

Running head: Validity of the ICECAP capability measure

**AN ASSESSMENT OF THE CONSTRUCT
VALIDITY OF THE DESCRIPTIVE
SYSTEM FOR THE ICECAP
CAPABILITY MEASURE FOR OLDER
PEOPLE**

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ABSTRACT

Background: The index of capability (ICECAP) was developed using in-depth interviews with 40 older people and comprises five attributes: attachment, security, enjoyment, role and control. This paper explores the construct validity of these five capability attributes.

Methods: An interview survey was conducted with individuals aged 65 and over located across the UK. Data were analysed in six categories (socio-demographic variables and general well-being; contact with others; health; nature of the locality and environment; social support; and participation) using chi squared tests (for categorical variables) or one way analysis of variance (for continuous variables).

Results: 315 individuals were interviewed (response rate 66%). Relationships were generally as anticipated with, for example: strong relationships between age and capability and well-being and capability, but no relationships between capability and either sex or social class; strong relationships between physical measures of health and role, enjoyment and control, and between mental health measures and attachment and enjoyment.

Conclusions: This study provides some early evidence for the construct validity of the ICECAP measure. Where anticipated relationships were not observed this might in part be explained in that the ICECAP index asks about capability but the factors with which associations were examined were largely and inevitably measures of function.

Key words: capability, construct validity, UK, older people

Abbreviations

HSE – Health Survey for England

INTRODUCTION

Capability theory, developed by Sen, suggests that functionings and capabilities are the important factors to take into account in evaluating policy interventions, rather than the standard economics position that welfare should be measured using people's preferences or utilities [1-7]. Whilst functioning may be important, more important in Sen's work are capabilities, because a person may be able to function in a particular way but may choose not to exercise that functioning. For example, a person fasting may have the same functioning as a starving person, but one has the capability to obtain food whilst the other does not [6]. Their capabilities are therefore different, and provide the most useful information for assessing the impact of a policy [1]. Methods for measuring capabilities in practice remain underdeveloped, however. As Robeyns concludes, all current applications have focused on functionings [8].

The initial aim of the ICECAP instrument was to develop a broad measure of quality of life for use in economic evaluation of health and social care interventions [9]. The work commenced with in-depth interviews investigating what was important to older people in their lives. An unexpected finding was that the quality of older people's lives was limited by a reduction in their *ability* to pursue the different attributes of quality of life [9]. This finding led the authors to link the work with the capabilities literature [1-7] and to develop an index of capability (called the ICECAP measure). Five conceptual attributes were developed from the qualitative work: attachment; role; enjoyment; security; and control.[9]. Further qualitative work was then conducted, to check meaning and clarify wording for the measure [10]. The resultant wording was: "love and friendship" (attachment); "doing something that makes you feel valued" (role); "enjoyment and pleasure" (enjoyment); "thinking about the future without concern" (security) and "being independent" (control). A survey was designed, piloted and analysed, to provide values for the quality of life

attributes [10]. This also provided an initial opportunity to examine the validity of the measure's descriptive system. This assessment of validity is reported here.

Validity is an important aspect of the development of an instrument. It assesses the extent to which the instrument measures what it purports to represent, and the degree to which it might be helpful in answering a particular questions. The ICECAP measure is intended to provide information for decisions about resource allocation across health and social care.

The measure should enable decision-makers to compare the value of the provision of social services such as meals on wheels with health interventions such as surgical replacement of hips and knees.

There are a number of types of validity [11]. *Criterion validity* examines a measure's performance in relation to an appropriate 'gold-standard' instrument. As is often the case for quality of life research, no gold-standard measure of capability exists. An alternative is *construct validity*, which represents whether relationships between the measure and other factors are those that would be anticipated *a priori* both in terms of observing relationships (in the anticipated direction) where they are expected and not observing them when they are not. There are clearly complications in evaluating construct validity for capability as many factors that might be assessed reflect functioning rather than capability, and this will have the effect of diluting relationships through the impact of the exercise of choices.

Equally clearly, however, functioning cannot occur without the pre-existence of a capability and for that reason, investigating construct validity by comparing data on functionings with data obtained from the capability index is worthwhile as strong relationships between functioning and capability would be expected. (As indicated earlier, to date, most empirical work within the capabilities literature has been concerned with measuring functionings.[8]) Further, the pattern of relationships is likely to be informative.

This paper considers construct validity for the ICECAP measure of capability for older people, across a large number of factors. As well as providing evidence for the validity of

the ICECAP descriptive system, the paper also presents some of the first information comparing perceived capability with functioning.

METHODS

This investigation was conducted alongside a study designed to obtain values for the index [12]. A survey was conducted with older people who, following completion of the valuation exercise, were asked to complete the descriptive measure for themselves. Ethics committee approval was obtained from MREC for Wales.

Sampling included those aged 65 and over, using the sampling frame of respondents to the Health Survey for England (HSE), a general population sample taken from the publicly available Postcode Address File stratified by Local Authority and the percentage of non-manual workers in the postcode sector. All respondents had previously been interviewed during HSE 2005 and had agreed to be reinterviewed. Previous interviews took place 1-6 months previously. Clusters of sectors were randomly selected from within fieldwork areas; all eligible people in selected areas were included.

Sample size was determined by the valuation exercise rather than the validity assessments, with the aim being to achieve at least 300 completed questionnaires. Sample size details can be found elsewhere.[12]

Data were collected by interviewer attending the respondent's home. Interviewers attended briefings prior to interviewing. Structured survey schedules were used, with information entered initially into SPSS. Data from the capability survey included respondents' completion of the survey schedule. From the main HSE, data available were: socio-demographic information; health; nature of locality and environment; social support; participation and contact with others; general well-being.

Data analysis

Associations between variables were investigated using chi-squared tests (for unordered or ordered categorical variables) or one-way analysis of variance (for continuous variables) in

Stata version 8 [13]. In the former, exact tests were used when computationally feasible; where this was not possible, data were recoded to increase numbers in individual cells. Throughout, two levels of significance have been noted. First, relationships significant at the 1% level have been taken as highly suggestive of an association between the ICECAP item and the relevant variable. Second, relationships with a significance level of between 1% and 10% have been noted, as being possibly suggestive of a relationship between the two variables. In forming a judgement about the strength or otherwise of relationships, patterns of percentages and means were considered as well as p-values, thus assessing magnitude and direction of relationships rather than just statistical significance.

Descriptive statistics are presented. For the assessment of construct validity, variables to be assessed against the ICECAP instrument were divided into six groups. *A priori* expected relationships between each of the ICECAP attributes and the variables in that group are detailed below. Expected relationships were based on the views of team members, who brought their knowledge of epidemiological relationships and previous assessments of validity for other measures, as well as detailed knowledge of the qualitative data from which the conceptual attributes of the ICECAP measure were obtained. It was difficult here to utilise other evidence because both the general nature of the measure (in terms of assessing general quality of life attributes) and the capability nature of the measure (in terms of assessing capability rather than functioning) mean that evidence obtained from studies of construct validity of functional health measures is difficult to apply. In all cases relationships were investigated between all attributes of the ICECAP instrument and each variable in each group; as expectations of others bringing different experiences may differ from those of the research team, others may assess their expectations against the findings, where these initial expectations differ from those reported here.

Socio-demographic characteristics and general well-being

It was anticipated that there would be weak evidence that age would be related to role and control as a result of increasing frailty with age, but that age *per se* would not impact on attachment, security or enjoyment which, from the qualitative data collected during the development of the ICECAP measure, did not seem to be related to age so much as other factors: health (enjoyment), wealth (security), the quality of relationships (security, attachment) [9]. It was anticipated that sex would not be related to these very general levels of capability in any systematic way among this population of older people in the UK: whilst there might be specific opportunities open to different members of the different sexes (for example, older women might have greater opportunities for achieving enjoyment through socialising with other women given the greater population of older women) these can be compensated for by other means of reaching the level of capability (for example, older men might reasonably achieve similar levels of enjoyment through other means such as gardening or doing crosswords).

Social class was reclassified into four groups to avoid problems with small numbers. It was difficult to predict the extent to which social class might be meaningful in this population of older people, given that social class is based on occupation and that many of the people included in the sample would not have worked for many years; no systematic relationships were therefore anticipated here. A question had also been asked about general well-being: “are you basically satisfied with your life?” It was anticipated that those who were not satisfied with their life would have reduced capability across a number of capabilities.

Contact with others

Measures of contact with others comprised: (1) whether the respondent lived with a marital partner; (2) frequencies of contact between the individual and relatives, friends and

neighbours. It was anticipated *a priori* that there would be strong evidence for these factors being related to an individual's attachment capability, and weaker evidence for relationships between these factors and security, enjoyment and role. It was not anticipated that these factors would be related to control.

Health

Measures of health from the HSE included: (1) a single question about general health; (2) a set of questions asking about diagnosis with particular conditions; (3) a question about pain; (4) a set of disability questions; (5) the EuroQol EQ-5D measure.

Health was identified in the earlier qualitative work [9] as an influence on capability. It was anticipated that the various assessments of physical health would show strong evidence of association with the capability attributes of control, role and enjoyment, weak evidence of association with security, and no association with attachment; further, that assessments of mental health would be likely to show strong evidence of association with attachment and enjoyment and, at most, weak evidence of association with control, role and security.

Nature of locality and environment

Information about the perceived characteristics of the respondents' local area included questions about neighbourliness, vandalism, leisure facilities and local transport. Any evidence of associations was anticipated to be weak, since the level of influence on a capability might be small in relation to the totality of influences upon a person's capabilities. Evidence of weak association was anticipated between neighbourliness and attachment and role, vandalism and security, leisure facilities and enjoyment, and local transport and control.

Social support

Measures of social support included objective and perceived social support measures. It was anticipated that objective measures of social support would indicate that the older person was less able to function physically than a person not in receipt of these forms of support, and that there would be a relationship between these measures and the capabilities of security, role, enjoyment and control. Other factors may influence whether a person actually receives such forms of support (for example, the presence of an informal carer, the desire to use state assistance) and so it was anticipated that such evidence would be weak. No relationship was anticipated between these measures and attachment.

Questions on perceived social support [14] were asked included: (1) people I know do things to make me feel happy; (2) people I know do things to make me feel loved; (3) people I know can be relied upon; (4) people I know will see that I am taken care of; (5) people I know accept me just as I am; (6) people I know make me feel important and (7) people I know give me support and encouragement. It was anticipated that there would be strong evidence of association between all statements and the attachment capability, and strong evidence of association between statements (3) and (4) and the security capability and between statement (6) and role. No other associations were anticipated.

Participation

The HSE contained questions relating to individuals' participation in particular organisations. It was anticipated that there would be strong evidence of association between participation and enjoyment and weak evidence of association between participation and attachment. As lack of independence might make participation difficult, weak evidence of association between control and participation was also anticipated. A second measure of participation was the provision of informal care. Strong evidence of an

association between this measure and role, and weak evidence of an association between this measure and both attachment and control were anticipated.

RESULTS

Data were collected between October 2005 and January 2006. 478 individuals were sampled; 315 (66%) produced fully productive interviews. Six interviews were abandoned part way through (1%). Non-responders were categorised as refusals (n=105, 22%), unavailable through illness, incapacitation, death or house move (n=37, 8%) and not contactable or where the wrong person was interviewed (n=14, 3%).

The majority of respondents were female (177, 56.2%), ranging in age from 65 to 95 (mean 74.6, SD 6.43). The majority lived with a spouse (168, 53.3%) and their mean EQ-5D score was 0.76 (SD 0.270). Table 1 shows a spread of responses across the capability levels.

Socio-demographic characteristics and general well-being

Table 2 shows relationships between socio-demographic characteristics, general well-being and the five capability constructs.

Evidence for relationships between age and capability was stronger than anticipated, with highly significant relationships between age and role, and between age and control. There was also an unanticipated less significant relationship between age and enjoyment.

Relationships are as expected for the highest three capability levels, with those in the higher levels of capability having a lower mean age than those with lower capability levels (data not shown). In all three cases, however, this does not hold for the lowest capability level although this may be an artefact of the data, given the small numbers (fewer than 15) for the lowest level of capability in all three groups. As anticipated, there were no associations between age and either attachment or security.

As anticipated there were no relationships between sex and any capability attribute. Nor were there relationships between social class and capability, apart from a weak relationship

between social class and security, such that a larger proportion of those in lower social groups thought about the future with a lot of concern. Given the problems in basing social class on occupation amongst this age group, the information may not offer evidence of construct validity so much as indicating the problems of assessing social class amongst this group.

As anticipated, there was strong evidence of relationships between general well-being and three capability attributes, and weak evidence of relationships between general well-being and the remaining two. Those who were dissatisfied with their life were more likely to have a lower capability level. The general well-being measure, however, had only two response categories (yes and no) and of the 297 who answered this question, only 17 stated that they were not basically satisfied with their life, suggesting low discriminatory power.

Contact with others

Although the associations between capabilities and living with a marital partner were largely expected, results for the other questions here were surprising, with stronger evidence of associations between these contact variables and both role and enjoyment and only weaker or no evidence of, relationships between contact variables and attachment and security. Some weak evidence of relationships between control and contact variables were noted. Where relationships were observed they were in the anticipated direction, that is, higher frequency of contact was associated with greater capability.

Health

There was strong evidence of association of general health with all capability attributes except attachment (weak evidence of association). The evidence for relationships was generally strongest between physical health measures and role, enjoyment and control, and between mental health measures and attachment and enjoyment. Disability reflecting

mobility problems showed stronger evidence of association with capabilities than sensory disability. Throughout, poorer health was associated with lower capability.

Table 3 shows that EQ-5D values are strongly and clearly related to the attributes of enjoyment and control, with low values for lower levels of capability and higher values for higher levels. For role and security the picture is more mixed, with the highest level for security not following the expected pattern and, similarly, the lowest level for role not following the expected pattern. There was no relationship between the EQ-5D value and attachment.

Nature of locality and environment

There was no strong evidence of relationships within this category (table 2). Anticipated weak evidence of relationships was observed between neighbourliness and both attachment and role (with greater neighbourliness being associated with higher capability, as expected). Unanticipated relationships were observed between neighbourliness and enjoyment and between vandalism and attachment.

Social support

A very small number of people had received local authority assistance in the previous month (maximum 8 in any category). Formal statistical testing is therefore not valuable.

There was strong evidence that four capabilities were associated with the receipt of informal care. These relationships were not unexpected but such strong evidence was not anticipated. Of particular interest, those receiving informal care had lower levels of enjoyment, control and role, but there were higher proportions in both the highest and lowest category of the security capability (table 4). This may well be combining two aspects of the receipt of informal care: receiving informal care means that you are likely to

be in ill health and may be concerned about your future; on the other hand, those receiving informal care may be secure in the knowledge that someone will look after them.

As indicated in table 2, relationships between measures of perceived social support and capabilities were largely as anticipated although perhaps with weaker evidence than expected; for example, there was only strong evidence that attachment was related to two measures, with weak evidence that it was related to another four. Four variables also showed weak evidence of association with the enjoyment capability, and support and encouragement showed strong evidence of an association with role (table 2).

Participation

Participation in organisations/activities appeared to be largely associated with capabilities as expected so that, for example, those with lower enjoyment capability were less likely to participate. Surprisingly, however, there was no evidence of relationships between the providing informal care and any of the capabilities.

DISCUSSION

These findings provide some early evidence of associations between the capability measure and measures of functioning. In general, relationships anticipated *a priori* were observed, suggesting that the ICECAP measure is measuring what it is expected to measure. As noted earlier, a measure of capability would be expected to correlate at a population level with measures of functioning, but not exactly because of the element of choice involved for any individual. Nevertheless, it would be expected that where the capability is measuring what it is intended to measure, there would be a high degree of correlation between relevant functionings and capabilities. One area of the validity assessment where the element of choice *may* have been apparent is in terms of attachment. Some people assessed themselves as having a high attachment capability, but without this necessarily translating into a functioning in terms of the number of times they made contact with people by telephone or in person. Further, because each of the capabilities is written at a relatively abstract level, many factors are likely to impinge on the person's assessment of their capability – for example, enjoyment may be affected by health, wealth, having friends to participate in activities with, and having organised activities to participate in. Associations between these single items and the particular capability measure may not therefore be strong, particularly if capability can be achieved in a variety of ways by different individuals. These results cannot be compared with those of other studies because this is the first attempt to assess the validity of any index of capability, including the ICECAP measure.

This work has a number of limitations. First, the capability survey was conducted a number of months following the initial HSE survey. Associations will therefore be attenuated by changes in personal circumstances. Among this population changes may relate particularly to health deterioration and bereavement. Second, this work depended on

variables already collected through the HSE which itself focused upon health variables. Fewer other variables that may be important influences on capability (bereavement, wealth, income, etc.) were available and this work therefore forms a partial assessment of construct validity. Third, it was not possible to distinguish between cause and effect. For example, enjoyment was strongly associated with participation in organised activities, with those who did not have a high level of enjoyment being relatively unable to participate. However, this might have been through poor health, or simply because no organised activities were available. Assessing simultaneous associations for many factors with a given capability attribute might provide insight into this issue.

A number of avenues are available for further testing the construct validity of the ICECAP questionnaire. First, it could be tested against questions designed to ask about both capability and functioning, as a means of seeing how far it is a measure of capability rather than functioning. Second, it could be tested against other measures of capability as these are developed. In the absence of questions specifically about capability, further work could attempt to look at the relationship between variables in the context of information about an individual's capacity to exercise choice. There were a number of variables in the current dataset that partially capture issues of choice – for example, the control capability (asked in terms of independence) or information about benefits received (a proxy for income, which could in turn be expected to influence choice, but which was affected by small numbers here). None of these were felt, however, to fully capture the essence of the freedom to make choices for each of the different capabilities. Further research could, therefore, collect information about freedom of choice as well as capabilities, which might enable the influence of choice on capability and functioning to be assessed. An alternative means of assessing the capability element of the ICECAP measure would be to conduct a survey asking the ICECAP questions both in terms of functioning (e.g. I am completely independent) and capability (I am able to be completely independent) to see where differences appear. Further research could also look at the influence of different factors on

capability sets as a means of identifying those factors that restrict freedom of choice to exercise capabilities.

The empirical assessment of capability using quantitative measures is at an early stage with many challenges remaining. This paper uses the traditional assessment of construct validity to compare capabilities with functionings. Many anticipated relationships were observed, which is reassuring. Where relationships were anticipated but not found, there is inevitably some question as to whether this is because the measure does not assess capability well in a particular domain, or whether there are other reasons for the measure not appearing to correlate. This might be either because the functionings chosen are ones that people with a particular capability do not choose to exercise - as indicated earlier, however, it would be expected that functionings and capabilities are strongly related – or because the capabilities are at a higher level of generality than the functionings included in the HSE.

Despite some conceptual and philosophical concerns the measure does seem, largely, to be measuring what it was anticipated to measure. This work therefore provides some support for its use in evaluation. Older people were able to complete the measure without difficulty, suggesting that its use among this population is feasible, at least in a general population setting. Future work should consider the reliability of assessments, use of the measure among particular frail groups of older people, and sensitivity to change. As other measures of capability become available, the instrument should also be measured against these tools.

Table 1: Responses of the general population sample (n=315) to the ICECAP questionnaire

Attribute	Frequency (%)	
Attachment		
I can have all of the love and friendship that I want	179	(57.0%)
I can have a lot of the love and friendship that I want	95	(30.2%)
I can have a little of the love and friendship that I want	28	(8.9%)
I cannot have any of the love and friendship that I want	12	(3.8%)
Missing	1	
Security		
I can think about the future without any concern	59	(18.7%)
I can think about the future with only a little concern	122	(38.7%)
I can only think about the future with some concern	95	(30.2%)
I can only think about the future with a lot of concern	39	(12.4%)
Role		
I am able to do all of the things that make me feel valued	82	(26.1%)
I am able to do many of the things that make me feel valued	149	(47.4%)
I am able to do a few of the things that make me feel valued	72	(22.9%)
I am unable to do any of the things that make me feel valued	11	(3.5%)
Missing	1	
Enjoyment		
I can have all of the enjoyment and pleasure that I want	74	(23.5%)
I can have a lot of the enjoyment and pleasure that I want	162	(51.4%)
I can have a little of the enjoyment and pleasure that I want	66	(21.0%)
I cannot have any of the enjoyment and pleasure that I want	13	(4.1%)
Missing	1	
Control		
I am able to be completely independent	122	(38.7%)
I am able to be independent in many things	130	(41.3%)
I am able to be independent in a few things	56	(17.8%)
I am unable to be at all independent	7	(2.2%)

Table 2: Test of associations (p values) between capabilities as measured by the ICECAP questionnaire, and other characteristics (n=315), using chi squared test and across all capability levels (unless otherwise indicated)

	Attachment	Security	Role	Enjoyment	Control
Socio-demographic characteristics and general well-being					
Age (n=314)	0.38	0.72	<0.001**	0.018*	0.002**
Sex (n=315)	0.64	0.17	0.89	0.75	0.44
Social class (n=309) ^b	0.79	0.054*	0.29	0.12	0.27
General well-being (n=294) ^a	<0.001**	0.001**	0.031*	<0.001**	0.092*
Contact with others					
Living with marital partner (n=315)	0.003**	0.86	0.016*	0.21	0.77
Frequency speak to relatives by phone (n=315) ^b	0.37	0.24	0.51	0.32	0.42
Frequency speak to friends by phone (n=314) ^b	0.049*	0.13	0.012*	0.004**	0.012*
Frequency speak to neighbours (n=313)	0.19	0.38	0.001**	<0.001**	0.21
Frequency of meeting relatives (n=314) ^b	0.054*	0.78	0.48	0.018*	0.64
Frequency meet friends (n=313) ^b	0.23	0.59	0.001**	<0.001**	0.078*
Health					
Health in general (n=315) ^b	0.013*	0.24	<0.001**	<0.001**	<0.001**
Diagnosed chronic lung disease (n=315)	0.023*	0.14	0.092*	<0.001**	<0.001**

Diagnosed asthma (n=315)	0.96	0.054*	0.43	0.006**	0.012*
Diagnosed arthritis (n=315)	0.28	0.24	0.010**	0.040*	0.52
Diagnosed osteoporosis (n=315)	0.93	0.79	0.11	0.42	0.11
Diagnosed cancer (n=315) ^a	0.031*	0.76	0.66	0.81	0.19
Diagnosed emotional, nervous, psychiatric problem (n=315) ^a	0.003**	0.25	0.44	0.47	0.14
Severity of pain (n=315)	0.84	0.71	<0.001**	0.018*	0.035*
Mobility: use of walking aid (n=314)	0.066*	0.40	<0.001**	0.003**	<0.001**
Disability: unable to walk 200 yards (n=315)	0.002**	0.58	<0.001**	<0.001**	<0.001**
Disability: ability to climb 12 stairs (n=315)	0.004**	0.025*	<0.001**	<0.001**	<0.001**
Disability: hearing ^a (n=315)	0.42	0.09*	0.92	0.66	0.57
Disability: sight ^a (n=315)	0.070*	0.39	0.006**	0.080*	<0.001**
EQ-5D: mobility(n=301)	0.33	0.57	0.001**	<0.001**	<0.001**
EQ-5D: self-care(n=300) ^a	0.15	0.019*	0.008**	0.027*	<0.001**
EQ-5D: usual activities(n=302) ^a	0.12	0.23	0.003**	<0.001**	<0.001**
EQ-5D: pain/discomfort(n=303)	0.36 ^a	0.45	0.001**	<0.001**	0.001**
EQ-5D: anxiety/depression(n=300) ^a	0.004**	0.001**	0.044*	<0.001**	0.034
EQ-5D: overall value(n=292) ^c	0.42	0.008**	<0.001**	<0.001**	<0.001**

Nature of locality and environment					
Neighbourliness (n=305) ^b	0.033*	0.83	0.025*	0.022*	0.26
Problems with vandalism (n=308) ^b	0.042*	0.16	0.14	0.65	0.78
Good leisure facilities (n=285) ^b	0.86	0.62	0.47	0.12	0.25
Good local transport (n=301) ^b	0.52	0.51	0.54	0.39	0.13
Social support					
Received informal care (n=315)	0.65	0.003**	<0.001**	<0.001**	<0.001**
Perceived support: make me feel happy (n=299) ^a	0.033*	0.96	0.50	0.047*	0.19
Perceived support: make me feel loved (n=300) ^a	<0.001**	0.14	0.39	0.071*	0.24
Perceived support: can be relied upon (n=300) ^a	0.020*	0.15	0.20	0.11	0.85
Perceived support: taken care of (n=300) ^a	0.019*	0.061*	0.40	0.47	0.98
Perceived support: accept me (n=298) ^a	0.26	0.46	0.40	0.035*	0.63
Perceived support: make me feel important (n=299) ^a	0.06*	0.077*	0.012*	0.30	0.76
Perceived support: support and encouragement (n=299)	<0.001**	0.15	0.01**	0.091*	0.093*
Participation					
Participation in organisations (n=315)	0.025*	0.35	0.38	0.002**	0.015*

Provision of informal care (n=301)	0.59	0.77	0.38	0.50	0.16
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** Strong association - significant at the 1% level or higher; * Weak association - significant at between the 1% level and the 10% level

a – using exact test

b – combining lowest and second lowest capability levels to avoid small numbers

c – using one way analysis of variance

Table 3. Distribution of EQ-5D values across levels of capabilities (n=314)

Attribute	Mean EQ-5D
Attachment	
I can have all of the love and friendship that I want	0.77
I can have a lot of the love and friendship that I want	0.76
I can have a little of the love and friendship that I want	0.68
I cannot have any of the love and friendship that I want	0.73
Security	
I can think about the future without any concern	0.76
I can think about the future with only a little concern	0.80
I can only think about the future with some concern	0.76
I can only think about the future with a lot of concern	0.63
Role	
I am able to do all of the things that make me feel valued	0.84
I am able to do many of the things that make me feel valued	0.77
I am able to do a few of the things that make me feel valued	0.63
I am unable to do any of the things that make me feel valued	0.74
Enjoyment	
I can have all of the enjoyment and pleasure that I want	0.85
I can have a lot of the enjoyment and pleasure that I want	0.77
I can have a little of the enjoyment and pleasure that I want	0.65
I cannot have any of the enjoyment and pleasure that I want	0.56
Control	
I am able to be completely independent	0.84
I am able to be independent in many things	0.75
I am able to be independent in a few things	0.63
I am unable to be at all independent	0.49

Table 4. Cross-tabulation showing percentages receiving informal care with the four capabilities of security, role, enjoyment and control

Attribute	Received informal care	Did not receive informal care
Security		
I can think about the future without any concern	32%	15%
I can think about the future with only a little concern	32%	40%
I can only think about the future with some concern	18%	33%
I can only think about the future with a lot of concern	18%	11%
Role		
I am able to do all of the things that make me feel valued	10%	30%
I am able to do many of the things that make me feel valued	34%	51%
I am able to do a few of the things that make me feel valued	53%	15%
I am unable to do any of the things that make me feel valued	3%	4%
Enjoyment		
I can have all of the enjoyment and pleasure that I want	13%	26%
I can have a lot of the enjoyment and pleasure that I want	42%	54%
I can have a little of the enjoyment and pleasure that I want	35%	17%
I cannot have any of the enjoyment and pleasure that I want	10%	3%
Control		
I am able to be completely independent	11%	45%
I am able to be independent in many things	44%	41%
I am able to be independent in a few things	40%	12%
I am unable to be at all independent	5%	2%

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