

HAGIS – Further information on sample and findings

HAGIS Sample

Of the total HAGIS sample, 685 of the 1057 participants were included in this analyses. This was due to some questions being asked in the self-completion questionnaire which was returned by 707 respondents, and due to missing values in some of the required variables. Sample descriptives of the participants included in this analyses are found in Table 1.

Table 1. HAGIS Sample descriptive statistics (those included in this analyses)

Descriptive Statistics	100% (685)
Sex	
Female (vs male)	55.3 (379)
Age	
50-59 years	21.2 (145)
60-69 years	35.0 (240)
70-79 years	29.6 (203)
80+	14.2 (97)
Marital Status	
Married/living with partner	66.1 (453)
Single (never married)	8.0 (55)
Divorced/Separated/Widowed	25.8 (177)
Education (highest level)	
None/primary	17.8 (121)
High School	39.1 (266)
Further Education	20.0 (136)
Higher Education (degree +)	23.1 (157)
Current Status	
Retired	67.4 (457)
Working	26.0 (176)
Other (Unemployed/ Sick/ Looking after family)	6.6 (45)

Research Methods

Data

Data were sourced from the Healthy Ageing in Scotland study – Scotland’s first comprehensive cohort study of older people in Scotland ². In its pilot phase, the study interviewed over 1,000 people aged 50 or over in Scotland. The study asks participants a wide variety of questions covering social, economic, and health issues. These include topics such as social connection and internet use.

Measures

Social Connectedness

As a measure of the count of social connections, participants were asked ‘How often do you meet your children/friends/other family?’ and ‘How often to you communicate (phone/text/email) with your children/friends/other family?’. Responses were coded as

More than once per month (where the participant answered *'Three or more times per week'*, *'Once or twice per week'*, *'Once or twice per month'*) and Less than once per month (where the participant answered *'Every few months'*, *'Once or twice per month'*, *'Less than once a year or never'*). Participants were also asked if they participate in any clubs or organised activities at a local or national level. Responses were *'Yes'* or *'No'*.

As a measure of the value placed on social connections, participants were asked *'How many of your children/friends/other family would you say you have a close relationship with?'*. The responses were coded as 0 = *'No close relationships'* or >1 = *'Has close relationship'*.

Demographic

Sex, Age, Marital Status, Education, and Current Status.

Email & Internet Use

Participants were asked a range of questions on how often they use the internet, where this was, on which device and for what purpose, as follows:

'On average how often do you use the internet or email?' For analyses the responses were coded as *Regular* (Every day, At least once per week, and At least once a month) or *Hardly Ever/Never* (At least once every 3 months; Less than every 3 months; or Never).

'In which of the following places have you used the internet or email in the last 3 months?' with the following possible responses: at home; at places of work (other than home); at a place of education; at another person's home; on the move; other place (library, internet cafe).

'On which of the following devices do you access the internet?' to include: desktop computer; laptop computer; tablet computer; smartphone; TV, other mobile device. Participants could also respond Don't Know or Do not access the internet.

'For which of the following activities did you use the internet in the last 3 months?' with responses to include: Sending/receiving emails; Finding information about goods & services; Searching for information for learning, research, fact finding; Finances (banking/paying bills); Shopping/buying goods or services; Selling goods or services over the internet (e.g. auctions); Use social networking (e.g. Facebook, Twitter, etc.); Creating, uploading or sharing content (YouTube, blogging or Flickr); News/newspaper/blog websites; Streaming/downloading live or on demand TV/Radio, music or ebooks.

Statistical Analyses

Statistical analyses were conducted using Stata v15. Profiles of social connectedness were generated using latent class analyses. These models used the social connectedness variables that included a count of the number of social interactions with children, friends, and other family. First, the number of profiles (classes) for social connectedness were estimated using goodness of fit statistics: BIC, LLR, p-value and parameters. Then participants were assigned to profiles according to the maximum probability of profile membership which is established using post hoc tests. Thereafter, it was possible to examine (previously unobserved) characteristics of the profiles of social connectedness.

Tests of association, using chi-square tests, between the profiles of social connectedness were conducted by modelling the:

- i) quality of social connection
- ii) demographic characteristics of sample
- iii) internet use variables

Table 2. Valued Social Connections

Valued Social Connections n (%)	Highly Connected ALL	Highly Connected Children	Highly Connected Friends	Connected Friends (No Children)	Connected Children & Friends (No Other Family)	Least Connected (No Friends & 1/3 No Children)	Statistical test of difference
How many children do you have a close relationship with?							
0	*	*	*	-	*	*	$\chi^2=27.51,$ $p=0.001$
1	50 (20.6)	20 (20.0)	29 (27.9)	-	11 (28.2)	*	
>2	191 (78.6)	79 (79.0)	68 (65.4)	-	24 (61.5)	11 (52.4)	
How many friends do you have a close relationship with?							
0	*	12 (12.1)	*	*	*	-	$\chi^2=15.77,$ $p=0.046$
1	25 (10.3)	16 (16.2)	14 (13.2)	11 (11.8)	*	-	
>2	212 (86.9)	71 (71.7)	84 (79.3)	75 (80.7)	26 (83.9)	-	
How many family members do you have a close relationship with?							
0	*	*	27 (25.7)	*	-	*	$\chi^2=81.45,$ $p<0.001$
1	46 (19.1)	30 (30.0)	30 (28.6)	24 (27.9)	-	*	
>2	189 (78.4)	67 (67.7)	48 (45.7)	53 (61.6)	-	15 (51.7)	

Note: * Values < 10

Table 3. Test of association between Social Connected Profiles and Use of Technology, n (%)

Use of Technology (n, %)	1 Highly Connected ALL	2 Highly Connected Children	3 Highly Connected Friends	4 Connected Friends (No Children)	5 Connected Children & Friends (No Other Family)	6 Least Connected (No Friends & 1/3 No Children)	Statistical test of difference
On average how often do you use the internet or email? <i>Regular</i> (v <i>Hardly Ever/Never</i>)	186 (77.2)	68 (68.7)	89 (86.4)	67 (73.6)	28 (75.7)	23 (69.7)	$\chi^2=10.27$, $p=0.068$
In which of the following places have you used the internet or email in the last 3 months?							
At home	182 (96.8)	68 (98.6)	88 (95.7)	67 (95.7)	27 (96.4)	21 (87.5)	$\chi^2=6.29$, $p=0.279$
At places of work (other than home)	44 (23.4)	17 (24.6)	20 (21.7)	20 (28.6)	6 (21.4)	6 (25.0)	$\chi^2=1.22$, $p=0.942$
At place of education	6 (3.2)	3 (4.4)	3 (3.3)	2 (2.8)	0 (0.0)	1 (4.2)	$\chi^2=1.33$, $p=0.932$
At another person's home	50 (26.6)	18 (26.1)	25 (27.2)	22 (31.4)	5 (17.8)	7 (29.2)	$\chi^2=1.99$, $p=0.851$
On the move	64 (34.0)	23 (33.3)	30 (32.6)	27 (38.6)	8 (28.6)	14 (58.3)	$\chi^2=7.00$, $p=0.221$
Other place (library/internet café)	20 (10.6)	4 (5.8)	12 (13.0)	19 (27.1)	4 (14.3)	2 (8.3)	$\chi^2=17.03$, $p=0.004$

On which of the following devices do you access the internet?							
Desktop computer	68 (27.8)	25 (25.0)	52 (49.1)	29 (31.8)	12 (30.8)	12 (36.4)	$\chi^2=18.75$, $p=0.002$
Laptop computer	114 (46.5)	40 (40.0)	52 (49.1)	37 (39.8)	13 (33.3)	13 (39.4)	$\chi^2=5.12$, $p=0.401$
Tablet computer	114 (46.5)	46 (46.0)	57 (53.8)	46 (49.5)	18 (46.2)	14 (42.4)	$\chi^2=2.39$, $p=0.802$
Smartphone	99 (40.4)	29 (29.0)	47 (44.3)	34 (36.6)	11 (28.2)	11 (33.3)	$\chi^2=7.80$, $p=0.168$
TV	29 (11.8)	13 (13.0)	5 (4.7)	10 (10.8)	3 (7.7)	6 (18.2)	$\chi^2=7.15$, $p=0.210$
Other mobile device	9 (3.6)	5 (5.0)	1 (0.9)	4 (4.3)	1 (2.6)	0 (0.0)	$\chi^2=4.40$, $p=0.493$
<i>For which of the following activities did you use the internet in the last 3 months?</i>							
Sending/receiving emails	171 (69.8)	60 (60.0)	86 (81.1)	63 (67.7)	27 (69.2)	19 (57.6)	$\chi^2=13.27$, $p=0.021$
Finding information about goods & services	157 (64.1)	55 (55.0)	81 (76.4)	58 (62.4)	25 (64.1)	19 (57.6)	$\chi^2=11.32$, $p=0.045$
Searching for information for learning, research, fact finding	128 (52.2)	50 (50.0)	72 (67.9)	50 (53.7)	19 (48.7)	15 (45.5)	$\chi^2=10.63$, $p=0.059$
Finances (banking/paying bills)	100 (40.8)	32 (32.0)	57 (53.8)	39 (41.9)	15 (38.5)	12 (36.4)	$\chi^2=10.86$, $p=0.054$

Shopping/buying goods or services	140 (57.1)	45 (45.0)	71 (67.0)	51 (54.8)	22 (56.4)	18 (54.6)	$\chi^2=10.30$, p=0.067
Selling goods or services over the internet (e.g. auctions)	22 (9.0)	1 (1.0)	10 (9.4)	5 (5.4)	1 (2.6)	1 (3.0)	$\chi^2=10.30$, p=0.067
Use social networking (e.g. Facebook, Twitter, etc.)	98 (40.0)	29 (29.0)	43 (40.6)	29 (31.2)	11 (28.2)	9 (27.3)	$\chi^2=7.83$, p=0.166
Creating, uploading or sharing content (YouTube, blogging or Flickr)	19 (7.8)	8 (8.0)	7 (6.6)	4 (4.3)	4 (10.3)	1 (3.0)	$\chi^2=2.87$, p=0.719
News/newspaper/blog websites	84 (34.3)	32 (32.0)	45 (42.5)	33 (35.5)	13 (33.3)	12 (36.4)	$\chi^2=3.01$, p=0.697
Streaming/downloading live or on demand TV/Radio, music or ebooks	70 (28.6)	21 (21.0)	38 (35.9)	28 (30.1)	10 (25.6)	9 (27.3)	$\chi^2=5.85$, p=0.320
Games	46 (18.8)	17 (17.0)	21 (19.8)	19 (20.4)	9 (23.1)	9 (27.3)	$\chi^2=2.11$, p=0.834
Looking for a job or job application	12 (4.9)	4 (4.0)	11 (10.4)	8 (8.6)	1 (2.6)	0 (0.0)	$\chi^2=9.07$, p=0.111

