

Supplementary Material

Living Alone with Mild-To-Moderate Dementia: Findings from the IDEAL Cohort

Supplementary Table 1. Personal and demographic characteristics of those living alone and those living with others (mean, sd, n or n, %)

| | Living with others (n=1,256) | Living alone (n=285) | Living alone with low support (n=51) |
|---|------------------------------|----------------------|--------------------------------------|
| Age | 75.57 (8.19); 1,256 | 79.88 (9.15); 285 | 76.47 (8.83); 51 |
| Female | 480 (38.2%) | 193 (67.7%) | 31 (60.8%) |
| Male | 776 (61.8%) | 92 (32.3%) | 20 (39.2%) |
| Education | | | |
| No qualifications | 324 (26.5%) | 96 (34.0%) | 14 (27.5%) |
| School certificate age 16 | 225 (18.4%) | 44 (15.6%) | 6 (11.8%) |
| School certificate age 18 | 425 (34.7%) | 89 (31.6%) | 17 (33.3%) |
| Higher education | 250 (20.4%) | 53 (18.8%) | 14 (27.5%) |
| Socio-economic status | | | |
| I | 114 (9.6%) | 18 (6.7%) | 3 (6.3%) |
| II | 423 (35.5%) | 97 (35.9%) | 21 (43.8%) |
| III-NM | 232 (19.5%) | 66 (24.4%) | 11 (22.9%) |
| III-M | 261 (21.9%) | 46 (17.0%) | 7 (14.6%) |
| IV | 116 (9.7%) | 30 (11.1%) | 4 (8.3%) |
| V | 25 (2.1%) | 13 (4.8%) | 2 (4.2%) |
| Armed forces | 21 (1.8%) | 0 | 0 |
| Marital status | | | |
| Single | 9 (0.7%) | 19 (6.7%) | 4 (7.8%) |
| Married/Partnership/Cohabiting | 1147 (91.3%) | 8 (2.8%) | 2 (3.9%) |
| Divorced/Separated | 29 (2.3%) | 64 (22.5%) | 19 (37.3%) |
| Widowed | 71 (5.7%) | 194 (68.1%) | 26 (51.0%) |
| Dementia diagnosis | | | |
| Alzheimer's disease | 697 (55.5%) | 157 (55.1%) | 31 (60.8%) |
| Vascular dementia | 138 (11.0%) | 32 (11.2%) | 4 (7.8%) |
| Mixed Alzheimer's disease/vascular dementia | 246 (19.6%) | 80 (28.1%) | 11 (21.6%) |
| Frontotemporal dementia | 50 (4.0%) | 4 (1.4%) | 2 (3.9%) |
| Parkinson's disease dementia | 43 (3.4%) | 1 (0.4%) | 0 |
| Dementia with Lewy bodies | 45 (3.6%) | 8 (2.8%) | 2 (3.9%) |
| Other/Unspecified | 37 (2.9%) | 3 (1.1%) | 1 (2.0%) |
| Charlson Comorbidity Index [^] | 1.71 (1.59); 1,167 | 1.92 (1.73); 267 | 1.75 (1.95); 51 |
| Self-rated health | 3.83 (1.16); 1,252 | 3.69 (1.13); 284 | 3.94 (1.01); 51 |

[^] Higher score indicates more co-morbidities (in addition to dementia)

Supplementary Table 2. Cognitive and functional ability and other symptoms in those living alone and those living with others (mean, sd, n)

| | Living with others (n=1,256) | Living alone (n=285) | Living alone with low support (n=51) |
|--|---------------------------------|-------------------------|---|
| Mini-Mental State Examination | 23.15 (3.68); 1,192 | 23.59 (3.33); 278 | 24.94 (2.92); 51 |
| Addenbrooke's Cognitive Examination-III | | | |
| Attention | 13.80 (3.01); 1,222 | 14.27 (2.62); 281 | 15.06 (2.23); 51 |
| Verbal fluency | 6.69 (3.11); 1,226 | 7.15 (2.87); 280 | 8.16 (2.79); 51 |
| Language | 22.45 (3.70); 1,196 | 22.39 (3.40); 273 | 23.20 (3.11); 51 |
| Memory | 13.58 (5.51); 1,205 | 13.53 (4.94); 277 | 14.67 (5.28); 51 |
| Visuospatial | 12.46 (3.33); 1,210 | 12.81 (2.85); 279 | 13.00 (2.79); 51 |
| Total score | 68.99 (13.56); 1,166 | 70.42 (11.46); 271 | 74.08 (11.23); 51 |
| Dependence Scale-S [^] | 3.69 (2.52); 1,192 | 2.75 (2.24); 262 | 1.65 (1.72); 48 |
| Dependence Scale-I [^] | 5.66 (2.63); 1,060 | 5.34 (2.48); 132 | - |
| Functional Activities Questionnaire-S [^] | 9.96 (7.84); 1,215 | 7.77 (6.44); 272 | 4.15 (4.08); 48 |
| Functional Activities Questionnaire-I [^] | 17.91 (8.64); 1,055 | 17.25 (8.31); 127 | - |
| Geriatric Depression Scale-10 | | | |
| Depressed | 357 (29.3%) | 98 (35.4%) | 16 (32.0%) |
| Not depressed | 862 (70.7%) | 179 (64.6%) | 34 (68.0%) |
| Neuropsychiatric Inventory Questionnaire | | | |
| Symptoms | 3.58 (2.47); 1,077 | 3.54 (2.49); 132 | - |
| Severity | 6.60 (4.71); 909 | 6.69 (4.40); 110 | - |
| Caregiver distress | 7.24 (6.43); 810 | 7.02 (5.67); 101 | - |

[^] Higher score indicates poorer functional ability. -S denotes self-rating and -I denotes informant rating.

- denotes no data as measures were informant-rated.

Supplementary Table 3. Psychological characteristics of those living alone and those living with others (mean, sd, n)

| | Living with others (n=1,256) | Living alone (n=285) | Living alone with low support (n=51) |
|---------------|---------------------------------|-------------------------|---|
| Self-efficacy | 29.16 (5.47); 1,152 | 29.71 (5.60); 256 | 30.33 (4.56); 48 |
| Self-esteem | 29.46 (3.82); 1,097 | 29.54 (3.72); 250 | 29.83 (3.93); 48 |
| Optimism | 14.97 (3.47); 1,166 | 14.97 (3.67); 262 | 15.02 (4.04); 50 |
| Loneliness | | | |
| Lonely | 388 (32.6%) | 137 (51.7%) | 25 (51.0%) |
| Not lonely | 802 (67.4%) | 128 (48.3%) | 24 (49.0%) |
| Stigma | 7.61 (1.87); 1,071 | 7.70 (1.70); 236 | 7.67 (1.81); 46 |

Supplementary Table 4. Social capitals, assets and resources of those living alone and those living with others (mean, sd, n)

| | Living with others (n=1,256) | Living alone (n=285) | Living alone with low support (n=51) |
|------------------------------------|---------------------------------|-------------------------|---|
| Lubben Social Network Scale-S | 15.30 (6.24); 1,190 | 14.02 (5.67); 261 | 14.40 (5.61); 47 |
| Lubben Social Network Scale-I | 14.85 (5.74); 972 | 12.85 (4.82); 111 | - |
| Resource Generator-UK | 34.65 (4.48); 1,109 | 34.90 (4.49); 247 | 35.91 (4.39); 46 |
| Frequency of social contact | 11.72 (3.67); 1,221 | 13.27 (3.31); 276 | 12.59 (3.66); 51 |
| Neighborhood reciprocity and trust | | | |
| Likely | 928 (76.3%) | 201 (73.1%) | 41 (80.4%) |
| Other | 289 (23.7%) | 74 (26.9%) | 10 (19.6%) |
| Social problems in neighborhood | 32.55 (3.55); 977 | 33.15 (3.24); 214 | 33.39 (2.50); 44 |
| Civic participation | | | |
| No participation | 1027 (84.3%) | 252 (91.3%) | 44 (86.3%) |
| Some participation | 107 (8.8%) | 13 (4.7%) | 4 (7.8%) |
| Extensive participation | 84 (6.9%) | 11 (4.0%) | 3 (5.9%) |
| Social participation | | | |
| No participation | 838 (69.4%) | 196 (71.3%) | 28 (56.0%) |
| Some participation | 167 (13.8%) | 33 (12.0%) | 10 (20.0%) |
| Extensive participation | 202 (16.7%) | 46 (16.7%) | 12 (24.0%) |
| Cultural Capital-S | 23.15 (5.62); 1,188 | 21.50 (5.21); 266 | 21.84 (5.25); 49 |
| Cultural Capital-I | 23.23 (5.60); 1,072 | 21.60 (5.30); 131 | - |

-S denotes self-rating and -I denotes informant rating. - denotes no data as measures were informant-rated.

Supplementary Table 5. Scores on indices of 'living well' for those living alone and those living with others (mean, sd, n)

| | Living with others (n=1,256) | Living alone (n=285) | Living alone with low support (n=51) |
|---|---------------------------------|-------------------------|---|
| Quality of Life in Alzheimer's Disease | 36.90 (5.98); 1,136 | 36.23 (5.71); 260 | 36.72 (6.28); 46 |
| Satisfaction with Life Scale | 26.51 (6.00); 1,223 | 24.09 (6.20); 275 | 21.10 (7.17); 50 |
| World Health Organization-Five Well-Being Index | 61.45 (20.64); 1,234 | 58.62 (20.22); 281 | 58.16 (23.44); 50 |

Supplementary Table 6. Resource use of people with dementia, by living arrangement: numbers of users and mean frequency of use

| Item | Living with others | | Living alone | | Statistics |
|------------------------------|------------------------------|----------------------------------|------------------------------|----------------------------------|---|
| | Numbers of users/ Valid N | Mean frequency of use (SE) | Numbers of users/ Valid N | Mean frequency of use (SE) | |
| | Expected N=1,256 | | Expected N=285 | | |
| GP – office visits | 802/1,209 (66%) | 1.27 (0.06) | 158/269 (59%) | 1.15 (0.16) | $\chi^2(5.583)$, df=1, p=0.018 |
| GP – home visits | 52/1,208 (4%) | 0.07 (0.01) | 25/273 (9%) | 0.12 (0.05) | $\chi^2(10.64)$, df=1, p=0.001 |
| GP – telephone calls | 205/1,205 (17%) | 0.26 (0.03) | 56/269 (21%) | 0.21 (0.09) | |
| Practice nurse office visits | 594/1,202 (49%) | 0.82 (0.06) | 102/262 (39%) | 0.58 (0.17) | $\chi^2(9.485)$, df=1, p=0.002 |
| Community nurse visits | 86/1,200 (7%) | 0.26 (0.09) | 37/267 (14%) | 1.62 (0.61) | $\chi^2(12.729)$, df=1, p<0.001 |
| Physio/OT visits | 141/1,208 (12%) | 0.32 (0.04) | 25/270 (9%) | 0.17 (0.04) | |
| Specialist nurse visits | 103/1,208 (9%) | 0.14 (0.02) | 13/268 (5%) | 0.09 (0.04) | $\chi^2(4.092)$, df=1, p=0.043 |
| CMH Nurse visits | 194/1,200 (16%) | 0.21 (0.03) | 43/270 (16%) | 0.35 (0.09) | |
| Psychiatrist visits | 192/1,203 (16%) | 0.14 (0.02) | 35/266 (13%) | 0.02 (0.07) | |
| Psychologist visits | 43/1,205 (4%) | 0.05 (0.03) | 6/267 (2%) | 0.02 (0.07) | |
| Social work visits | 48/1,203 (4%) | 0.05 (0.02) | 20/266 (8%) | 0.10 (0.08) | $\chi^2(6.144)$, df=1, p=0.013 |
| Home care visits | 82/1,218 (7%) | 3.38 (0.58) | 80/270 (30%) | 24.03 (3.42) | $\chi^2(119.433)$, df=1, p<0.001 |
| Meals on wheels visits | 7/1,219 (1%) | 0.18 (0.10) | 16/273 (6%) | 2.54 (0.80) | $\chi^2(41.071)$, df=1, p<0.001 |
| Cleaner visits | 252/1,211 (21%) | 2.30 (0.17) | 93/271 (34%) | 3.74 (0.48) | $\chi^2(22.624)$, df=1, p<0.001 |
| Laundry service visits | 30/1,209 (2%) | 0.25 (0.06) | 13/272 (5%) | 0.54 (0.17) | $\chi^2(4.159)$, df=1, p=0.041 |
| Sitting service visits | 31/1,218 (3%) | 0.25 (0.06) | - | - | |
| Caregiver support visits | 41/1,196 (3%) | 0.68 (0.22) | 7/269 (3%) | 0.57 (0.35) | |
| Day center days | 141/1,221 (12%) | 2.14 (0.23) | 43/273 (16%) | 2.42 (0.40) | |
| Lunch club visits | 100/1,218 (8%) | 0.98 (0.14) | 33/274 (12%) | 2.24 (0.52) | $\chi^2(4.049)$, df=1, p=0.044 |
| Emergency Department visits | 116/1,200 (10%) | 0.13 (0.01) | 28/271 (10%) | 0.17 (0.04) | |
| Inpatient days | 65/1,198 (5%) | 0.33 (0.09) | 17/273 (6%) | 0.17 (0.06) | |
| Outpatients appointments | 635/1,218 (52%) | 1.07 (0.09) | 130/272 (48%) | 0.88 (0.19) | |
| CNS medications | 273/1,192 (23%) | 0.28 (0.02) | 64/268 (24%) | 0.26 (0.03) | |
| Dementia medications | 859/1,202 (71%) | 0.75 (0.01) | 193/270 (71%) | 0.74 (0.03) | |

Bold indicates significant at the 5% level after Holm-Bonferroni correction. - denotes low numbers of 5 or fewer cases, these have been censored. A summary of respite care use is not presented because there are low numbers in both groups. CNS, central nervous system; CMH, Community mental health; OT, Occupational therapy; GP, General practitioner

Supplementary Table 7. Use of memory aids, telecare devices, activities of daily living equipment and adaptations, and mobility equipment and adaptations, by living arrangement

| Item | Living with others | | Living alone | | Statistics |
|------------------------------|--------------------|----|-----------------|----|--|
| | Expected=1,256 | | Expected=285 | | |
| | N users/valid N | % | N users/valid N | % | |
| <i>Any use</i> | | | | | |
| Yes* | 746/1,180 | 63 | 222/272 | 82 | $\chi^2(33.67)$, df=1, p<0.001 |
| <i>Uses equipment</i> | | | | | |
| Memory aids† | 126/1,180 | 11 | 76/272 | 28 | $\chi^2(55)$, df=1, p<0.001 |
| Falls prevention aids‡ | 126/1,180 | 11 | 108/272 | 40 | $\chi^2(137.78)$, df=1, p<0.001 |
| Activities of daily living§ | 588/1,180 | 50 | 177/272 | 65 | $\chi^2(20.6)$, df=1, p<0.001 |
| Mobility¶ | 525/1,180 | 44 | 163/272 | 60 | $\chi^2(21.12)$, df=1, p<0.001 |

Bold indicates significant at the 5% level after Holm-Bonferroni correction.

* Any use of equipment

† calendar clocks, medication dispenser reminders

‡ falls detectors, pendant alarms

§ bath seats, bed rails, commodes, over bath showers, incontinence pads, walk-in showers, toilet seats, perching stools

¶ grab/stair rails, outdoor rails, sticks, frames

Supplementary Figure 1. Predictive probabilities of living situation associated with use of each type of service or equipment.

