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ORIGINAL ARTICLE

Measuring and valuing quality of life for public health research: application of the ICECAP-O capability index in the Australian general population

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Abstract
Objectives To assess the applicability of the newly developed ICECAP-O capability index in the measurement and valuation of quality of life in a large community based sample of the Australian general population. With origins in Sen's capability theory, the ICECAP-O may more fully encapsulate the multi-dimensional outcomes of public health policies and interventions than traditional health economic constructs.
Methods 2,937 Australian residents participated in face-to-face interviews. The relationships between ICECAP-O scores according to age groups (<65 or >65 years) and socio-economic status were investigated using descriptive statistics and multivariable linear regression models.
Results Lower income levels and being unemployed or physically unable to work were negatively associated with capability for both age groups. Capability was strongly and positively associated with marriage and cohabitation in the younger age group, whilst being Australian-born was a positive indicator for the older group.
Conclusions The results provide insights into the assessment of capability in the Australian general population. The ICECAP-O shows promise for application in the measurement and valuation of quality of life in general population surveys, and incorporation into economic evaluations of public health interventions.

Keywords Quality of life · Capability · Health economics · Age groups · Public health

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Introduction

The measurement and valuation of quality of life in community based general population samples have become one of the main activities of public health research, informing resource allocation decisions relating to the promotion of population health and well-being (Ravens-Sieberer 2002). Health-related quality of life, most notably the quality adjusted life year (QALY) is increasingly being applied as a measure of health status in general population surveys and in clinical studies of health care interventions (Kurth and Ellert 2002). However, a recent review article by Lorgelly et al. (2010) highlighted that the QALY, with its narrow focus upon health utility gains, may be inadequate in capturing other outcomes which are important to quality of life. The outcomes of many public health interventions may extend beyond health to encompass quality of life more broadly where this is assumed to encompass the broad range of factors that are important to people throughout the course of their life. For example, the provision of independent living accommodation for older people may promote feelings of security whilst maintaining

independence thereby improving their quality of life. A focus upon QALYs which encapsulate "health related" quality of life impacts alone would likely under-estimate the relative benefits of this and many other public health interventions when compared to health care interventions.

The ICECAP-O index of capability is a new instrument for the measurement and valuation of quality of life designed to be applicable in economic evaluation across sectors including health, social and aged care for clinical and community based interventions. The potential for the instrument to be applied in providing guidance on the effectiveness and cost effectiveness of public health interventions is currently being investigated by the instrument developers in the UK (Coast 2011).

The ICECAP-O has its origins in Sen's capability theory which suggests that well-being should be measured not according to what individuals actually do (i.e. their functionings) but what they are able to do (i.e. their capabilities) (Sen 1993). The approach is therefore based on a view of living as a combination of various 'doings and beings', with quality of life to be assessed in terms of the capability to achieve valuable functionings (Lorgelly et al. 2010). An example of the distinction between functionings and capabilities is to compare two people who are starving, one due to fasting and one because food is unavailable. Both have the same level of functioning (they are both starving). However, one person has the capability to obtain food whilst the other does not. Their capabilities are therefore different; Sen argues that their relative capabilities provide the most useful information for assessing the impact of a policy (Robeyns 2003).

Methods for measuring capabilities in practice remain underdeveloped. However, the recent development of the ICECAP-O instrument has provided a mechanism for the measurement of capability at a population level (Coast et al. 2008a, b). The ICECAP-O incorporates five attributes (attachment, security, role, enjoyment and control); each consisting of four levels (Fig. 1). For each attribute, participants indicate which level they believe most closely corresponds to their life at present. The attributes were developed according to the findings of qualitative interviews with older people focusing on aspects of their lives that they valued and derived the most enjoyment from (Grewal et al. 2006).

The ICECAP-O is also amenable to valuation as it has a preference-based scoring algorithm attached to it ranging from 0 (no capability) to 1 (full capability) (Coast et al. 2008a). This allows a single index value to be calculated for all possible capability states defined by the instrument. It is this capacity for both the *measurement* and *valuation* of quality of life which, in principle, enables the ICECAP-O to be placed in an economic evaluation framework for estimating the cost effectiveness of interventions across sectors including its potential for application in estimating the effectiveness and cost effectiveness of public health interventions. However, it is important to note that the index values for ICECAP-O do not represent QALY quality–quantity trade-offs (Rowen et al. 2011). In addition, there is no consensus that the ICECAP-O values are cardinal: whilst the ICECAP-O levels allow conceptualisation of the top and bottom states as "full" (1) and "no" (0 capability); since a within (rather than between)-state valuation task was used, it could be argued that the values have interval, not ratio properties (Flynn et al. 2011).

Whilst it was originally developed for use with older adults aged 65 and above, pilot testing has shown that the wording and formatting of the ICECAP-O instrument make it highly appropriate for application with all Australian adults (Flynn et al. 2010a). Indeed, the ICECAP-O is currently being applied with adults of all ages in a variety of clinical, social and aged care settings in several countries including Australia and New Zealand (Coast 2011). However, its application in the context of public health research remains in its infancy. To our knowledge, this is one of the first studies internationally to examine its potential for the measurement and valuation of quality of life in a community general population sample.

This study builds upon the existing work that has been undertaken in the UK to establish the construct validity of the ICECAP-O descriptive system and is complemented by on-going research by Flynn and colleagues to establish an Australian general population-based scoring algorithm for the ICECAP-O (Coast et al. 2008a, b; Flynn et al. 2010a, 2011).

The main objective of the study was to assess the applicability of the ICECAP-O capability index in the measurement and valuation of quality of life in a community based sample of the Australian general population. An important additional objective of the study was to assess the ability of the ICECAP-O in differentiating capability levels within the Australian general population according to a number of key socio-demographic characteristics.

Methods

The Health Omnibus Survey is a face-to-face survey conducted annually in South Australia to obtain social statistics for use in the planning, implementation and monitoring of health-related initiatives. Questions are submitted for inclusion in the survey by government and non-government organisations with an interest in health and quality of life research. The cost of undertaking the survey is shared amongst these organisations, with each paying a fee determined by the number of questions they have submitted (Harrison Research 2010).

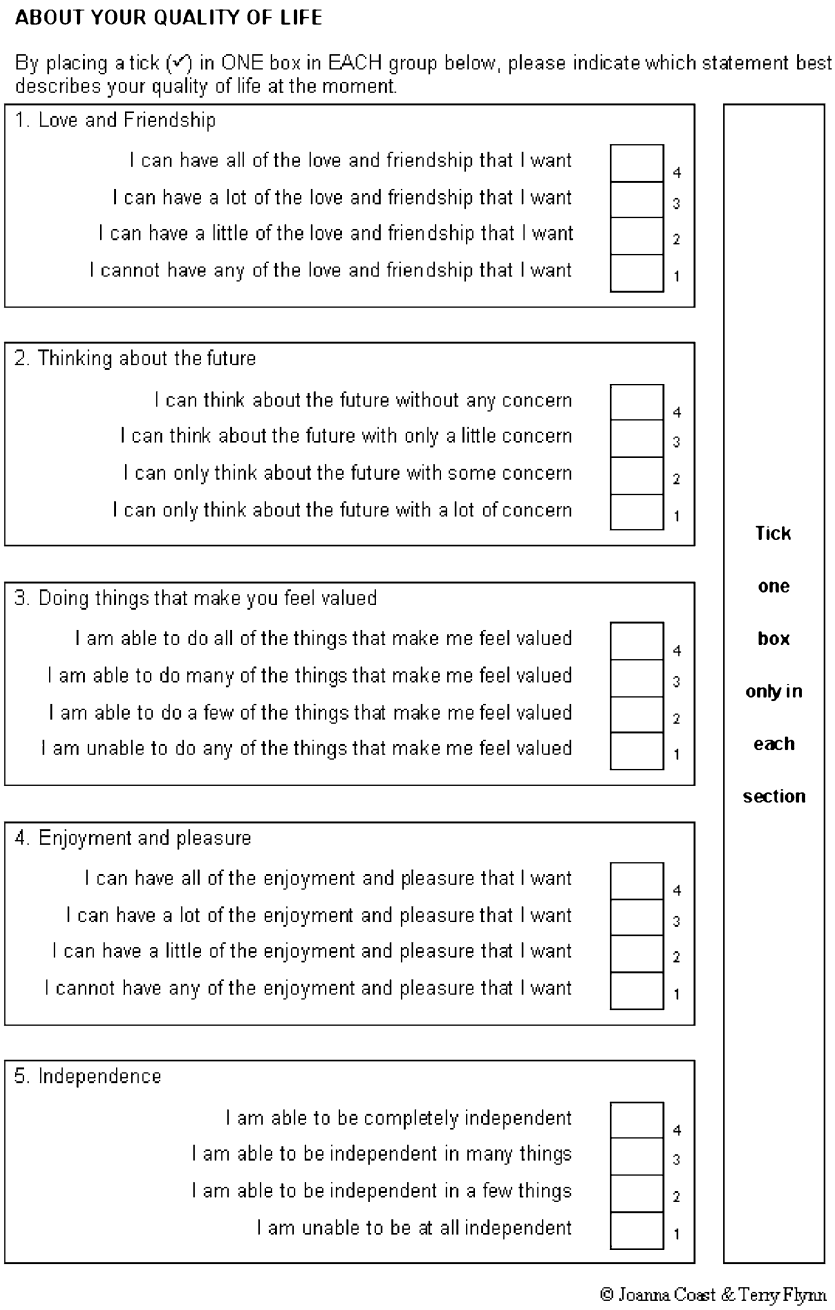

Fig. 1 The ICECAP-O index of capability (South Australia, 2009). *ICECAP-O* ICEpop CAPability index

For the 2009 survey, a multi-stage systematic area sample was conducted which resulted in the selection of 5,200 randomly chosen households. Of these, 74 % were located in metropolitan areas; the remaining 26 % were chosen from regional areas with populations of 1,000 or more. From each of the selected households, one person aged 15 years or older was randomly selected to participate in the Health Omnibus Survey. The survey was conducted as a face-to-face interview in the participant's own home. Households were classified as a non-contact if the interviewer was unable to make contact with the residents after a minimum of six visits to the household.

The survey was conducted following approval by the South Australian Department of Health Ethics Committee and was overseen by a quality control committee. In addition to responses to the ICECAP-O questions, data were collected on socio-demographic variables including age, gender, country of birth, marital status, area of residence, household income, level of education and status and field of employment. Individual responses to the ICECAP-O instrument were converted to a single index score ranging from 0 (no capability) to 1 (full capability) for each individual respondent by applying the existing preference-based scoring algorithm (Fig. 1 above). Descriptive statistical

methods were then employed to analyse the ICECAP-O scores of the participants who completed the instrument by younger and older age groups (dichotomised as <65 years or ≥65 years) according to categories of key socio-demographic variables. Categorisation into younger and older age groups enabled a demographic 'snap-shot' description of the quality of life of the South Australian general population as measured by the ICECAP-O. It also facilitates future comparisons of the quality of life of younger and older adults living in the community with the quality of life achieved through the introduction of clinical and public health interventions across a range of sectors.

The socio-economic status of all individual participants was classified according to the Socio-Economic Indexes for Areas (SEIFA), a series of four indexes which rank the geographic area in which the individual resides according to details obtained from the Census of Population and Housing (Pink 2006a). Each geographic area is assigned a score which indicates how disadvantaged that area is in comparison to other areas within Australia, with lower scores indicating higher levels of disadvantage. Levels of disadvantage and advantage are determined according to income, education, employment, occupation, housing (high mortgage, high or low rent, residing in government housing and overcrowding), internet access, car ownership, disability and single parenthood (Pink 2006b). Participants in this study were grouped into quartiles according to the scores assigned to their residential postcode at the time of interview using the SEIFA Index of Relative Socio-economic Advantage and Disadvantage. The quality of life of the participants was then analysed in relation to these socio-economic quartiles.

A series of multivariable ordinary least squares (OLS) linear regression models were also applied to further examine the relationship between ICECAP-O scores and the various socio-demographic variables for younger and older age groups. The regression models included the ICECAP-O score as the dependent variable and a series of dummy variables reflecting socio-demographic characteristics as the independent variables. Ideally, the categorisation of socio-demographic variables and the expected relationships between these variables and quality of life would be based upon prior empirical evidence derived from studies applying other capability and/or preference-based instruments in similar settings (Flynn 2011). However, this was not possible for this study due to the lack of previous empirical research in capability and the application of preference-based instruments in this context. The model selection was therefore informed by variables which had been found to be potentially influential on quality of life in other works such as those reviewed by Brown and colleagues (Brown et al. 2004). The explanatory variables included in the regression model and presented here were:

- Gender
- Country of birth
- Aboriginal and Torres Strait Islander status
- Residential area (regional or metropolitan)
- Living alone
- Employment status
- Highest educational qualification obtained
- Average annual household income
- Socio-economic status.

It was hypothesised that quality of life within both younger and older age groups would be influenced by marital, residential and socio-economic status (with those who were married, living in a metropolitan area or an area of relative socio-economic advantage having higher scores on average) and would be positively influenced by education, employment and income levels.

Results

From the 5,200 selected households, 3,007 individuals agreed to participate and provided informed consent. This equates to a response rate of 59.3 %. Of the 3,007 participants, 2,937 (98 %) were adults aged 18 years or older. The characteristics of the adult participants are described in Table 1. The mean age of participants was 51.6 years (range 18–98 years) and 59.9 % ($n = 1{,}758$) were female. The majority were born in Australia (71.3 %; $n = 2{,}094$), did not identify as being Aboriginal or Torres Strait Islander (98.3 %; $n = 2{,}887$), were married or living in a de facto relationship (57.9 %; $n = 1{,}701$), and did not live alone (69.7 %; $n = 2{,}046$). In relation to employment and education, 53.9 % ($n = 1{,}584$) were employed on a full-time basis and 57.7 % ($n = 1{,}696$) had obtained a tertiary qualification. The greatest proportion of participants resided in a household with an average income ranging from $20,001 to $60,000 per annum (29.3 %; $n = 862$).

The ICECAP-O demonstrated a high completion rate (99.5 %; $n = 2{,}923$) and the overall mean ICECAP-O score was 0.838 (SE 0.004). The mean ICECAP-O score of participants aged below 65 years (0.841; SE 0.003) was slightly higher than for older participants aged above 65 years (0.831; SE 0.006); these differences were not found to be statistically significant. Figure 2 represents the frequency distribution of scores for the ICECAP-O for all participants who completed the instrument. It can be seen that the capability reported by the participants ranged from no capability (a score of 0) to full capability (a score of 1). Whilst the majority of participants demonstrated high levels of capability, a minority were at the lower end of the scale with 31 participants, having ICECAP scores below 0.40.

Table 1 Participant Characteristics ($n = 2{,}937$) (South Australia, 2009)

Variable	Sample size
Gender	
Male	1,179
Female	1,758
Age	
18–64 years	2,148
65 years and above	789
Area of residence	
Metropolitan	2,278
Regional	659
Country of birth	
Australia	2,094
Other	836
Aboriginal or Torres Strait Islander status	
Aboriginal and/or Torres Strait Islander	37
Not Aboriginal and/or Torres Strait Islander	2,887
Marital Status	
Married or de facto	1,701
Separated or divorced	393
Widowed	339
Never married	495
Income	
≤$20,000	511
$20,001–$60,000	862
$60,001–$100,000	605
≥$100,001	430
Living alone	
Living alone	891
Not living alone	2,046
Work status	
Work full-time or part-time	1,584
Home duties	226
Unemployed	38
Retired	840
Student	77
Other	38
Not working due to disability or work-related injury	129
Highest qualification	
Currently studying	105
Primary or secondary school	1,127
Tertiary studies	1,696

Table 2 compares the mean ICECAP-O scores across younger ($n = 2{,}137$) and older ($n = 786$) age groups according to key socio-demographic variables. Younger participants born in a country other than Australia exhibited higher ICECAP-O scores on average than older people born outside of Australia to a statistically significant level

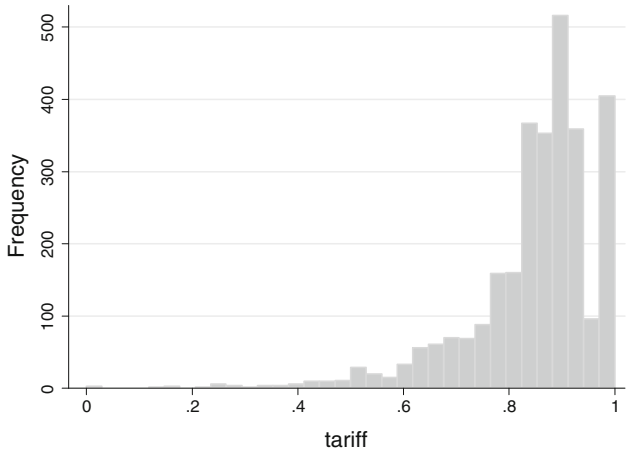

Fig. 2 Histogram of ICECAP-O scores ($n = 2{,}923$) (South Australia, 2009). *ICECAP-O* ICEpop CAPability index

($P < 0.05$). Younger participants residing in areas of higher socio-economic status also had statistically significantly higher ICECAP-O scores than older participants residing in areas of higher socio-economic status ($P \leq 0.05$). There was also a clear differentiation in mean ICECAP-O scores according to average household income levels for both the younger and older age groups, although the magnitude of the differences in mean ICECAP-O scores differentiated by average household income levels was more marked for the younger age group. Older participants with an annual income of $20,000 or less exhibited higher ICECAP-O scores on average than younger participants in the same category and these differences were found to be highly statistically significant ($P \leq 0.001$).

Tables 3 and 4 document the results of the multivariable regression analyses for the younger and older age groups, respectively. For each age group, the ICECAP-O scores were the dependent variables and the key socio-demographic characteristics were independent variables. Within the younger age group, (Table 3) the socio-demographic characteristics associated with statistically significant variations in overall ICECAP-O scores included marital status (with those participants who were married having higher scores on average compared to those who had never been married, or were separated or divorced), employment status (with those individuals who were not working due to injury or illness having lower scores on average than those in employment) and income (with those in higher income categories having higher scores on average than those in the lowest income category).

Within the older age group (Table 4), the socio-demographic characteristics which were associated with statistically significant variations in overall ICECAP-O scores included country of birth (with those participants who were born in Australia having higher scores on

Table 2 Mean ICECAP-O scores by categories of key variables ($n = 2{,}923$) (South Australia, 2009)

Socio-demographic variable	Below 65 years ($n = 2{,}137$)				65 years & above ($n = 786$)				Significance (P value)
	Mean	Lower 95 % CI	Upper 95 % CI	N	Mean	Lower 95 % CI	Upper 95 % CI	N	
Gender									
Male	0.832	0.821	0.843	875	0.821	0.799	0.843	298	0.371
Female	0.845	0.837	0.853	1,262	0.836	0.822	0.850	488	0.290
Area of residence									
Metropolitan	0.842	0.835	0.849	1,682	0.826	0.811	0.840	585	0.055
Regional	0.836	0.821	0.850	455	0.849	0.832	0.865	201	0.234
Country of birth									
Australia	0.842	0.835	0.849	1,614	0.846	0.832	0.860	477	0.628
Other	0.836	0.823	0.850	522	0.810	0.789	0.830	309	0.033*
Aboriginal or Torres Strait Islander status									
Aboriginal and/or Torres Strait Islander	0.841	0.783	0.898	30	0.871	0.775	0.967	6	0.501
Not Aboriginal and/or Torres Strait Islander	0.841	0.834	0.847	2,100	0.831	0.819	0.843	780	0.174
Marital status									
Married/de facto	0.869	0.864	0.875	1,309	0.863	0.852	0.875	391	0.336
Separated/divorced	0.804	0.787	0.820	303	0.804	0.767	0.841	87	0.976
Widowed	0.770	0.714	0.825	52	0.821	0.802	0.841	286	0.079
Never married	0.826	0.810	0.841	470	0.780	0.694	0.866	22	0.265
Lives alone									
Lives alone	0.814	0.801	0.827	501	0.815	0.798	0.832	381	0.903
Lives with others	0.859	0.853	0.865	1,636	0.863	0.853	0.874	405	0.500
Average annual household income									
≤$20,000	0.753	0.727	0.780	199	0.815	0.796	0.835	310	≤0.001**
$20,001–$60,000	0.835	0.824	0.845	603	0.853	0.837	0.869	258	0.064
$60,001–$100,000	0.869	0.861	0.878	570	0.896	0.866	0.926	35	0.079
≥$100,001	0.891	0.882	0.900	404	0.913	0.852	0.974	26	0.449
Employment status									
Working full-time or part-time	0.858	0.852	0.864	1,530	0.875	0.834	0.916	52	0.415
Home duties	0.821	0.789	0.845	192	0.839	0.791	0.886	33	0.512
Unemployed	0.795	0.742	0.848	37	–	–	–	–	–
Retired	0.839	0.810	0.868	150	0.831	0.818	0.843	689	0.610
Student	0.830	0.791	0.869	73	0.850	0.597	1.102	3	0.708
Other	0.805	0.748	0.862	31	0.755	0.352	1.157	6	0.738
Not working: disability or work-related injury	0.711	0.672	0.750	124	0.447	−0.971	1.865	3	0.333
Highest educational qualification									
Currently studying	0.833	0.807	0.859	94	0.792	0.629	0.956	10	0.567
Primary or secondary school	0.816	0.802	0.830	680	0.826	0.809	0.842	444	0.372
Tertiary studies	0.855	0.848	0.861	1,360	0.841	0.824	0.858	332	0.138
Socio-economic quartile[a]									
Quartile 1	0.819	0.806	0.833	555	0.830	0.807	0.854	200	0.427
Quartile 2	0.843	0.830	0.857	520	0.837	0.817	0.858	217	0.621
Quartile 3	0.843	0.829	0.856	528	0.827	0.799	0.854	186	0.302

Table 2 continued

Socio-demographic variable	Below 65 years (n = 2,137)				65 years & above (n = 786)				Significance (P value)
	Mean	Lower 95 % CI	Upper 95 % CI	N	Mean	Lower 95 % CI	Upper 95 % CI	N	
Quartile 4	0.857	0.845	0.868	531	0.830	0.805	0.855	183	0.050*

ICECAP-O ICEpop CAPability index, *CI* confidence interval

* Significant difference between age groups at the 5 % level

** Significant difference between age groups at the 0.1 % level

[a] Three participants resided in areas that were not allocated SEIFA scores via the Census of Population and Housing and were therefore excluded from this analysis. Quartile 1 = most disadvantaged, quartile 4 = least disadvantaged

Table 3 Results of multivariable regression of ICECAP-O scores on key variables for participants aged below 65 years (n = 2,137) (South Australia, 2009)

Variable	Below 65 years			
	Coefficient	Lower 95 % CI	Upper 95 % CI	P value
Female	0.007	−0.004	0.018	0.210
Born in country other than Australia	−0.002	−0.015	0.010	0.701
Aboriginal and/or Torres Strait Islander	0.024	−0.022	0.070	0.311
Residing in regional area	0.006	−0.008	0.020	0.389
Living with others	−0.019	−0.037	0.002	0.030*
Marital status				
Separated or divorced	−0.051	−0.070	−0.032	≤0.001**
Widowed	−0.060	−0.098	−0.023	0.002*
Never married	−0.035	−0.052	−0.018	≤0.001**
Employment status				
Home duties	−0.023	−0.042	−0.003	0.027*
Unemployed	−0.024	−0.065	0.018	0.269
Retired	0.003	−0.020	0.025	0.828
Student	0.020	−0.019	0.060	0.319
Other	−0.022	−0.065	0.022	0.326
Not working: disability or work-related injury	−0.091	−0.117	−0.065	≤0.001**
Highest educational qualification				
Primary or secondary school	0.010	−0.021	0.042	0.522
Tertiary studies	0.019	−0.011	0.050	0.214
Annual household income				
$20,001–$60,000	0.046	0.025	0.066	≤0.001**
$60,001– $100,000	0.066	0.043	0.089	≤0.001**
≥$100,001	0.083	0.058	0.108	≤0.001**
Socio-economic quartile[a]				
Quartile 2	0.001	−0.014	0.017	0.847
Quartile 3	−0.005	−0.021	0.010	0.505
Quartile 4	0.001	−0.015	0.018	0.863

ICECAP-O ICEpop CAPability index, *CI* confidence interval

* $P < 0.05$

** $P < 0.001$

[a] Three participants resided in areas that were not allocated SEIFA scores via the Census of Population and Housing and were therefore excluded from this analysis. Quartile 1 = most disadvantaged, quartile 4 = least disadvantaged

Table 4 Results of multivariable regressions of ICECAP-O scores on key variables for participants aged 65 years & above ($n = 786$) (South Australia, 2009)

Variable	Coefficient	Lower 95 % CI	Upper 95 % CI	*P* value
Female	0.017	−0.007	0.042	0.162
Born in country other than Australia	−0.032	−0.055	−0.009	0.007*
Aboriginal and/or Torres Strait Islander	−0.005	−0.148	0.137	0.940
Residing in regional area	0.006	−0.022	0.034	0.666
Living with others	0.000	−0.060	0.060	0.995
Marital status				
Separated or divorced	−0.036	−0.105	0.032	0.301
Widowed	−0.033	−0.093	0.265	0.274
Never married	−0.038	−0.122	0.046	0.374
Employment status				
Home duties	0.038	−0.039	0.116	0.331
Unemployed	–	–	–	–
Retired	−0.002	−0.049	0.044	0.925
Student	−0.003	−0.175	0.169	0.969
Other	−0.012	−0.154	0.130	0.873
Not working: injury or disability	−0.377	−0.575	−0.179	≤0.001**
Highest educational qualification				
Primary or secondary school	0.058	−0.041	0.157	0.250
Tertiary studies	0.060	−0.039	0.159	0.235
Annual household income				
$20,001–$60,000	0.020	−0.006	0.046	0.138
$60,001–$100,000	0.059	0.003	0.114	0.037*
≥$100,001	0.091	0.030	0.153	0.004*
Socio-economic quartile[a]				
Quartile 2	0.007	−0.022	0.037	0.635
Quartile 3	0.012	−0.021	0.045	0.478
Quartile 4	−0.014	−0.050	0.023	0.459

ICECAP-O ICEpop CAPability index, *CI* confidence interval

* $P < 0.05$

** $P < 0.001$

[a] Three participants resided in areas that were not allocated SEIFA scores via the Census of Population and Housing and were therefore excluded from this analysis. Quartile 1 = most disadvantaged, quartile 4 = least disadvantaged

average compared to those who were born elsewhere), employment (with those individuals who were not working due to injury or illness having lower scores on average than those in employment) and income (with those in higher income categories having higher scores on average than those in the lowest income category). However, the impact of income level upon quality of life was not found to be as pronounced in the older age group as for the younger age group.

Discussion

The findings from this study indicate that although the quality of life of a representative sample of the South Australian general population as measured and valued by the ICECAP-O capability index was generally high, the ICECAP-O was able to differentiate capability levels according to a number of key socio-demographic characteristics. Lower income levels and being unemployed due to disability or work-related injury were found to be negatively associated with capability for both age groups. Capability was found to be strongly and positively associated with marriage and cohabitation in the younger age group, whilst for the older age group being born in Australia was found to be a positive indicator.

In their assessment of the construct validity of the ICECAP-O descriptive system, Coast et al. (2008a, b) examined the relationship between capability and several participant characteristics in a representative sample of

older people from the general population in the UK. The findings from the UK study and this Australian study are somewhat similar in that no strong relationships between capability and gender or socio-economic status were found. Marital status (specifically being married) was found to be positively associated with capability in both studies. The only clear discrepancy between the study findings arose in relation to age. Whilst the quality of life experienced by participants in the UK study by Coast et al. was strongly influenced by age, the association between age and quality of life in this sample was found to be less pronounced. The reasons for the differences in findings relating to age are unclear but may be attributable to differences in study samples or in unobserved heterogeneity between the groups in Australia and the UK (Flynn et al. 2010b). The study by Coast et al. related to a relatively small sample of individuals ($n = 315$) living in the UK and aged over 65 years only, whilst this study reported on a large sample of individuals living in Australia within a broader age range (18–98 years). Coast et al. also focused more exclusively upon the relationship between age and *individual responses to the ICECAP-O dimension questions*, whereas the primary focus of our analysis was the relationship between socio-demographic variables and quality of life as represented by ICECAP-O *scores* for younger (<65 years) and older (>65 years) adults.

Previous population level surveys have questioned the sensitivity of traditional QALY-type indicators at the population level (Kurth and Ellert 2002), with capability centred instruments such as the ICECAP-O suggested as a potential alternative for use in economic evaluation (Lorgelly et al. 2010). A comparison of the non-health-specific ICECAP-O with a traditional health-focused QALY instrument such as the EQ-5D would be beneficial, and the authors are currently undertaking such a comparison.

Given that the ICECAP-O was initially developed for use with older adults, the inclusion of study participants below 65 years of age may be viewed as a limitation of this study. However, the findings from this study and our previous pilot testing have demonstrated that the wording and formatting of the ICECAP-O instrument make it highly appropriate for all adults in the Australian general population (Flynn et al. 2010a). At the time of the administration of this study, only the ICECAP-O instrument was publicly available. However, the instrument developers have since produced a capability index for all adults aged above 18 years (the ICECAP-A) which may be more appropriate to use in further studies where younger people are also included. In addition, the existing ICECAP-O scoring algorithm is based upon the preferences of a UK older adult population. However, evaluation exercises are currently being conducted which will generate Australian general population-specific scoring algorithms for the ICECAP-O and ICECAP-A by Flynn and colleagues. Once these algorithms become publicly available, they will allow for further valuation of quality of life based upon the preferences for alternative ICECAP-O states generated from a representative sample of the Australian population (Flynn et al. 2010a).

This study has provided the first indication of Australian general population quality of life values for the ICECAP-O for younger and older age groups, respectively. This will facilitate comparisons of the quality of life of the general population to that of more specific samples including specific patient groups in rehabilitation medicine and aged care settings. On a wider scale, the application of the ICECAP-O in representative community based samples from the general population of other countries would allow comparisons of the quality of life experiences of the general population at an international level.

In summary, the findings of this study demonstrate the potential for the ICECAP-O capability index in the measurement and valuation of quality of life in population surveys. The outcomes of many public health interventions impact at a population level and may extend beyond health to encompass quality of life more broadly where this is assumed to encompass the broad range of factors that are important to people in living their lives. Further research should investigate the potential for the ICECAP-O to be applied more widely in assessing the quality of life of different population groups and its applicability for the measurement and valuation of the benefits of population level public health interventions within an economic evaluation framework.

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