-rated oral health |  |  |  |
| Very good/excellent | — | — |  |
| Good | 1.291\* | 1.157, 1.440 | <.0001 |
| Fair/poor | 1.340 | 1.104, 1.628 | .003 |

\* *p* ≤ .001, \*\* *p* ≤ .0001