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Population Norms and Australian Profile using the Assessment of Quality of Life (AQoL) 8D Utility Instrument

Jeff Richardson
Foundation Director, Centre for Health Economics
Monash University

Munir A Khan
Research Fellow, Centre for Health Economics
Monash University

Gang Chen
Research Fellow/PhD Candidate, Centre for Health Economics
Monash University

Angelo Iezzi
Research Fellow, Centre for Health Economics
Monash University

Aimee Maxwell
Research Fellow, Centre for Health Economics
Monash University

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Correspondence:

Munir A Khan
Centre for Health Economics
Faculty of Business and Economics
Monash University Vic 3800
Australia

Ph: +61 3 9905 0739 Fax: +61 3 9905 8344
munir.khan@monash.edu

ABSTRACT

Norms are a useful reference for observational studies and for standardising scores for dissimilar demographic groups.

This paper presents population norms for the AQoL-8D utility instrument and for each of its dimensions. The norms are the average value (and standard error of the estimates) calculated from a representative sample of 1,582 members of the population, categorised by age, gender and education.

In the case of the AQoL-8D the norms reported also provide a snapshot of the health related wellbeing of the population. Results indicated significant differences with each of the classifications. Women have significantly lower scores for self-worth and mental health. With age, physical but not psycho-social dimension scores fall significantly. Those with graduate or post-graduate qualifications score more highly on every scale.

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1 Introduction

Assessing and measuring the quality of life (QoL) for the economic evaluation of health services requires a QoL instrument which converts a health state description into a numerical utility score. This permits the calculation of quality adjusted life years (QALYs) which are the unit of benefit in cost utility analysis (CUA). Evaluation studies, ideally, compare the same or randomly controlled population groups before and after an intervention and QALYs may be calculated from the difference in utility scores.

Other, less powerful, approaches include observational studies of different groups which may have been exposed to the intervention or the study effect to a greater or lesser extent. In this case it is necessary to standardise the different groups to allow for differences attributable to age and gender and other sample characteristics. The role of population norms is, inter alia, to provide the information for standardising the different groups in such studies.

The QoL is generally measured by economists with the multi attribute utility instrument (MAUI). Only a small number of these have been developed, most popular being the EQ-5D, HUI, SF-6D, QWB, AQoL (4D, 6D, 7D, 8D) and 15D. In recent years the first three of these have been used widely in Europe and Canada. The Quality of Wellbeing (QWB) has been used primarily in the USA and the AQoL and 15D have been mainly confined to their countries of origin, Australia and Finland (2007). However no single instrument has been universally accepted and there is no gold standard for measuring HRQoL.

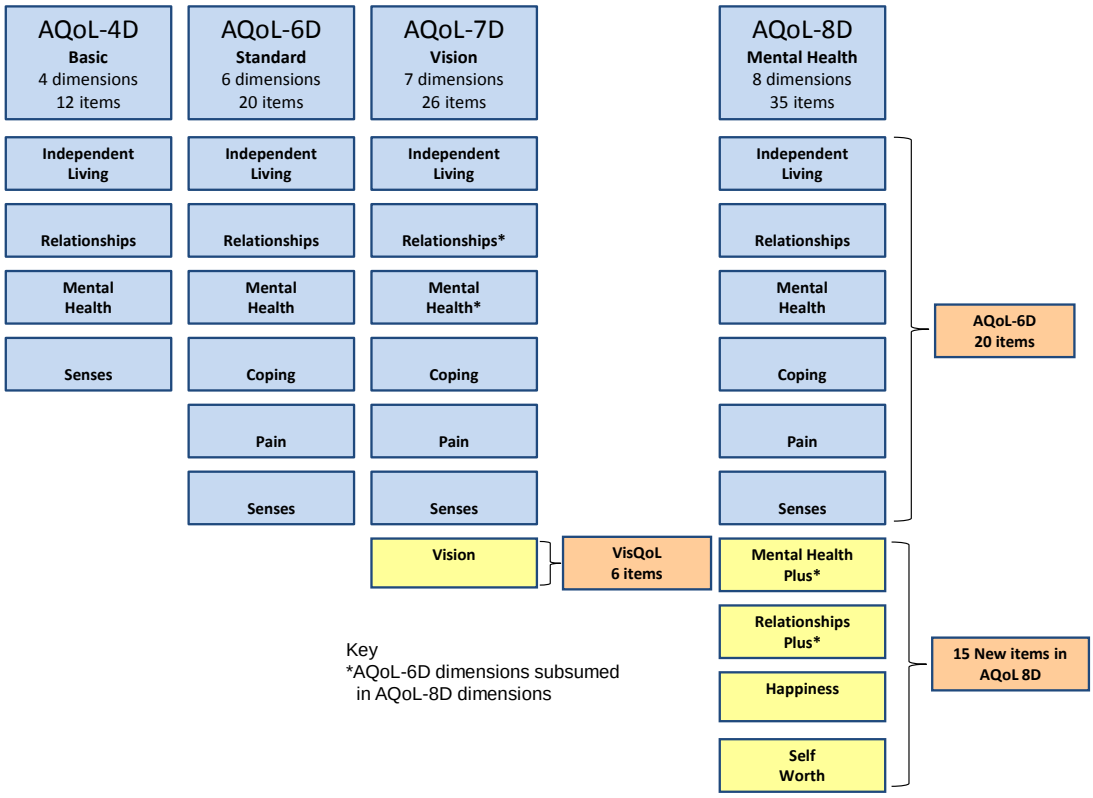
In practice, different MAUI produce different utility scores which may significantly impact upon the calculation of QALYs and the outcome of an evaluation study (Richardson, McKie et al. 2011) Scores obtained from one instrument can only be reliably compared with other scores from the same instrument. This increases the importance of reliable population norms which permit the comparison of one set of results with those from a representative sample of the population. While each instrument's scale has a value of 0.0 for death and 1.00 for the best health state, the description of the best health state varies. The different content of the instruments – the elements of health included or excluded – also differs. This implies, *inter alia*, that utility scores from different instruments cannot reliably be compared.

2 The AQoL-8D Instrument

2.1 Description

The AQoL-8D was developed as the fourth and most comprehensive of the AQoL instruments at the Centre for Health Economics (CHE) at Monash University (see Figure 1). The instrument is comprised of 35 items from which 8 dimensions and 2 'super-dimensions' are derived. The 35 items may be reduced to a single utility score using the AQoL-8D algorithm. In addition the algorithm produces an index number for each of the 8 dimensions and for the two 'super-dimensions', '*Physical super-dimension'* (PSD: independent living, pain, senses) and *'Mental super-dimension'* (MSD: mental health, happiness, coping, relationships, self-worth). The full questionnaire is reproduced in Appendix 1.

Figure 1 Structure of Assessment of Quality of Life (AQoL) instruments



2.2 Comparison of dimensions

The indices for each dimension are on a (0.00 – 1.00) scale but **these scales cannot be compared with each other**. For example, 0.8 on the pain scale cannot be equated directly with 0.8 on the coping or senses scale. The index numbers allow comparison of individuals or groups of individuals when they are measured on the same scale. The reason for non-comparability is that units of pain are not the same as units of coping or units of sensory acuity. Dimensions are, additionally, calculated from a multiplicative model which combines the disvalue from the constituent items. Dimensions with more items (relationships, n = 7; mental health, n = 8) therefore detect more disvalue than dimensions with fewer items (self-worth, n =3). Numerical scores are therefore generally lower with larger dimensions and numbers can only be related to

other numbers from the same scale or to the population norms presented in section 4 (calculated from these scales). The overall AQoL-8D utility differs in this respect. It approximates the TTO score for the overall health state and the TTO has an independent meaning: it reflects people's preferences between a longer life in a health state and a shorter life in ideal health.

2.3 Summary of the AQoL-8D Construction

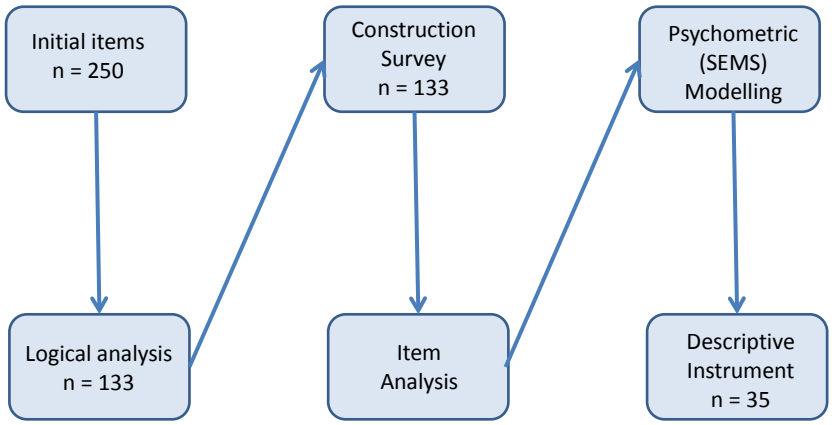
Construction of the AQoL-8D involved four broad steps:

1. Construction of the descriptive system: conceptualisation, construction survey and statistical analysis
2. Construction of stage 1 weights for instrument dimensions and the overall instrument
3. Construction of stage 2 formula to obtain the final 'corrected' dimension and instrument scores
4. Instrument validation: exploration and testing of properties in comparison with other instruments.

2.3.1 The Descriptive System

The relationship between the stages of the analyses and the data collection for the descriptive system are summarised in Figure 2.

Figure 2. Construction of the descriptive system



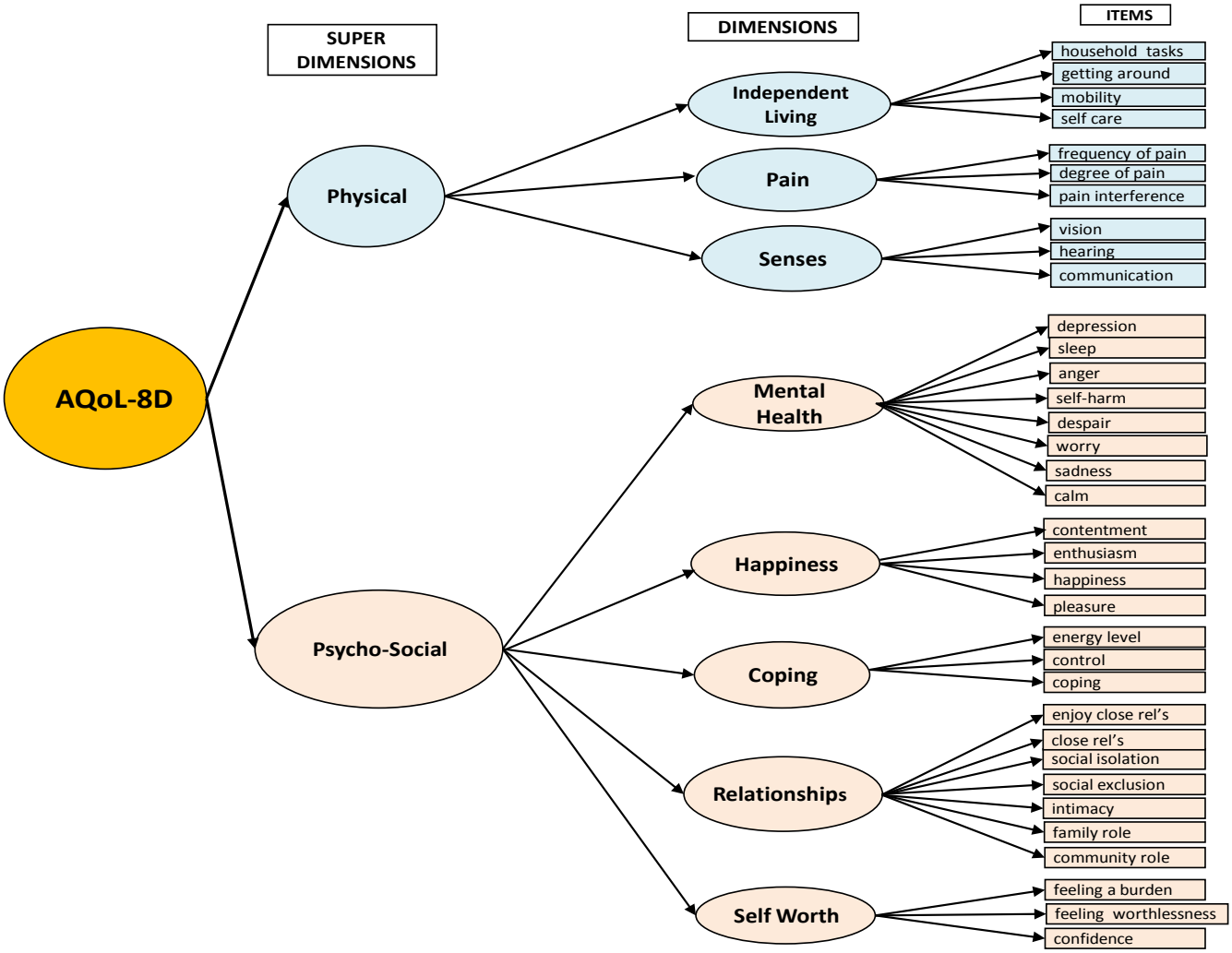
The AQoL-8D adopted the same concept of health – handicap (activity/participation) – as the previous AQoL instruments. It was postulated that quality of life (QoL) is best conceptualised and measured in a social context: that is, in terms of how health related problems impact upon a person's life. This basic conceptualisation was supplemented, when necessary, with elements of disability and impairment.

The concept was operationalised by postulating dimensions of QoL – life satisfaction, activities of daily living, etc and identifying or creating items which encompassed these. An item bank of 250 items was constructed which included items from the AQoL-6D item bank and items from other generic and *disease-specific* instruments (such as the Lehman Quality of Life Interview (Lehman 1988). There were a number of focus groups with patients and interviews with mental health professionals to generate additional items and to review existing items. Focus groups continued to be convened until no new information could be elicited (ie saturation). There were 29 participants in four groups. New items in the item bank were subject to linguistic and content analysis to ensure suitability for the final structure of the instrument. A reduced number of items

(90) were selected. Response categories were reviewed to ensure sensitivity to mental health in the domain of good health. They were then combined with items from the AQoL-6D and K10 which resulted in a total of 133 items for further analysis.

The Construction survey administered the 133 items to a stratified population including the Australian general public and patients in the target groups. Data obtained in this survey were subject to principle component, exploratory factor and structural equation modelling. The objective was to validate the dimension structure of AQoL-6D in the present context and to identify one or more dimensions relevant for psychiatric health states. Details of the analyses are reported in Richardson, Elsworth et al. (Richardson, Elsworth et al. 2011). The resulting descriptive system is shown in Figure 3.

Figure 3 AQoL-8D descriptive system



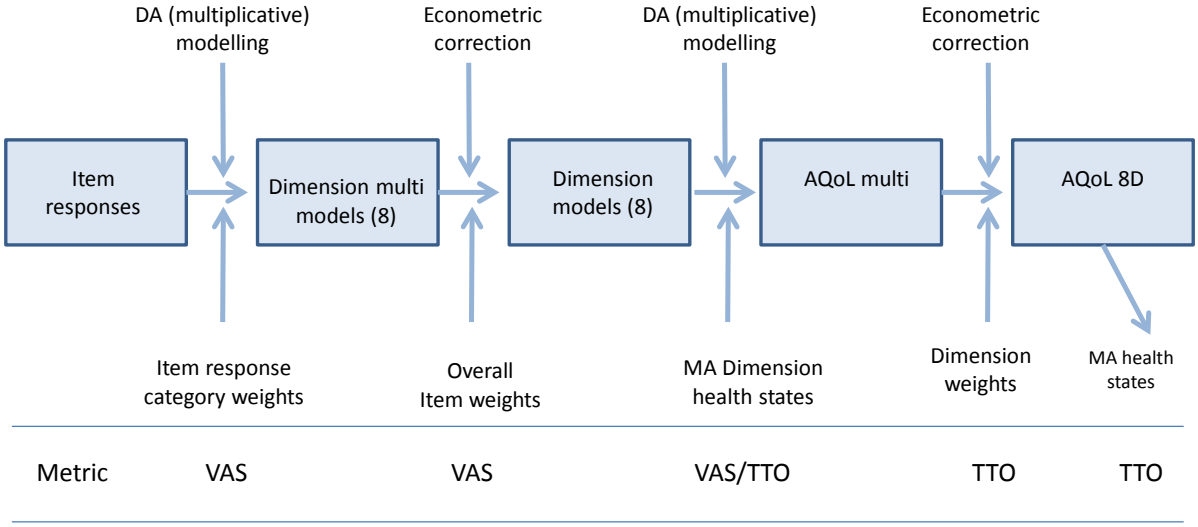
2.3.2 The Utility Scoring Formula

Two methods have been used by economists to obtain utility scores (to 'scale' or 'calibrate') multi attribute instruments. These involve the use of decision analytic (DA) theory to construct an additive or multiplicative model (such as the 15D and HUI 1, 2, 3 instruments) or the econometric 'prediction' of independently observed, multi attribute health state utilities from the single attribute (item) scores. The resulting econometric equation is adapted as the scaling algorithm. The advantage of the multiplicative model is that it facilitates the combination of a large number of

items; the disadvantage is that to obtain unbiased results there may be no structural or preference dependence between items and this condition is unavoidably violated in a large QoL instrument. The advantage of the econometric approach is that the prediction must produce scores which are the correct order of magnitude if the utilities are correctly measured and the econometrics is valid. (Regressions must pass through the observed utility points.) However the method limits the size of the instrument which may be scaled as the feasible number of observations limits the number of variables in the analysis.

Following the former, DA, approach all of the AQoL instruments commence with a multiplicative model. However this first stage (multiplicative) estimate is subject to a second stage 'econometric correction'. Independently estimated TTO scores were regressed upon the first stage scores to obtain the final formula. The AQoL-8D used this two stage, DA-econ, – procedure for modelling each of the dimensions and also for combining the dimensions into the final AQoL-8D instrument. The process is summarised in Figure 4. The final algorithm for dimension and AQoL-8D scores are given on the AQoL website [http://www.aqol.com.au/]

Figure 4 Data and analysis for the scaling of AQoL-8D



Key: VAS: Visual Analogue Scale (Rating Scale)

3. Data and methods

3.1 Survey data

Ideally, population norms would be obtained from a large, nationally representative population survey. No such survey has included the AQoL-8D. Consequently data were obtained from three recent research projects (AQoL Construction (n=197), Test-Retest (n=385) and Conflict Scale (n=466)). Each of these surveys included demographic questions, the AQoL-4D and AQoL-8D instruments. Data were collected through self-completed questionnaires from online and hard copy posted to randomly selected members of the public, aged 18 years and over. These are described in Richardson et al. (2009), Richardson, Chen (2011), Richardson, Maxwell, Khan (2012).

3.2 Adjustment of sample

Comparison of age adjusted results with scores obtained during interviews indicated systematically lower scores by online respondents. This is consistent with findings from PWI surveys and suggests that the self-selected respondents to online surveys are a biased representation of the general population even after standardising for age, gender and education. An adjustment was therefore carried out based upon the data obtained in the 1998 South Australian Health Omnibus survey (n=3010) which included the AQoL-4D. This was analysed by Hawthorne and Osborne (Hawthorne and Osborne 2005) (HO) and norms published. These results were accepted as representing the correct AQoL-4D values, ie it was assumed that the Omnibus survey had succeeded in achieving a true representation of the population. The AQoL-8D database contained AQoL-4D questions and a comparison of cohort mean values indicated to the extent to which the AQoL-8D self-selected sample was atypical. The problem was equivalent to having over-sampled 'low-QoL' individuals below the (H-O) cohort mean and under-sampled 'high QoL' individuals above the (H-O) cohort mean.

Two solutions to the problem are possible. The first is to apply weights to the AQoL-8D sample: weights greater than 1.00 for respondents above the cohort mean and less than 1.00 for respondents below the mean and to adjust these weights until the weighted average equals the H-O cohort mean. A problem with this solution is that it leaves the frequency distribution of the initial AQoL-8D sample unchanged and is, additionally, cumbersome as each entry in subsequent tables would need to be separately calculated.

The second solution which was adopted and described further below is to randomly delete or duplicate observations within each cohort to achieve the expected frequency distribution of observations within the cohort so that the cohort mean is equal to the H-O norm. The disadvantage of this method is the loss of information by the deletion of individuals. However the sample was sufficiently large for this to leave the standard errors satisfactorily small. Secondly, there is a potential error from duplicating observations. However this is conceptually a little different from weighting observations to increase their importance. The great advantage of the method is that it produces a single database with correct frequencies and cohort means.

The overall frequency distribution of the AQoL-4D displayed the typical left hand skew of utility scores. To the left of the population mean the distribution was approximately normal; to the right it was non-normal because of the truncation of values at U = 1.00. Consequently, different procedures were adopted above and below the cohort mean obtained from the HO norms study.

Below each cohort mean the following steps were taken to delete the excessive number of individuals with low utility scores: (i) for each cohort it was assumed that the distribution was normal with the standard deviation reported by HO. This allowed the prediction of the AQoL-4D utility cut-off scores which would divide a representative population into deciles; (ii) the excess of the actual over the predicted number of individuals in each decile was calculated and that number of observations was randomly selected and deleted.

Above each cohort mean the following steps were taken to increase the inadequate number of individuals with high scores: (i) the distance from the mean to full health (1.00 - mean) was divided into 5 intervals and the midpoint, U_i and the frequency, fi, of actual observations was obtained; (ii) for simplicity it was assumed that the contribution of each individual within one of the five intervals to the overall population mean could be approximated by the midpoint utility U_i. Consequently, the contribution to total utility of all individuals above the mean would

be: $C = \sum_{i=1}^{5} f_i u_i$ (iii) an equation was then solved to determine the factor N by which this amount, C, would have to be increased so that, in combination with the population below the mean, the average cohort AQoL-4D utility would be equal to the average cohort utility in the HO study. Within each cohort observations were duplicated at random until the sample size had increased by the factor, N.

The final database was formed by combining the (depleted) observations from below the mean with the (augmented) observations from above the mean. Details of the cohort specific adjustments and the weights implied by the process are shown in Appendix 4. On average the additions and deletions reduce the observations below cohort mean values by a factor of 0.9 and observations above the mean by a factor of 2.1. The asymmetry in the factors is due to the relatively small number of respondents above the mean and their smaller effect. (With an overall HO population mean of 0.83, the maximum numerical addition from an 'above-mean' individual is 0.17 (1-0.83). The numerical impact of a 'below mean' individual may be greater than 0.83 (if the utility is negative)).

The estimated population norms for the AQoL-4D from this database are compared with the HO norms in Table 1 below. They are effectively identical, implying that the norms presented in Section 4 achieve the same representation of the Australian population as the South Australian Omnibus survey.

Table 1 Comparison of AQoL-4D Utility: HO vs Adjusted Data

Age Group (HO)	Gender	HO Data	Adjusted Data	N
		Mean	Mean	
18-24 (16-19)	Male	0.88	0.90	92
	Female	0.87	0.87	89
	Total	0.88	0.89	181
25-34 (20-29)	Male	0.88	0.88	119
	Female	0.84	0.87	175
	Total	0.86	0.88	294
35-44 (30-39)	Male	0.84	0.84	123
	Female	0.84	0.86	132
	Total	0.84	0.85	255
45-54 (40-49)	Male	0.81	0.83	166
	Female	0.81	0.85	168
	Total	0.81	0.84	334
55-64 (50-59)	Male	0.79	0.81	174
	Female	0.80	0.82	139
	Total	0.80	0.82	313
65+ (60-69)	Male	0.80	0.78	101
	Female	0.79	0.78	104
	Total	0.80	0.78	205
Total	Male	0.83	0.84	775
	Female	0.83	0.84	807
	Total	0.83	0.84	1582

4 Results

4.1 AQoL-8D

After the adjustment described above, 1582 observations were available. These are classified by age, gender and education and compared with the composition of the Australian population in Tables 2-4. AQoL-8D utility and dimension scores were computed using the AQoL-8D algorithm. Scores were examined by gender, age group and level of education. The data were analysed using SPSS Version 19. Frequency distributions by AQoL-8D and dimension scores are presented in Appendix 2.

4.2 Population norms by age and gender

Table 2 presents population norms for the AQoL-8D stratified by age and gender. Mean utility score decreased from 0.90 for the youngest group (age 18-24) to 0.84 for the oldest group (65yrs+). Males had slightly higher utility scores than females except for the age groups 25-34 and 35-44 where scores were similar. The overall difference between males and females was statistically significant at the 5 percent level. The standard error (SE) for males and females varied: lower for females than males in all age groups except 55 to 64 years where it was slightly higher for females.

Table 2 Comparison of AQoL-8D sample and Australian population by age group and gender

Age group	AQoL-8D Norm[(1)]			Australian Norm (2006) [(2)]		
	Male (%)	Female (%)	Total (%)	Male (%)	Female (%)	Total (%)
18 to 24yrs	5.8	5.6	11.4	6.4	6.2	12.5
25 to 34yrs	7.5	11.1	18.6	8.7	9.0	17.7
35 to 44yrs	7.8	8.3	16.1	9.5	9.9	19.5
45 to 54yrs	10.5	10.6	21.1	9.0	9.3	18.3
55 to 64yrs	11.0	8.8	19.8	7.3	7.3	14.5
65yrs+	6.4	6.6	13.0	7.9	9.7	17.5
Total (%)	49.0	51.0	100	48.7	51.3	100

Notes: (1) n = 1582; (2) n = 15.1 million

Table 3 Comparison of AQoL-8D sample and Australian population by education and gender

Education	AQoL-8D Norm[(1)]			Australian Norm (2006)[(2)]		
	Male (%)	Female (%)	Total (%)	Male (%)	Female (%)	Total (%)
High School	16.0	14.0	30.0	11.8	13.2	24.9
TAFE/Diploma/Trade	12.9	14.0	26.9	27.2	18.1	45.4
Graduate/postgraduate	20.1	23.0	43.1	13.7	16.0	29.7
Total	49.0	51.0	100	52.8	47.2	100

Notes: (1) n = 1582; (2) n = 8.4 million

Table 4 AQoL-8D Population norms by age and gender

Age Group	Gender	N	Mean	SE	Min	Max
18 to 24yrs	Male	92	.90	.014	.17	1.00
	Female	89	.86	.013	.29	1.00
	Total	181	.88	.010	.17	1.00
25 to 34yrs	Male	119	.87	.012	.35	.99
	Female	175	.87	.009	.38	1.00
	Total	294	.87	.007	.35	1.00
35 to 44yrs	Male	123	.86	.013	.06	.99
	Female	132	.86	.011	.25	.99
	Total	255	.86	.008	.06	.99
45 to 54yrs	Male	166	.87	.011	.30	1.00
	Female	168	.85	.010	.25	1.00
	Total	334	.86	.007	.25	1.00
55 to 64yrs	Male	174	.85	.011	.25	1.00
	Female	139	.84	.012	.23	1.00
	Total	313	.84	.008	.23	1.00
65yrs+	Male	101	.86	.013	.32	1.00
	Female	104	.82	.013	.17	1.00
	Total	205	.84	.009	.17	1.00
Total	Male	775	.87	.005	.06	1.00
	Female	807	.85	.005	.17	1.00
	Total	1582	.86	.003	.06	1.00

4.3 Dimensions

Average responses to each question by age, gender and education are given in Appendix 3. Population norms are reported for each of the AQoL-8D dimensions and Super Dimension (PSD, MSD) in Tables 5 to 14 and summarised in Figure 5, 6 and 7. As noted earlier dimension and super-dimension scores cannot be directly compared as each is measured on a ‘dimension best’, ‘dimension worst’ scale defined by the items in the dimension and these ‘best’-‘worst’ states and are not comparable. In contrast AQoL-8D utility algorithm combines dimensions using utility weights which reflect the relative importance of dimensions.

5 Norms by Education

Mean AQoL-8D utility and dimension scores are reported in Table 15 by level of education. Respondents with university or other tertiary qualifications had the highest utility score (0.88). The lowest mean score was for respondents with TAFE or Trade qualification (0.84). The difference was statistically significant at the 1% level. A similar pattern was found for all dimensions. Within the dimensions the score increases with education. People with high school or TAFE qualifications have lower score than graduates or postgraduates. For every dimension and super dimension there was a statistically significant difference at the 1% level in scores for the three levels of education. Figures 8 and 9 summarise these results.

Figure 5 Mean dimension scores of AQoL-8D by gender

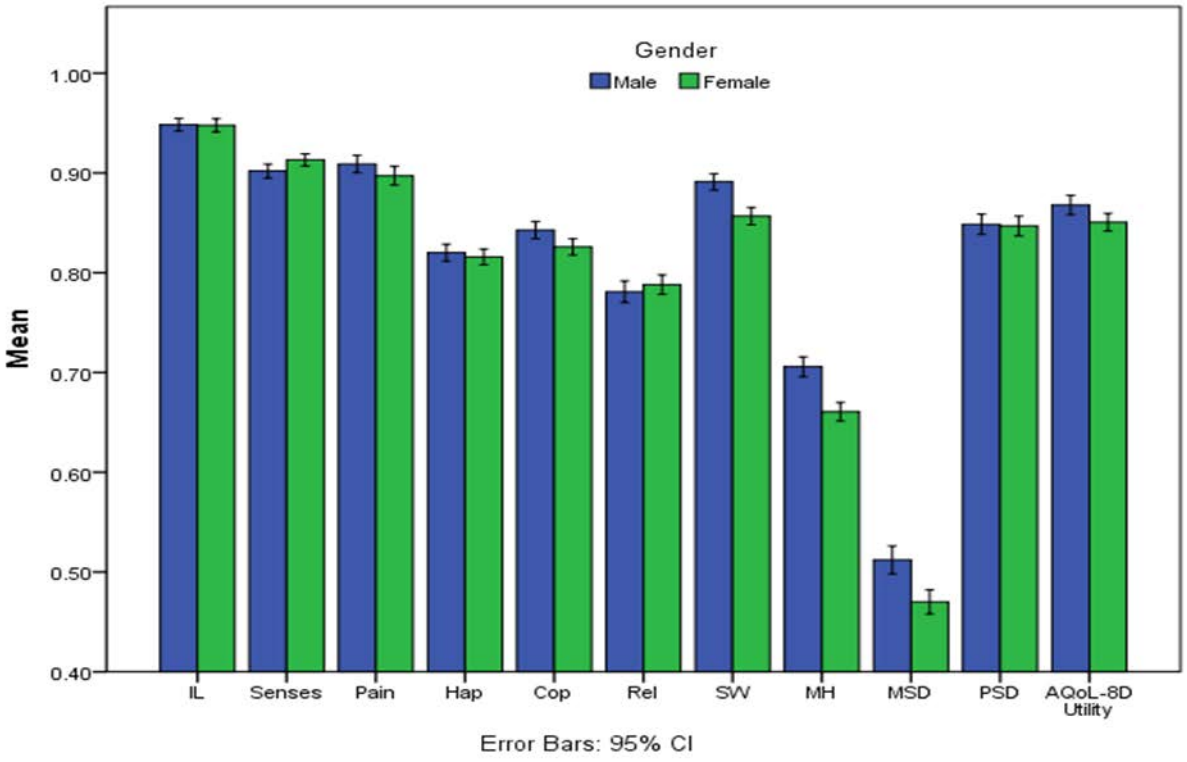


Figure 6 Mean dimension scores by age and dimension: Males

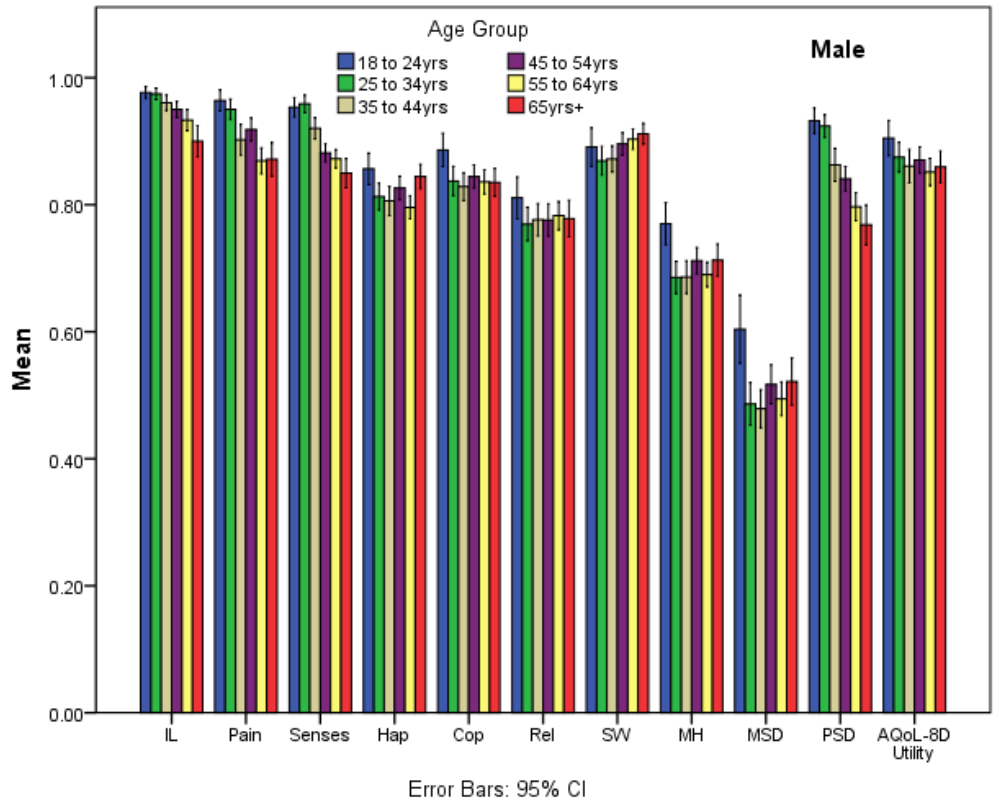


Figure 7 Mean dimension scores by age and dimension: Females

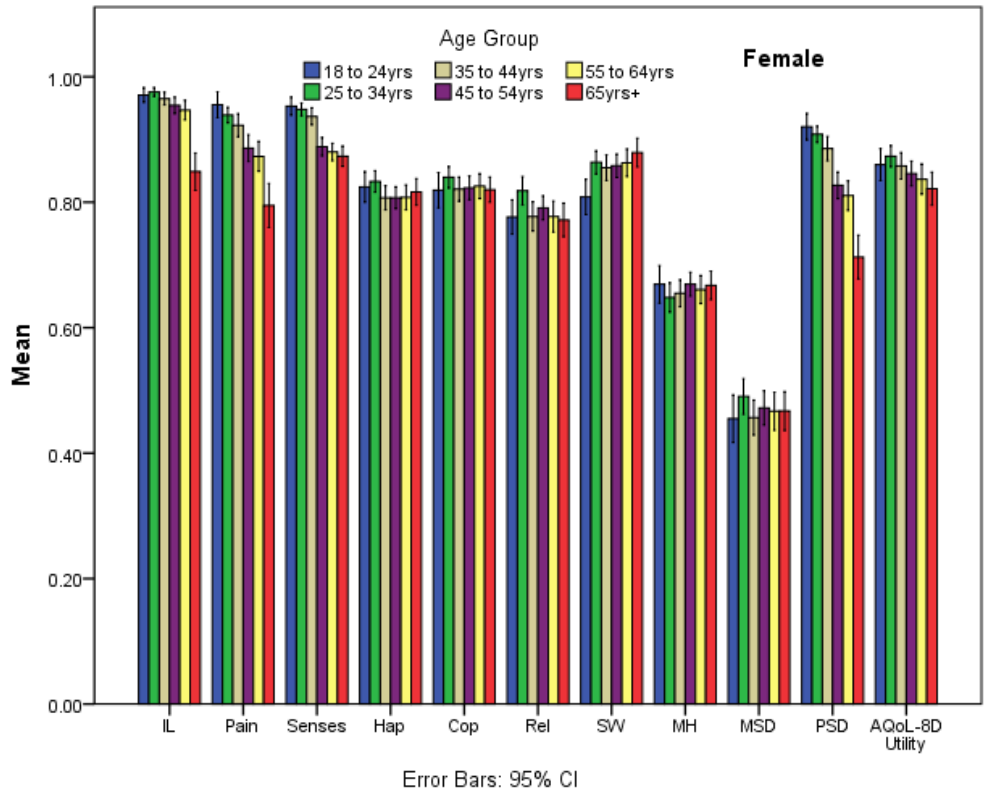


Figure 8 Mean dimension scores by education: Males

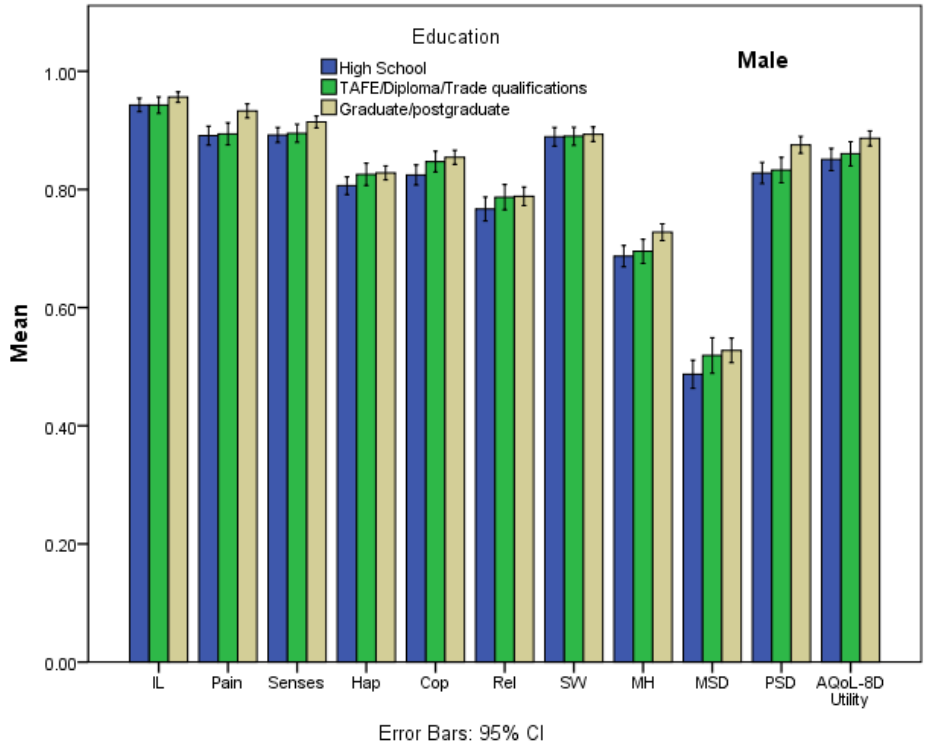


Figure 9 Mean dimension scores by education: Females

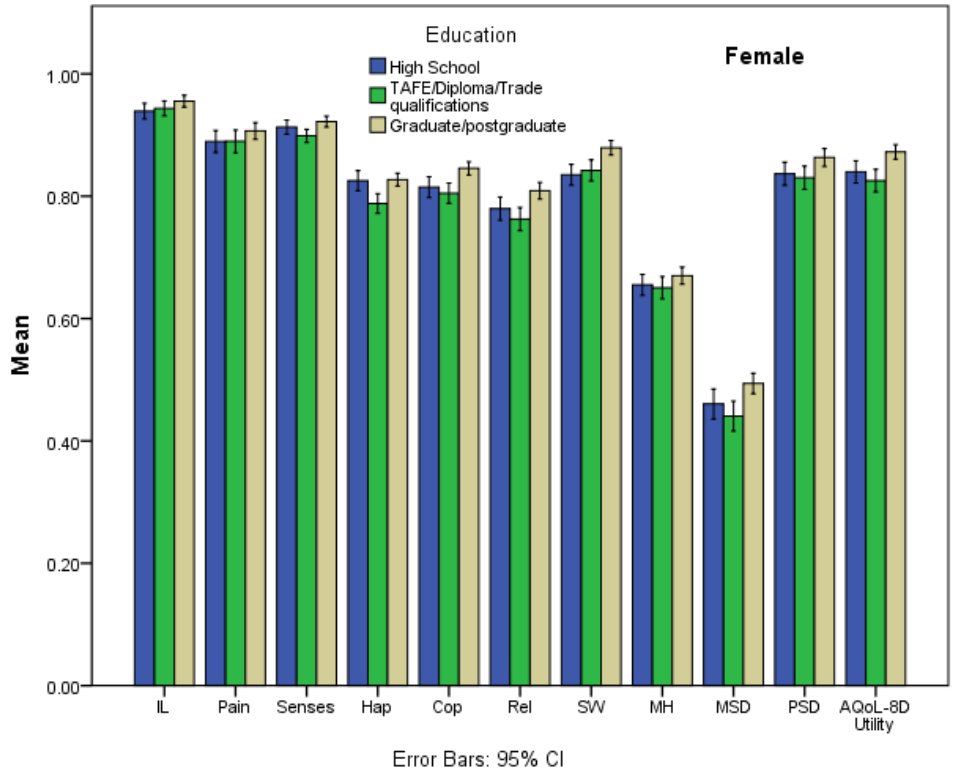


Table 5 AQoL-8D Population norms by dimension: Independent Living

Age Group	Gender	N	Mean	SE	Min	Max
18 to 24yrs	Male	92	.98	.005	.70	1.00
	Female	89	.97	.006	.71	1.00
	Total	181	.97	.004	.70	1.00
25 to 34yrs	Male	119	.97	.005	.67	1.00
	Female	175	.98	.003	.71	1.00
	Total	294	.98	.003	.67	1.00
35 to 44yrs	Male	123	.96	.006	.55	1.00
	Female	132	.97	.005	.61	1.00
	Total	255	.96	.004	.55	1.00
45 to 54yrs	Male	166	.95	.006	.52	1.00
	Female	168	.95	.007	.47	1.00
	Total	334	.95	.005	.47	1.00
55 to 64yrs	Male	174	.93	.008	.47	1.00
	Female	139	.95	.008	.48	1.00
	Total	313	.94	.006	.47	1.00
65yrs+	Male	101	.90	.012	.52	1.00
	Female	104	.85	.015	.47	1.00
	Total	205	.87	.010	.47	1.00
Total	Male	775	.95	.003	.47	1.00
	Female	807	.95	.003	.47	1.00
	Total	1582	.95	.002	.47	1.00

Table 6 AQoL-8D Population norms by dimension: Happiness

Age Group	Gender	N	Mean	SE	Min	Max
18 to 24yrs	Male	92	.86	.012	.48	1.00
	Female	89	.82	.012	.23	1.00
	Total	181	.84	.009	.23	1.00
25 to 34yrs	Male	119	.81	.011	.35	1.00
	Female	175	.83	.009	.50	1.00
	Total	294	.82	.007	.35	1.00
35 to 44yrs	Male	123	.81	.012	.26	.97
	Female	132	.81	.010	.36	.97
	Total	255	.81	.008	.26	.97
45 to 54yrs	Male	166	.83	.010	.35	1.00
	Female	168	.81	.009	.42	1.00
	Total	334	.82	.007	.35	1.00
55 to 64yrs	Male	174	.80	.009	.31	.97
	Female	139	.81	.010	.36	1.00
	Total	313	.80	.007	.31	1.00
65yrs+	Male	101	.84	.010	.50	1.00
	Female	104	.82	.011	.31	1.00
	Total	205	.83	.007	.31	1.00
Total	Male	775	.82	.004	.26	1.00
	Female	807	.82	.004	.23	1.00
	Total	1582	.82	.003	.23	1.00

Table 7 AQoL-8D Population norms by dimension: Mental Health

Age Group	Gender	N	Mean	SE	Min	Max
18 to 24yrs	Male	92	.77	.017	.29	1.00
	Female	89	.67	.015	.29	.96
	Total	181	.72	.012	.29	1.00
25 to 34yrs	Male	119	.69	.013	.31	.91
	Female	175	.65	.012	.30	1.00
	Total	294	.66	.009	.30	1.00
35 to 44yrs	Male	123	.69	.013	.25	.95
	Female	132	.65	.011	.22	.95
	Total	255	.67	.008	.22	.95
45 to 54yrs	Male	166	.71	.011	.34	1.00
	Female	168	.67	.010	.32	.96
	Total	334	.69	.007	.32	1.00
55 to 64yrs	Male	174	.69	.010	.24	.96
	Female	139	.66	.011	.28	.97
	Total	313	.68	.007	.24	.97
65yrs+	Male	101	.71	.013	.36	.96
	Female	104	.67	.011	.29	1.00
	Total	205	.69	.009	.29	1.00
Total	Male	775	.71	.005	.24	1.00
	Female	807	.66	.005	.22	1.00
	Total	1582	.68	.004	.22	1.00

Table 8 AQoL-8D Population norms by dimension: Coping

Age Group	Gender	N	Mean	SE	Min	Max
18 to 24yrs	Male	92	.89	.013	.33	1.00
	Female	89	.82	.014	.42	1.00
	Total	181	.85	.010	.33	1.00
25 to 34yrs	Male	119	.84	.012	.39	1.00
	Female	175	.84	.009	.34	1.00
	Total	294	.84	.007	.34	1.00
35 to 44yrs	Male	123	.83	.011	.34	1.00
	Female	132	.82	.010	.47	1.00
	Total	255	.82	.007	.34	1.00
45 to 54yrs	Male	166	.84	.009	.39	1.00
	Female	168	.82	.010	.39	1.00
	Total	334	.83	.007	.39	1.00
55 to 64yrs	Male	174	.84	.010	.39	1.00
	Female	139	.83	.010	.39	1.00
	Total	313	.83	.007	.39	1.00
65yrs+	Male	101	.84	.011	.42	1.00
	Female	104	.82	.010	.36	1.00
	Total	205	.83	.008	.36	1.00
Total	Male	775	.84	.004	.33	1.00
	Female	807	.83	.004	.34	1.00
	Total	1582	.83	.003	.33	1.00

Table 9 AQoL-8D Population norms by dimension: Relationships

Age Group	Gender	N	Mean	SE	Min	Max
18 to 24yrs	Male	92	.81	.017	.46	1.00
	Female	89	.78	.014	.40	1.00
	Total	181	.79	.011	.40	1.00
25 to 34yrs	Male	119	.77	.013	.33	.95
	Female	175	.82	.012	.33	1.00
	Total	294	.80	.009	.33	1.00
35 to 44yrs	Male	123	.78	.013	.44	1.00
	Female	132	.78	.012	.31	1.00
	Total	255	.78	.009	.31	1.00
45 to 54yrs	Male	166	.78	.013	.40	1.00
	Female	168	.79	.010	.46	1.00
	Total	334	.78	.008	.40	1.00
55 to 64yrs	Male	174	.78	.011	.40	1.00
	Female	139	.78	.013	.43	1.00
	Total	313	.78	.008	.40	1.00
65yrs+	Male	101	.78	.015	.33	1.00
	Female	104	.77	.014	.44	1.00
	Total	205	.77	.010	.33	1.00
Total	Male	775	.78	.005	.33	1.00
	Female	807	.79	.005	.31	1.00
	Total	1582	.78	.004	.31	1.00

Table 10 AQoL-8D Population norms by dimension: Self-Worth

Age Group	Gender	N	Mean	SE	Min	Max
18 to 24yrs	Male	92	.89	.015	.46	1.00
	Female	89	.81	.014	.37	1.00
	Total	181	.85	.011	.37	1.00
25 to 34yrs	Male	119	.87	.011	.49	1.00
	Female	175	.86	.009	.39	1.00
	Total	294	.87	.007	.39	1.00
35 to 44yrs	Male	123	.87	.010	.29	1.00
	Female	132	.85	.010	.35	1.00
	Total	255	.86	.007	.29	1.00
45 to 54yrs	Male	166	.90	.009	.45	1.00
	Female	168	.86	.009	.33	1.00
	Total	334	.88	.007	.33	1.00
55 to 64yrs	Male	174	.90	.008	.25	1.00
	Female	139	.86	.011	.38	1.00
	Total	313	.89	.007	.25	1.00
65yrs+	Male	101	.91	.008	.58	1.00
	Female	104	.88	.012	.39	1.00
	Total	205	.90	.007	.39	1.00
Total	Male	775	.89	.004	.25	1.00
	Female	807	.86	.004	.33	1.00
	Total	1582	.87	.003	.25	1.00

Table 11 AQoL-8D Population norms by dimension: Pain

Age Group	Gender	N	Mean	SE	Min	Max
18 to 24yrs	Male	92	.96	.008	.41	1.00
	Female	89	.96	.010	.46	1.00
	Total	181	.96	.007	.41	1.00
25 to 34yrs	Male	119	.95	.008	.46	1.00
	Female	175	.94	.006	.65	1.00
	Total	294	.94	.005	.46	1.00
35 to 44yrs	Male	123	.90	.012	.36	1.00
	Female	132	.92	.009	.48	1.00
	Total	255	.91	.008	.36	1.00
45 to 54yrs	Male	166	.92	.009	.41	1.00
	Female	168	.89	.011	.41	1.00
	Total	334	.90	.007	.41	1.00
55 to 64yrs	Male	174	.87	.010	.41	1.00
	Female	139	.87	.012	.37	1.00
	Total	313	.87	.008	.37	1.00
65yrs+	Male	101	.87	.013	.37	1.00
	Female	104	.79	.018	.41	1.00
	Total	205	.83	.011	.37	1.00
Total	Male	775	.91	.004	.36	1.00
	Female	807	.90	.005	.37	1.00
	Total	1582	.90	.003	.36	1.00

Table 12 AQoL-8D Population norms by dimension: Senses

Age Group	Gender	N	Mean	SE	Min	Max
18 to 24yrs	Male	92	.95	.008	.58	1.00
	Female	89	.95	.007	.71	1.00
	Total	181	.95	.005	.58	1.00
25 to 34yrs	Male	119	.96	.007	.44	1.00
	Female	175	.95	.005	.56	1.00
	Total	294	.95	.004	.44	1.00
35 to 44yrs	Male	123	.92	.008	.56	1.00
	Female	132	.94	.007	.65	1.00
	Total	255	.93	.005	.56	1.00
45 to 54yrs	Male	166	.88	.007	.56	1.00
	Female	168	.89	.007	.47	1.00
	Total	334	.89	.005	.47	1.00
55 to 64yrs	Male	174	.87	.007	.46	1.00
	Female	139	.88	.007	.47	1.00
	Total	313	.88	.005	.46	1.00
65yrs+	Male	101	.85	.012	.43	1.00
	Female	104	.87	.008	.65	1.00
	Total	205	.86	.007	.43	1.00
Total	Male	775	.90	.004	.43	1.00
	Female	807	.91	.003	.47	1.00
	Total	1582	.91	.002	.43	1.00

Table 13 AQoL-8D Population norms by Mental Super Dimension (MSD)

Age Group	Gender	N	Mean	SE	Min	Max
18 to 24yrs	Male	92	.60	.027	.07	1.00
	Female	89	.46	.019	.05	.89
	Total	181	.53	.018	.05	1.00
25 to 34yrs	Male	119	.49	.017	.06	.77
	Female	175	.49	.014	.08	.88
	Total	294	.49	.011	.06	.88
35 to 44yrs	Male	123	.48	.015	.04	.78
	Female	132	.46	.014	.07	.79
	Total	255	.47	.010	.04	.79
45 to 54yrs	Male	166	.52	.016	.08	1.00
	Female	168	.47	.014	.08	.91
	Total	334	.49	.010	.08	1.00
55 to 64yrs	Male	174	.49	.013	.05	.85
	Female	139	.47	.015	.09	.88
	Total	313	.48	.010	.05	.88
65yrs+	Male	101	.52	.019	.12	.89
	Female	104	.47	.016	.05	.93
	Total	205	.49	.012	.05	.93
Total	Male	775	.51	.007	.04	1.00
	Female	807	.47	.006	.05	.93
	Total	1582	.49	.005	.04	1.00

Table 14 AQoL-8D Population norms by Physical Super Dimension (PSD)

Age Group	Gender	N	Mean	SE	Min	Max
18 to 24yrs	Male	92	.93	.010	.33	1.00
	Female	89	.92	.011	.58	1.00
	Total	181	.93	.007	.33	1.00
25 to 34yrs	Male	119	.92	.009	.45	1.00
	Female	175	.91	.007	.64	1.00
	Total	294	.91	.005	.45	1.00
35 to 44yrs	Male	123	.86	.013	.29	1.00
	Female	132	.89	.010	.47	1.00
	Total	255	.87	.008	.29	1.00
45 to 54yrs	Male	166	.84	.010	.34	1.00
	Female	168	.83	.011	.32	1.00
	Total	334	.83	.007	.32	1.00
55 to 64yrs	Male	174	.80	.011	.24	1.00
	Female	139	.81	.012	.32	1.00
	Total	313	.80	.008	.24	1.00
65yrs+	Male	101	.77	.016	.32	1.00
	Female	104	.71	.018	.32	.98
	Total	205	.74	.012	.32	1.00
Total	Male	775	.85	.005	.24	1.00
	Female	807	.85	.005	.32	1.00
	Total	1582	.85	.004	.24	1.00

Table 15 AQoL-8D Population norms by level of education

AQoL-8D and Dimension	Level of Education	N	Mean	SE	95% Confidence Interval for Mean		Min	Max
					LB	UB		
AQoL-8D Utility	High School	475	.85	.007	.832	.859	.06	1.00
	TAFE/Diploma/Trade qualifications	425	.84	.007	.828	.856	.25	1.00
	Graduate/postgraduate	682	.88	.004	.870	.888	.17	1.00
	Total	1582	.86	.003	.852	.866	.06	1.00
IL	High School	475	.94	.004	.933	.950	.48	1.00
	TAFE/Diploma/Trade qualifications	425	.94	.005	.934	.952	.47	1.00
	Graduate/postgraduate	682	.96	.003	.949	.962	.47	1.00
	Total	1582	.95	.002	.943	.953	.47	1.00
Hap	High School	475	.82	.006	.804	.826	.26	1.00
	TAFE/Diploma/Trade qualifications	425	.81	.006	.794	.818	.23	1.00
	Graduate/postgraduate	682	.83	.004	.820	.835	.31	1.00
	Total	1582	.82	.003	.812	.824	.23	1.00
MH	High School	475	.67	.006	.660	.685	.24	1.00
	TAFE/Diploma/Trade qualifications	425	.67	.007	.658	.686	.22	1.00
	Graduate/postgraduate	682	.70	.005	.687	.707	.29	1.00
	Total	1582	.68	.004	.676	.690	.22	1.00
Cop	High School	475	.82	.006	.808	.832	.33	1.00
	TAFE/Diploma/Trade qualifications	425	.83	.006	.813	.837	.34	1.00
	Graduate/postgraduate	682	.85	.004	.842	.858	.36	1.00
	Total	1582	.83	.003	.828	.840	.33	1.00
Rel	High School	475	.77	.007	.759	.787	.33	1.00
	TAFE/Diploma/Trade qualifications	425	.77	.007	.760	.788	.41	1.00
	Graduate/postgraduate	682	.80	.005	.789	.810	.31	1.00
	Total	1582	.78	.004	.777	.792	.31	1.00
SW	High School	475	.86	.006	.852	.876	.25	1.00
	TAFE/Diploma/Trade qualifications	425	.87	.006	.853	.877	.33	1.00
	Graduate/postgraduate	682	.89	.004	.877	.894	.39	1.00
	Total	1582	.87	.003	.868	.880	.25	1.00
Pain	High School	475	.89	.006	.878	.902	.37	1.00
	TAFE/Diploma/Trade qualifications	425	.89	.007	.879	.905	.36	1.00
	Graduate/postgraduate	682	.92	.005	.910	.928	.41	1.00
	Total	1582	.90	.003	.897	.909	.36	1.00
Senses	High School	475	.90	.004	.893	.911	.43	1.00
	TAFE/Diploma/Trade qualifications	425	.90	.005	.888	.906	.46	1.00
	Graduate/postgraduate	682	.92	.003	.912	.925	.44	1.00
	Total	1582	.91	.002	.903	.912	.43	1.00

AQoL-8D and Dimension	Level of Education	N	Mean	SE	95% Confidence Interval for Mean		Min	Max
					LB	UB		
MSD	High School	475	.47	.009	.458	.492	.04	.94
	TAFE/Diploma/Trade qualifications	425	.48	.010	.459	.498	.05	1.00
	Graduate/postgraduate	682	.51	.007	.496	.523	.05	1.00
	Total	1582	.49	.005	.481	.500	.04	1.00
PSD	High School	475	.83	.007	.819	.845	.29	1.00
	TAFE/Diploma/Trade qualifications	425	.83	.007	.817	.846	.24	1.00
	Graduate/postgraduate	682	.87	.005	.859	.879	.32	1.00
	Total	1582	.85	.004	.841	.855	.24	1.00

Table 16 Items where attribute levels differ at 1% significance or more (attribute category with best health)

A. Physical	**Attribute**		
Dimension	**Age**	**Gender**	**Education****
Independent living	Household tasks (25-34)	ns	Getting around
	Getting around (25-34)		
	Mobility (18-24)		
	Personal care (18-24)		
Pain	Serious pain (18-34)	(serious pain M)*	(serious pain)*
	Pain (18-24)		Pain
	Pain interferes (18-24)		Pain interferes
Senses	Vision (18-24)	Hearing (F)	Vision hearing
	Hearing (18-34)	Communication (F)	
B. Psycho-Social	**Attribute**		
Dimension	**Age**	**Gender**	**Education**
Mental health	Depression (18-24), 65+	Depression (M)	(Depression)*
	Sleeping (25-34)	Sleeping (M)	Sleep
	Self harm 65+	Despair (M)	Anger
	Sad (18-24) 65+		
	Despair 65+	Worry (M)	Sadness
	Anger 55-65+		
	Worry (18-24) 65+	Sadness (M)	Tranquillity
	Tranquil (18-24)	Tranquillity (M)	
Happiness	Happiness (18-24)	(enthusiasm M)*	Enthusiasm
	Pleasure (18-24)		
Coping	Energy (18-24)	Control (M)	Energy
	Coping (18-24)	Coping (M)	Control
Self-worth	Burden (55-64)	Worthless (M)	Worthless
	Confidence 55-64)	Confidence (M)	Confidence
Relationships	Enjoy close (25-34)	Close relations (F)	Isolation
	Intimate (25-34)	Enjoy relations (F)	Exclusion
	Family (18-24)		(Family)
	Community (18-34)		

Key

*Borderline significance

** Graduate/post graduate respondents always had better scores

6 Discussion

Despite its greater detail, the 35 item AQoL-8D produces utility scores which are very similar to the 12 item AQoL-4D. Comparing Tables 1 and 2 utilities are virtually identical between the ages of 18 and 34. Older age groups score more highly on the AQoL-8D. This is attributable to the greater importance of psycho-social dimensions in the instrument. Several of these rise, not fall, with age (mental health, self-worth and happiness). The greatest difference between the norms occurs in the age range 45-54 (5 points) when the mental super-dimension, (MSD) reaches its second highest value.

Similar age norms does not imply that the AQoL-4D and AQoL-8D are interchangeable. The norms represent averages for a representative group of Australians. The averages are composed of numerous sub-populations which may (or may not) have different scores on the two different instruments. Similarly, scores are likely to differ for the unrepresentative populations with a-typical health conditions who are likely to be the subject of a health related intervention which might be evaluated with one of these instruments.

The greater emphasis on psych-social dimensions in the AQoL-8D results in a marginally significant overall difference between the instruments by gender. Disaggregating to the dimension level, women have significantly lower scores for self-worth and mental health and marginally lower scores for coping.

Education has a significant effect upon QoL. Those with graduate or post-graduate qualifications have higher scores for every measurement except for the self-worth of males which has little difference by educational status. Differences are more marked for females than males with significant differences for coping, relationships, self-worth and overall mental health. MSD is only marginally higher for the most educated men. The greatest differences between men are associated with physical health and particularly pain. More differences may be observed by examining individual items, although these do not represent psychometrically validated scales. Table 15 summarises the differences in item scores by age-gender and education which are detailed in Appendix 3.

Appendix 1 AQoL-8D questionnaire

1. Independent Living

Q1. How much help do you need with jobs around the house (eg preparing food, cleaning the house or gardening):

- ❒ I can do all these tasks very quickly and efficiently without any help
- ❒ I can do these tasks relatively easily without help
- ❒ I can do these tasks only very slowly without help
- ❒ I cannot do most of these tasks unless I have help
- ❒ I can do none of these tasks by myself.

Q2. Thinking about how easy or difficult it is for you to get around by yourself outside your house (eg shopping, visiting):

- ❒ getting around is enjoyable and easy
- ❒ I have no difficulty getting around outside my house
- ❒ a little difficulty
- ❒ moderate difficulty
- ❒ a lot of difficulty
- ❒ I cannot get around unless somebody is there to help me.

Q3. Thinking about your mobility, including using any aids or equipment such as wheelchairs, frames, sticks:

- ❒ I am very mobile
- ❒ I have no difficulty with mobility
- ❒ I have some difficulty with mobility (for example, going uphill)
- ❒ I have difficulty with mobility. I can go short distances only.
- ❒ I have a lot of difficulty with mobility. I need someone to help me.
- ❒ I am bedridden.

Q4. Thinking about washing yourself, toileting, dressing, eating or looking after your appearance:

- ❒ these tasks are very easy for me
- ❒ I have no real difficulty in carrying out these tasks
- ❒ I find some of these tasks difficult, but I manage to do them on my own
- ❒ many of these tasks are difficult, and I need help to do them
- ❒ I cannot do these tasks by myself at all.

2. Pain

Q5. Thinking about how often you experience serious pain:

- ❒ I experience it
- ❒ very rarely
- ❒ less than once a week
- ❒ three to four times a week
- ❒ most of the time.

Q6. How much pain or discomfort do you experience:

- ❒ none at all
- ❒ I have moderate pain
- ❒ I suffer from severe pain
- ❒ I suffer unbearable pain.

Q7. How often does pain interfere with your usual activities?

- ❒ never
- ❒ rarely
- ❒ sometimes
- ❒ often
- ❒ always

3. Senses

Q8. Thinking about your vision (using your glasses or contact lenses if needed):

- ❒ I have excellent sight
- ❒ I see normally
- ❒ I have some difficulty focusing on things, or I do not see them sharply. E.g. small print, a newspaper or seeing objects in the distance.
- ❒ I have a lot of difficulty seeing things. My vision is blurred. I can see just enough to get by with.
- ❒ I only see general shapes. I need a guide to move around

Q9. Thinking about your hearing (using your hearing aid if needed):

- ❒ I have excellent hearing
- ❒ I hear normally
- ❒ I have some difficulty hearing or I do not hear clearly. I have trouble hearing softly-spoken people or when there is background noise.
- ❒ I have difficulty hearing things clearly. Often I do not understand what is said. I usually do not take part in conversations because I cannot hear what is said.
- ❒ I hear very little indeed. I cannot fully understand loud voices speaking directly to me.
- ❒ I am completely deaf.

Q10. When you communicate with others, e.g. by talking, listening, writing or signing:

- ❒ I have no trouble speaking to them or understanding what they are saying
- ❒ I have some difficulty being understood by people who do not know me. I have no trouble understanding what others are saying to me.
- ❒ I am understood only by people who know me well. I have great trouble understanding what others are saying to me.
- ❒ I cannot adequately communicate with others.

4. Mental Health

Q11. How often do you feel depressed?
- ❒ never
- ❒ almost never
- ❒ sometimes
- ❒ often
- ❒ very often
- ❒ all the time

Q12. How often do you have trouble sleeping?
- ❒ never
- ❒ almost never
- ❒ sometimes
- ❒ often
- ❒ all the time

Q13. How often do you feel angry?
- ❒ never
- ❒ almost never
- ❒ sometimes
- ❒ often
- ❒ all the time

Q14. Do you ever feel like hurting yourself?
- ❒ never
- ❒ rarely
- ❒ sometimes
- ❒ often
- ❒ all the time

Q15. How often did you feel in despair over the last seven days?
- ❒ never
- ❒ occasionally
- ❒ sometimes
- ❒ often
- ❒ all the time.

Q16. And still thinking about the last seven days, how often did you feel worried:
- ❒ never
- ❒ occasionally
- ❒ sometimes
- ❒ often
- ❒ all the time.

Q17. How often do you feel sad?
- ❒ never
- ❒ rarely
- ❒ some of the time
- ❒ usually
- ❒ nearly all the time.

Q18 When you think about whether you are calm and tranquil or agitated:
I am
- ❒ always calm and tranquil
- ❒ usually calm and tranquil
- ❒ sometimes calm and tranquil, sometimes agitated
- ❒ usually agitated
- ❒ always agitated.

5. Happiness

Q19. How content are you with your life?
- ❒ extremely
- ❒ mainly
- ❒ moderately
- ❒ slightly
- ❒ not at all

Q20. How enthusiastic do you feel?
- ❒ extremely
- ❒ very
- ❒ somewhat
- ❒ not much
- ❒ not at all

Q21. How often do you feel happy?
- ❒ all the time
- ❒ mostly
- ❒ sometimes
- ❒ almost never
- ❒ never

Q22. How often do you feel pleasure?
- ❒ always
- ❒ usually
- ❒ sometimes
- ❒ almost never
- ❒ never

6. Coping

Q23. Thinking about how much energy you have to do the things you want to do:
I am
- ❒ always full of energy
- ❒ usually full of energy
- ❒ occasionally energetic
- ❒ usually tired and lacking energy
- ❒ always tired and lacking energy.

Q24. How often do you feel in control of your life?
- ❒ always
- ❒ mostly
- ❒ sometimes
- ❒ only occasionally
- ❒ never

Q25. How much do you feel you can cope with life's problems?
- ❒ completely
- ❒ mostly
- ❒ partly
- ❒ very little
- ❒ not at all.

7. Relationships

Q26. How much do you enjoy your close relationships (family and friends)?
- ❒ immensely
- ❒ a lot
- ❒ a little
- ❒ not much
- ❒ I hate it

Q27. Your close relationships (family and friends) are:

- ❒ very satisfying
- ❒ satisfying
- ❒ neither satisfying nor dissatisfying
- ❒ dissatisfying
- ❒ unpleasant
- ❒ very unpleasant

Q28. How often do you feel socially isolated?

- ❒ never
- ❒ rarely
- ❒ sometimes
- ❒ often
- ❒ always

Q29. How often do you feel socially excluded or left out?

- ❒ never
- ❒ rarely
- ❒ sometimes
- ❒ often
- ❒ always

Q30. Your close and intimate relationships (including any sexual relationships) make you:

- ❒ very happy
- ❒ generally happy
- ❒ neither happy nor unhappy
- ❒ generally unhappy
- ❒ very unhappy

Q31. Thinking about your health and your relationship with your family:

- ❒ my role in the family is unaffected by my health
- ❒ there are some parts of my family role I cannot carry out
- ❒ there are many parts of my family role I cannot carry out
- ❒ I cannot carry out any part of my family role.

Q32. Thinking about your health and your role in your community (that is to say neighbourhood, sporting, work, church or cultural groups):

- ❒ my role in the community is unaffected by my health
- ❒ there are some parts of my community role I cannot carry out
- ❒ there are many parts of my community role I cannot carry out

8. Self Worth

Q33. How much of a burden do you feel you are to other people?

- ❒ Not at all
- ❒ A little
- ❒ A moderate amount
- ❒ A lot
- ❒ totally

Q34. How often do you feel worthless?

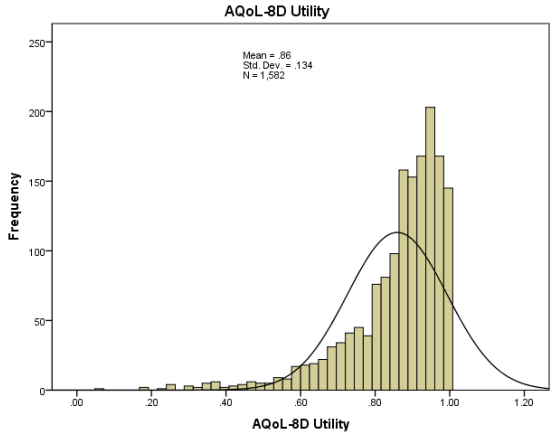
- ❒ never
- ❒ almost never
- ❒ sometimes
- ❒ usually
- ❒ always

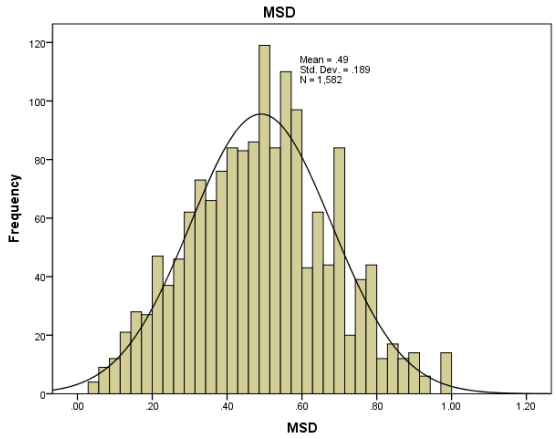
Q35. How much confidence do you have in yourself?

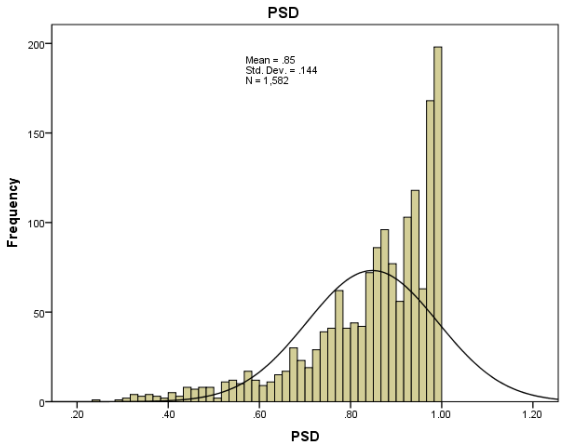
- ❒ Complete confidence
- ❒ A lot
- ❒ A moderate amount
- ❒ A little
- ❒ None at all

Appendix 2 AQoL-8D Dimension Frequency Distributions

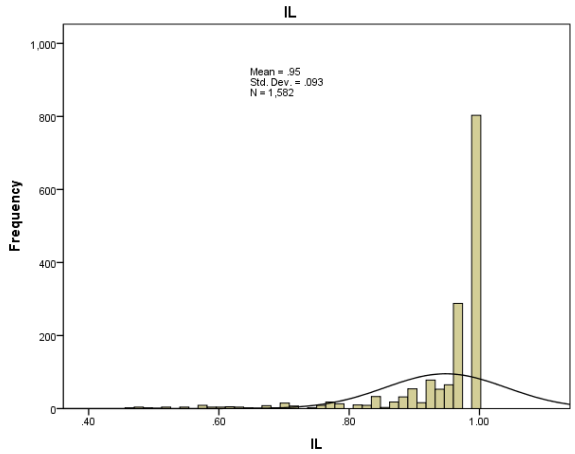
Frequency Distribution for Dimensions within the Physical Super-Dimension

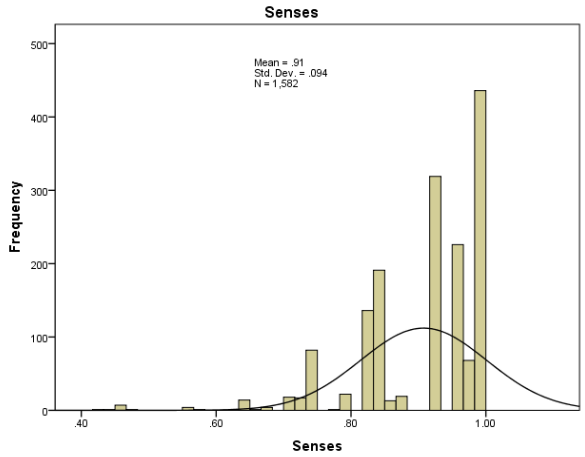


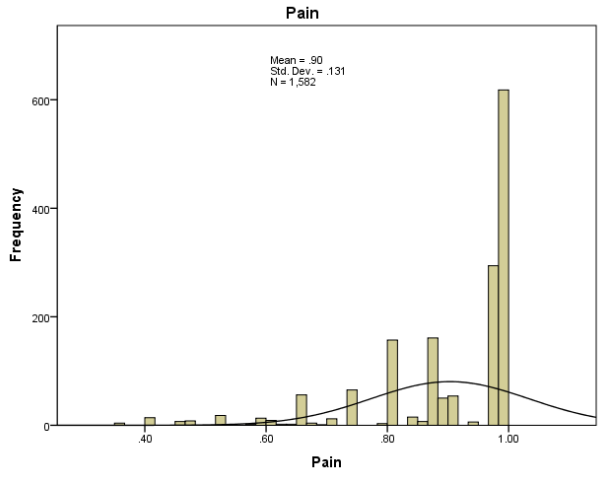




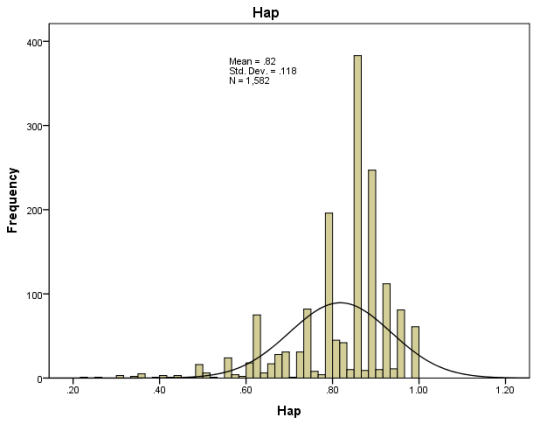
Frequency distribution for Dimensions within PSD

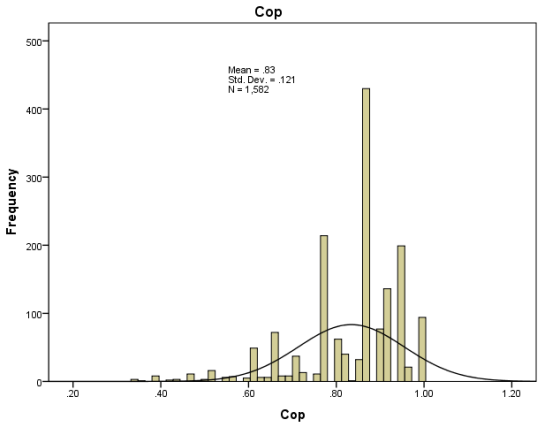


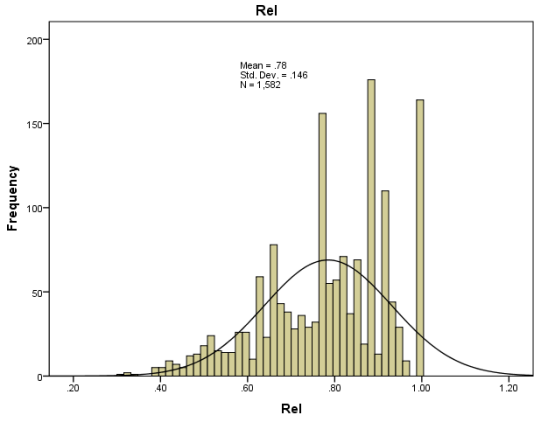


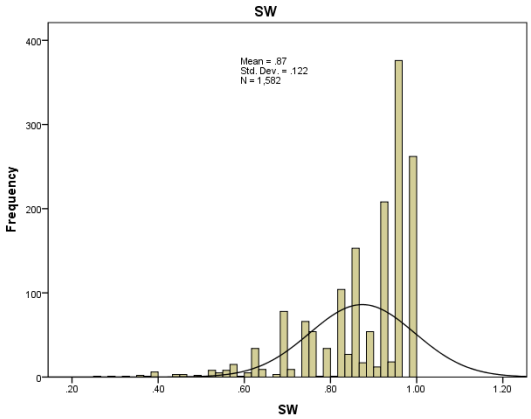


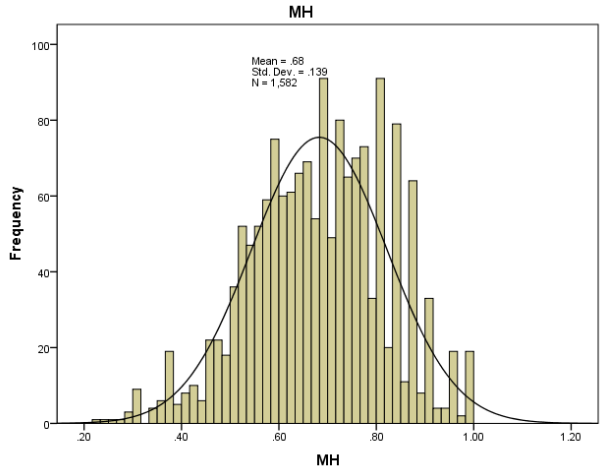
Frequency distribution for Dimensions within MSD











Appendix 3 Mean Item Response by Gender, Age, Education

Table A3. 1 Mean Item Response by Gender

AQoL-8D Instrument		Gender	N	Mean	SD	SE	95% Confidence Interval for Mean		Min	Max	Sig. between gender
Dimension	Items						LB	UB			
IL	Household tasks	Male	775	1.30	.588	.021	1.26	1.34	1	5	.603
		Female	807	1.31	.597	.021	1.27	1.35	1	4	
	Get around outside	Male	775	1.44	.650	.023	1.39	1.48	1	6	.484
		Female	807	1.42	.688	.024	1.37	1.46	1	6	
	Mobility	Male	775	1.32	.643	.023	1.27	1.36	1	4	.509
		Female	807	1.34	.688	.024	1.29	1.39	1	4	
	Personal care	Male	775	1.15	.412	.015	1.13	1.18	1	3	.368
		Female	807	1.14	.406	.014	1.11	1.16	1	3	
Hap	Content	Male	775	1.94	.822	.030	1.88	1.99	1	5	.618
		Female	807	1.92	.752	.026	1.86	1.97	1	5	
	Enthusiastic	Male	775	2.22	.773	.028	2.16	2.27	1	5	.015
		Female	807	2.31	.789	.028	2.26	2.37	1	5	
	Happy	Male	775	2.02	.550	.020	1.98	2.06	1	4	.160
		Female	807	2.06	.516	.018	2.02	2.09	1	5	
	Pleasure	Male	775	2.12	.689	.025	2.07	2.17	1	5	.278
		Female	807	2.08	.715	.025	2.03	2.13	1	5	
MH	Depressed	Male	775	1.85	.875	.031	1.79	1.91	1	6	.000
		Female	807	2.11	.919	.032	2.05	2.17	1	6	
	Sleeping	Male	775	2.27	.932	.033	2.20	2.33	1	5	.000
		Female	807	2.54	.923	.032	2.48	2.60	1	5	
	Angry	Male	775	2.43	.653	.023	2.38	2.48	1	5	.831
		Female	807	2.42	.680	.024	2.38	2.47	1	5	
	Hurting yourself	Male	775	1.16	.499	.018	1.13	1.20	1	4	.681
		Female	807	1.17	.556	.020	1.13	1.21	1	4	
	Despair	Male	775	1.34	.675	.024	1.29	1.39	1	4	.002
		Female	807	1.45	.720	.025	1.40	1.50	1	4	
	Worried	Male	775	1.83	.821	.029	1.77	1.88	1	5	.000
		Female	807	2.11	.920	.032	2.04	2.17	1	5	
	Sad	Male	775	2.19	.622	.022	2.15	2.24	1	5	.000
		Female	807	2.41	.638	.022	2.37	2.46	1	5	
	Calm/tranquil or agitated	Male	775	2.13	.667	.024	2.08	2.17	1	5	.000
		Female	807	2.35	.662	.023	2.30	2.40	1	5	
Cop	Energy	Male	775	2.33	.831	.030	2.27	2.39	1	5	.110
		Female	807	2.40	.818	.029	2.34	2.45	1	5	
	Control	Male	775	1.82	.699	.025	1.77	1.87	1	5	.003
		Female	807	1.92	.709	.025	1.87	1.97	1	5	
	Cope	Male	775	1.71	.653	.023	1.67	1.76	1	5	.000
		Female	807	1.84	.587	.021	1.80	1.88	1	5	
Rel	Enjoy close relationships	Male	775	1.67	.651	.023	1.63	1.72	1	5	.000
		Female	807	1.55	.602	.021	1.51	1.59	1	4	
	Close relationships	Male	775	1.70	.700	.025	1.65	1.75	1	6	.001
		Female	807	1.59	.697	.025	1.54	1.64	1	5	
	Socially isolated	Male	775	1.85	.853	.031	1.79	1.91	1	5	.373
		Female	807	1.82	.823	.029	1.76	1.87	1	5	
	Socially excluded	Male	775	2.09	.888	.032	2.03	2.15	1	5	.483
		Female	807	2.12	.811	.029	2.06	2.17	1	5	
	Close/intimate	Male	775	1.66	.685	.025	1.62	1.71	1	5	.785
		Female	807	1.67	.714	.025	1.62	1.72	1	4	
	Family role	Male	775	1.12	.364	.013	1.09	1.14	1	4	.335
		Female	807	1.10	.339	.012	1.08	1.12	1	3	
	Community role	Male	775	1.11	.411	.015	1.09	1.14	1	4	.655
		Female	807	1.12	.398	.014	1.10	1.15	1	4	
SW	Burden	Male	775	1.30	.584	.021	1.26	1.34	1	5	.266
		Female	807	1.33	.633	.022	1.29	1.37	1	5	
	Worthless	Male	775	1.67	.801	.029	1.61	1.72	1	5	.002
		Female	807	1.79	.845	.030	1.74	1.85	1	5	
	Confidence	Male	775	1.98	.819	.029	1.92	2.04	1	5	.000
		Female	807	2.31	.834	.029	2.25	2.37	1	5	
Pain	Serious pain	Male	775	1.32	.684	.025	1.28	1.37	1	4	.016
		Female	807	1.41	.797	.028	1.36	1.47	1	4	
	Pain	Male	775	1.40	.559	.020	1.36	1.44	1	4	.285
		Female	807	1.43	.561	.020	1.39	1.47	1	3	
	Pain interfere	Male	775	1.75	.804	.029	1.69	1.80	1	5	.335
		Female	807	1.79	.835	.029	1.73	1.84	1	5	

AQoL-8D Instrument		Gender	N	Mean	SD	SE	95% Confidence Interval for Mean		Min	Max	Sig. between gender
Dimension	Items						LB	UB			
Sen	Vision	Male	775	1.86	.751	.027	1.81	1.91	1	3	.078
		Female	807	1.93	.769	.027	1.88	1.98	1	4	
	Hearing	Male	775	1.66	.746	.027	1.60	1.71	1	4	.008
		Female	807	1.56	.678	.024	1.51	1.61	1	4	
	Communicate	Male	775	1.13	.379	.014	1.10	1.16	1	4	.000
		Female	807	1.04	.258	.009	1.02	1.06	1	4	

Table A3. 2 Mean Item Response by Age

AQoL-8D Instrument		Gender	N	Mean	SD	SE	95% Confidence Interval for Mean		Min	Max	Sig. between Age group
Dimension	Items						LB	UB			
IL	Household tasks	18 to 24yrs	181	1.19	.484	.036	1.12	1.26	1	5	0.00
		25 to 34yrs	294	1.14	.413	.024	1.10	1.19	1	4	
		35 to 44yrs	255	1.26	.536	.034	1.19	1.32	1	4	
		45 to 54yrs	334	1.24	.512	.028	1.19	1.30	1	4	
		55 to 64yrs	313	1.33	.644	.036	1.26	1.40	1	4	
		65yrs+	205	1.75	.768	.054	1.65	1.86	1	4	
	Get around outside	18 to 24yrs	181	1.34	.570	.042	1.25	1.42	1	4	0.00
		25 to 34yrs	294	1.33	.588	.034	1.27	1.40	1	6	
		35 to 44yrs	255	1.36	.544	.034	1.30	1.43	1	4	
		45 to 54yrs	334	1.38	.617	.034	1.31	1.45	1	5	
		55 to 64yrs	313	1.46	.716	.040	1.38	1.54	1	5	
		65yrs+	205	1.74	.889	.062	1.62	1.86	1	6	
	Mobility	18 to 24yrs	181	1.07	.334	.025	1.02	1.12	1	4	0.00
		25 to 34yrs	294	1.11	.329	.019	1.07	1.14	1	3	
		35 to 44yrs	255	1.20	.470	.029	1.14	1.25	1	3	
		45 to 54yrs	334	1.34	.635	.035	1.27	1.40	1	4	
		55 to 64yrs	313	1.45	.732	.041	1.37	1.53	1	4	
		65yrs+	205	1.85	.991	.069	1.71	1.99	1	4	
	Personal care	18 to 24yrs	181	1.06	.229	.017	1.02	1.09	1	2	0.00
		25 to 34yrs	294	1.05	.220	.013	1.03	1.08	1	2	
		35 to 44yrs	255	1.09	.318	.020	1.05	1.13	1	3	
		45 to 54yrs	334	1.16	.434	.024	1.11	1.21	1	3	
		55 to 64yrs	313	1.15	.434	.025	1.11	1.20	1	3	
		65yrs+	205	1.39	.613	.043	1.31	1.47	1	3	
Hap	Content	18 to 24yrs	181	1.83	.778	.058	1.72	1.95	1	5	0.079
		25 to 34yrs	294	1.91	.848	.049	1.81	2.01	1	5	
		35 to 44yrs	255	1.97	.773	.048	1.87	2.06	1	5	
		45 to 54yrs	334	1.96	.776	.042	1.88	2.04	1	5	
		55 to 64yrs	313	1.99	.778	.044	1.90	2.08	1	5	
		65yrs+	205	1.82	.742	.052	1.72	1.92	1	5	
	Enthusiastic	18 to 24yrs	181	2.18	.797	.059	2.06	2.29	1	5	0.029
		25 to 34yrs	294	2.18	.807	.047	2.08	2.27	1	5	
		35 to 44yrs	255	2.33	.765	.048	2.24	2.43	1	5	
		45 to 54yrs	334	2.27	.768	.042	2.19	2.36	1	4	
		55 to 64yrs	313	2.36	.824	.047	2.27	2.45	1	5	
		65yrs+	205	2.25	.696	.049	2.16	2.35	1	4	
	Happy	18 to 24yrs	181	1.86	.607	.045	1.77	1.95	1	5	0.00
		25 to 34yrs	294	1.99	.560	.033	1.92	2.05	1	4	
		35 to 44yrs	255	2.12	.483	.030	2.06	2.18	1	4	
		45 to 54yrs	334	2.06	.537	.029	2.00	2.11	1	4	
		55 to 64yrs	313	2.12	.498	.028	2.07	2.18	1	4	
		65yrs+	205	2.00	.480	.034	1.94	2.07	1	4	
	Pleasure	18 to 24yrs	181	1.96	.721	.054	1.85	2.06	1	4	0.00
		25 to 34yrs	294	2.04	.815	.048	1.95	2.14	1	5	
		35 to 44yrs	255	2.18	.694	.043	2.10	2.27	1	5	
		45 to 54yrs	334	2.08	.664	.036	2.01	2.15	1	4	
		55 to 64yrs	313	2.22	.696	.039	2.14	2.29	1	5	
		65yrs+	205	2.08	.546	.038	2.00	2.15	1	4	
MH	Depressed	18 to 24yrs	181	1.80	.933	.069	1.66	1.94	1	6	0.014
		25 to 34yrs	294	2.00	.901	.053	1.90	2.10	1	5	
		35 to 44yrs	255	2.05	.891	.056	1.94	2.16	1	6	
		45 to 54yrs	334	1.99	.914	.050	1.89	2.09	1	6	
		55 to 64yrs	313	2.08	.917	.052	1.97	2.18	1	6	
		65yrs+	205	1.89	.859	.060	1.77	2.01	1	6	
	Sleeping	18 to 24yrs	181	2.27	.841	.063	2.14	2.39	1	5	0.00
		25 to 34yrs	294	2.14	.836	.049	2.04	2.23	1	5	
		35 to 44yrs	255	2.35	.955	.060	2.23	2.46	1	5	
		45 to 54yrs	334	2.38	.925	.051	2.28	2.48	1	5	
		55 to 64yrs	313	2.65	1.009	.057	2.53	2.76	1	5	
		65yrs+	205	2.67	.894	.062	2.55	2.80	1	5	

AQoL-8D Instrument		Gender	N	Mean	SD	SE	95% Confidence Interval for Mean		Min	Max	Sig. between Age group
Dimension	Items						LB	UB			
	Angry	18 to 24yrs	181	2.36	.721	.054	2.25	2.46	1	4	0.021
		25 to 34yrs	294	2.50	.695	.041	2.42	2.58	1	5	
		35 to 44yrs	255	2.52	.633	.040	2.44	2.60	1	5	
		45 to 54yrs	334	2.37	.644	.035	2.30	2.44	1	4	
		55 to 64yrs	313	2.40	.682	.039	2.33	2.48	1	5	
		65yrs+	205	2.40	.615	.043	2.32	2.48	1	4	
	Hurting yourself	18 to 24yrs	181	1.17	.470	.035	1.10	1.24	1	3	0.00
		25 to 34yrs	294	1.28	.733	.043	1.20	1.37	1	4	
		35 to 44yrs	255	1.19	.587	.037	1.12	1.26	1	4	
		45 to 54yrs	334	1.15	.467	.026	1.10	1.20	1	4	
		55 to 64yrs	313	1.11	.405	.023	1.07	1.16	1	4	
		65yrs+	205	1.08	.362	.025	1.03	1.13	1	3	
	Despair	18 to 24yrs	181	1.42	.700	.052	1.32	1.52	1	4	0.003
		25 to 34yrs	294	1.51	.742	.043	1.43	1.60	1	4	
		35 to 44yrs	255	1.36	.654	.041	1.28	1.44	1	4	
		45 to 54yrs	334	1.36	.673	.037	1.29	1.43	1	4	
		55 to 64yrs	313	1.43	.778	.044	1.34	1.51	1	4	
		65yrs+	205	1.27	.578	.040	1.19	1.35	1	4	
	Worried	18 to 24yrs	181	1.75	.870	.065	1.62	1.87	1	5	0.00
		25 to 34yrs	294	2.15	.945	.055	2.04	2.26	1	5	
		35 to 44yrs	255	2.06	.924	.058	1.95	2.18	1	5	
		45 to 54yrs	334	1.96	.835	.046	1.87	2.04	1	5	
		55 to 64yrs	313	1.92	.824	.047	1.83	2.01	1	5	
		65yrs+	205	1.90	.866	.060	1.78	2.02	1	5	
	Sad	18 to 24yrs	181	2.23	.759	.056	2.12	2.34	1	5	0.025
		25 to 34yrs	294	2.41	.658	.038	2.33	2.48	1	5	
		35 to 44yrs	255	2.30	.600	.038	2.22	2.37	1	5	
		45 to 54yrs	334	2.29	.578	.032	2.23	2.36	1	5	
		55 to 64yrs	313	2.32	.688	.039	2.24	2.39	1	5	
		65yrs+	205	2.24	.539	.038	2.16	2.31	1	4	
	Calm/tranquil or agitated	18 to 24yrs	181	2.02	.695	.052	1.91	2.12	1	4	0.00
		25 to 34yrs	294	2.34	.761	.044	2.25	2.42	1	4	
		35 to 44yrs	255	2.35	.616	.039	2.28	2.43	1	5	
		45 to 54yrs	334	2.16	.668	.037	2.09	2.23	1	5	
		55 to 64yrs	313	2.27	.659	.037	2.20	2.34	1	4	
		65yrs+	205	2.24	.559	.039	2.17	2.32	1	4	
Cop	Energy	18 to 24yrs	181	2.19	.907	.067	2.06	2.33	1	5	.000
		25 to 34yrs	294	2.22	.751	.044	2.14	2.31	1	5	
		35 to 44yrs	255	2.40	.858	.054	2.29	2.51	1	5	
		45 to 54yrs	334	2.37	.812	.044	2.28	2.45	1	4	
		55 to 64yrs	313	2.45	.839	.047	2.35	2.54	1	5	
		65yrs+	205	2.53	.757	.053	2.43	2.64	1	5	
	Control	18 to 24yrs	181	1.79	.789	.059	1.67	1.91	1	4	0.109
		25 to 34yrs	294	1.95	.689	.040	1.87	2.02	1	4	
		35 to 44yrs	255	1.92	.665	.042	1.84	2.00	1	5	
		45 to 54yrs	334	1.86	.768	.042	1.78	1.94	1	5	
		55 to 64yrs	313	1.86	.681	.038	1.78	1.93	1	5	
		65yrs+	205	1.80	.619	.043	1.72	1.89	1	5	
	Cope	18 to 24yrs	181	1.64	.730	.054	1.53	1.74	1	5	0.00
		25 to 34yrs	294	1.83	.663	.039	1.76	1.91	1	4	
		35 to 44yrs	255	1.89	.567	.036	1.82	1.96	1	5	
		45 to 54yrs	334	1.78	.586	.032	1.72	1.85	1	4	
		55 to 64yrs	313	1.73	.605	.034	1.66	1.79	1	4	
		65yrs+	205	1.75	.587	.041	1.67	1.83	1	5	
Rel	Enjoy close relationships	18 to 24yrs	181	1.56	.580	.043	1.47	1.64	1	4	0.00
		25 to 34yrs	294	1.47	.654	.038	1.39	1.54	1	5	
		35 to 44yrs	255	1.65	.588	.037	1.58	1.72	1	4	
		45 to 54yrs	334	1.68	.651	.036	1.61	1.75	1	5	
		55 to 64yrs	313	1.66	.635	.036	1.59	1.74	1	4	
		65yrs+	205	1.61	.613	.043	1.53	1.69	1	4	
	Close relationships	18 to 24yrs	181	1.56	.617	.046	1.47	1.65	1	4	0.038
		25 to 34yrs	294	1.56	.753	.044	1.48	1.65	1	6	
		35 to 44yrs	255	1.68	.697	.044	1.60	1.77	1	4	

AQoL-8D Instrument		Gender	N	Mean	SD	SE	95% Confidence Interval for Mean		Min	Max	Sig. between Age group
Dimension	Items						LB	UB			
		45 to 54yrs	334	1.69	.695	.038	1.62	1.77	1	5	
		55 to 64yrs	313	1.71	.695	.039	1.63	1.79	1	5	
		65yrs+	205	1.61	.702	.049	1.52	1.71	1	5	
	Socially isolated	18 to 24yrs	181	1.85	.836	.062	1.72	1.97	1	5	0.781
		25 to 34yrs	294	1.86	.843	.049	1.76	1.95	1	5	
		35 to 44yrs	255	1.87	.868	.054	1.76	1.97	1	5	
		45 to 54yrs	334	1.78	.810	.044	1.70	1.87	1	4	
		55 to 64yrs	313	1.86	.871	.049	1.76	1.95	1	5	
		65yrs+	205	1.80	.790	.055	1.69	1.90	1	4	
	Socially excluded	18 to 24yrs	181	2.19	.855	.064	2.06	2.31	1	5	.277
		25 to 34yrs	294	2.12	.874	.051	2.02	2.22	1	5	
		35 to 44yrs	255	2.17	.873	.055	2.06	2.28	1	5	
		45 to 54yrs	334	2.09	.774	.042	2.01	2.17	1	5	
		55 to 64yrs	313	2.03	.886	.050	1.93	2.13	1	5	
		65yrs+	205	2.06	.835	.058	1.95	2.18	1	5	
	Close/intimate	18 to 24yrs	181	1.55	.687	.051	1.45	1.65	1	5	0.00
		25 to 34yrs	294	1.45	.615	.036	1.38	1.52	1	4	
		35 to 44yrs	255	1.70	.675	.042	1.61	1.78	1	4	
		45 to 54yrs	334	1.67	.705	.039	1.60	1.75	1	4	
		55 to 64yrs	313	1.79	.703	.040	1.71	1.87	1	4	
		65yrs+	205	1.86	.748	.052	1.76	1.97	1	4	
	Family role	18 to 24yrs	181	1.05	.242	.018	1.01	1.09	1	3	0.00
		25 to 34yrs	294	1.09	.312	.018	1.06	1.13	1	3	
		35 to 44yrs	255	1.09	.295	.018	1.05	1.12	1	3	
		45 to 54yrs	334	1.10	.367	.020	1.06	1.14	1	4	
		55 to 64yrs	313	1.12	.373	.021	1.08	1.16	1	3	
		65yrs+	205	1.21	.457	.032	1.15	1.28	1	3	
	Community role	18 to 24yrs	181	1.10	.449	.033	1.03	1.17	1	4	0.00
		25 to 34yrs	294	1.11	.377	.022	1.06	1.15	1	4	
		35 to 44yrs	255	1.08	.323	.020	1.04	1.12	1	4	
		45 to 54yrs	334	1.07	.311	.017	1.04	1.11	1	4	
		55 to 64yrs	313	1.14	.435	.025	1.09	1.19	1	4	
		65yrs+	205	1.26	.530	.037	1.19	1.33	1	4	
SW	Burden	18 to 24yrs	181	1.52	.771	.057	1.41	1.64	1	4	0.00
		25 to 34yrs	294	1.39	.624	.036	1.32	1.47	1	4	
		35 to 44yrs	255	1.29	.562	.035	1.22	1.36	1	4	
		45 to 54yrs	334	1.27	.620	.034	1.21	1.34	1	5	
		55 to 64yrs	313	1.18	.487	.028	1.12	1.23	1	5	
		65yrs+	205	1.32	.572	.040	1.24	1.40	1	4	
	Worthless	18 to 24yrs	181	1.78	.892	.066	1.65	1.91	1	5	0.119
		25 to 34yrs	294	1.76	.800	.047	1.67	1.85	1	4	
		35 to 44yrs	255	1.80	.834	.052	1.70	1.90	1	5	
		45 to 54yrs	334	1.74	.813	.045	1.65	1.83	1	5	
		55 to 64yrs	313	1.70	.876	.050	1.61	1.80	1	5	
		65yrs+	205	1.60	.719	.050	1.50	1.69	1	4	
	Confidence	18 to 24yrs	181	2.17	.958	.071	2.03	2.31	1	4	0.002
		25 to 34yrs	294	2.18	.844	.049	2.08	2.27	1	5	
		35 to 44yrs	255	2.30	.792	.050	2.20	2.40	1	5	
		45 to 54yrs	334	2.16	.805	.044	2.07	2.24	1	5	
		55 to 64yrs	313	2.10	.866	.049	2.00	2.20	1	5	
		65yrs+	205	1.97	.785	.055	1.86	2.08	1	4	
Pain	Serious pain	18 to 24yrs	181	1.17	.466	.035	1.10	1.23	1	4	0.00
		25 to 34yrs	294	1.18	.411	.024	1.13	1.23	1	3	
		35 to 44yrs	255	1.30	.698	.044	1.22	1.39	1	4	
		45 to 54yrs	334	1.38	.788	.043	1.30	1.47	1	4	
		55 to 64yrs	313	1.50	.829	.047	1.41	1.59	1	4	
		65yrs+	205	1.69	.985	.069	1.55	1.82	1	4	
	Pain	18 to 24yrs	181	1.13	.386	.029	1.08	1.19	1	3	0.00
		25 to 34yrs	294	1.27	.503	.029	1.21	1.33	1	4	
		35 to 44yrs	255	1.37	.537	.034	1.30	1.43	1	4	
		45 to 54yrs	334	1.40	.548	.030	1.34	1.45	1	3	
		55 to 64yrs	313	1.56	.563	.032	1.50	1.62	1	3	
		65yrs+	205	1.72	.609	.043	1.63	1.80	1	3	

AQoL-8D Instrument		Gender	N	Mean	SD	SE	95% Confidence Interval for Mean		Min	Max	Sig. between Age group
Dimension	Items						LB	UB			
	Pain interfere	18 to 24yrs	181	1.43	.684	.051	1.33	1.53	1	4	0.00
		25 to 34yrs	294	1.54	.616	.036	1.47	1.61	1	4	
		35 to 44yrs	255	1.77	.781	.049	1.68	1.87	1	5	
		45 to 54yrs	334	1.80	.816	.045	1.71	1.89	1	4	
		55 to 64yrs	313	1.94	.889	.050	1.84	2.04	1	5	
		65yrs+	205	2.08	.933	.065	1.95	2.21	1	5	
Sen	Vision	18 to 24yrs	181	1.44	.669	.050	1.34	1.54	1	3	0.00
		25 to 34yrs	294	1.52	.675	.039	1.45	1.60	1	3	
		35 to 44yrs	255	1.65	.722	.045	1.56	1.74	1	3	
		45 to 54yrs	334	2.16	.718	.039	2.08	2.23	1	3	
		55 to 64yrs	313	2.25	.684	.039	2.17	2.32	1	4	
		65yrs+	205	2.19	.622	.043	2.10	2.27	1	3	
	Hearing	18 to 24yrs	181	1.29	.491	.037	1.22	1.36	1	3	0.00
		25 to 34yrs	294	1.29	.496	.029	1.23	1.34	1	3	
		35 to 44yrs	255	1.53	.638	.040	1.45	1.61	1	3	
		45 to 54yrs	334	1.63	.698	.038	1.55	1.70	1	3	
		55 to 64yrs	313	1.80	.770	.044	1.71	1.88	1	4	
		65yrs+	205	2.12	.779	.054	2.01	2.23	1	4	
	Communicate	18 to 24yrs	181	1.07	.280	.021	1.03	1.11	1	3	0.149
		25 to 34yrs	294	1.05	.270	.016	1.02	1.08	1	4	
		35 to 44yrs	255	1.09	.313	.020	1.05	1.13	1	3	
		45 to 54yrs	334	1.11	.399	.022	1.07	1.15	1	4	
		55 to 64yrs	313	1.07	.296	.017	1.04	1.11	1	3	
		65yrs+	205	1.11	.360	.025	1.06	1.16	1	3	

Table A3. 3 Mean Item Response by Education

AQoL-8D Instrument		Gender	N	Mean	SD	SE	95% Confidence Interval for Mean		Min	Max	Sig. between Age group
Dimension	Items						LB	UB			
IL	Household tasks	High School	475	1.31	.607	.028	1.25	1.36	1	5	0.123
		TAFE/Diploma/Trade qualifications	425	1.35	.620	.030	1.29	1.41	1	4	
		Graduate/postgraduate	682	1.28	.563	.022	1.23	1.32	1	4	
	Get around outside	High School	475	1.56	.661	.030	1.50	1.62	1	5	0.000
		TAFE/Diploma/Trade qualifications	425	1.40	.648	.031	1.34	1.46	1	5	
		Graduate/postgraduate	682	1.35	.676	.026	1.30	1.40	1	6	
	Mobility	High School	475	1.37	.679	.031	1.31	1.43	1	4	0.152
		TAFE/Diploma/Trade qualifications	425	1.34	.703	.034	1.27	1.41	1	4	
		Graduate/postgraduate	682	1.29	.631	.024	1.25	1.34	1	4	
	Personal care	High School	475	1.16	.432	.020	1.12	1.20	1	3	0.056
		TAFE/Diploma/Trade qualifications	425	1.17	.436	.021	1.13	1.21	1	3	
		Graduate/postgraduate	682	1.12	.373	.014	1.09	1.15	1	3	
Hap	Content	High School	475	1.88	.826	.038	1.80	1.95	1	5	0.053
		TAFE/Diploma/Trade qualifications	425	2.00	.813	.039	1.92	2.08	1	5	
		Graduate/postgraduate	682	1.91	.739	.028	1.86	1.97	1	5	
	Enthusiastic	High School	475	2.33	.829	.038	2.26	2.41	1	5	0.001
		TAFE/Diploma/Trade qualifications	425	2.32	.848	.041	2.24	2.41	1	5	
		Graduate/postgraduate	682	2.19	.695	.027	2.13	2.24	1	5	
	Happy	High School	475	2.03	.547	.025	1.98	2.08	1	4	0.088
		TAFE/Diploma/Trade qualifications	425	2.08	.564	.027	2.03	2.14	1	5	
		Graduate/postgraduate	682	2.01	.501	.019	1.98	2.05	1	4	
	Pleasure	High School	475	2.11	.736	.034	2.04	2.17	1	5	0.487
		TAFE/Diploma/Trade qualifications	425	2.13	.729	.035	2.06	2.20	1	5	
		Graduate/postgraduate	682	2.08	.661	.025	2.03	2.13	1	5	
MH	Depressed	High School	475	2.00	.935	.043	1.91	2.08	1	6	0.017
		TAFE/Diploma/Trade qualifications	425	2.08	.995	.048	1.98	2.17	1	6	
		Graduate/postgraduate	682	1.92	.820	.031	1.85	1.98	1	6	
	Sleeping	High School	475	2.53	.944	.043	2.45	2.62	1	5	0.000
		TAFE/Diploma/Trade qualifications	425	2.44	.933	.045	2.36	2.53	1	5	
		Graduate/postgraduate	682	2.29	.922	.035	2.22	2.36	1	5	
	Angry	High School	475	2.49	.673	.031	2.43	2.55	1	5	0.000
		TAFE/Diploma/Trade qualifications	425	2.52	.633	.031	2.46	2.59	1	5	
		Graduate/postgraduate	682	2.32	.670	.026	2.27	2.37	1	4	
	Hurting yourself	High School	475	1.17	.525	.024	1.13	1.22	1	4	0.926
		TAFE/Diploma/Trade qualifications	425	1.16	.500	.024	1.11	1.21	1	4	
		Graduate/postgraduate	682	1.16	.549	.021	1.12	1.21	1	4	
	Despair	High School	475	1.46	.749	.034	1.39	1.52	1	4	0.043
		TAFE/Diploma/Trade qualifications	425	1.40	.717	.035	1.33	1.47	1	4	
		Graduate/postgraduate	682	1.35	.650	.025	1.30	1.40	1	4	
	Worried	High School	475	1.95	.853	.039	1.87	2.03	1	5	0.837
		TAFE/Diploma/Trade qualifications	425	1.98	.944	.046	1.89	2.07	1	5	
		Graduate/postgraduate	682	1.98	.867	.033	1.91	2.04	1	5	
	Sad	High School	475	2.36	.678	.031	2.30	2.42	1	5	0.011
		TAFE/Diploma/Trade qualifications	425	2.33	.640	.031	2.27	2.39	1	5	
		Graduate/postgraduate	682	2.25	.607	.023	2.21	2.30	1	5	
	Calm/tranquil or	High School	475	2.31	.698	.032	2.24	2.37	1	5	0.000

AQoL-8D Instrument		Gender	N	Mean	SD	SE	95% Confidence Interval for Mean		Min	Max	Sig. between Age group
Dimension	Items						LB	UB			
	agitated	TAFE/Diploma/Trade qualifications	425	2.33	.673	.033	2.27	2.40	1	5	
		Graduate/postgraduate	682	2.13	.643	.025	2.09	2.18	1	4	
Cop	Energy	High School	475	2.49	.908	.042	2.41	2.58	1	5	0.000
		TAFE/Diploma/Trade qualifications	425	2.41	.816	.040	2.33	2.48	1	5	
		Graduate/postgraduate	682	2.24	.751	.029	2.19	2.30	1	4	
	Control	High School	475	1.83	.756	.035	1.76	1.90	1	5	0.002
		TAFE/Diploma/Trade qualifications	425	1.97	.708	.034	1.91	2.04	1	5	
		Graduate/postgraduate	682	1.83	.660	.025	1.78	1.88	1	5	
	Cope	High School	475	1.79	.666	.031	1.73	1.85	1	5	0.444
		TAFE/Diploma/Trade qualifications	425	1.80	.665	.032	1.74	1.87	1	5	
		Graduate/postgraduate	682	1.76	.563	.022	1.71	1.80	1	4	
Rel	Enjoy close relationships	High School	475	1.64	.690	.032	1.58	1.70	1	5	0.372
		TAFE/Diploma/Trade qualifications	425	1.58	.606	.029	1.52	1.64	1	4	
		Graduate/postgraduate	682	1.61	.599	.023	1.56	1.65	1	4	
	Close relationships	High School	475	1.70	.752	.034	1.63	1.77	1	6	0.052
		TAFE/Diploma/Trade qualifications	425	1.66	.699	.034	1.59	1.73	1	4	
		Graduate/postgraduate	682	1.60	.661	.025	1.55	1.65	1	5	
	Socially isolated	High School	475	1.89	.879	.040	1.81	1.97	1	5	0.002
		TAFE/Diploma/Trade qualifications	425	1.91	.861	.042	1.82	1.99	1	5	
		Graduate/postgraduate	682	1.75	.785	.030	1.69	1.81	1	5	
	Socially excluded	High School	475	2.16	.878	.040	2.08	2.24	1	5	0.000
		TAFE/Diploma/Trade qualifications	425	2.20	.866	.042	2.12	2.28	1	5	
		Graduate/postgraduate	682	2.00	.808	.031	1.94	2.07	1	5	
	Close/intimate	High School	475	1.72	.770	.035	1.65	1.79	1	5	0.122
		TAFE/Diploma/Trade qualifications	425	1.64	.673	.033	1.58	1.70	1	4	
		Graduate/postgraduate	682	1.65	.663	.025	1.60	1.70	1	4	
	Family role	High School	475	1.08	.311	.014	1.05	1.11	1	4	0.022
		TAFE/Diploma/Trade qualifications	425	1.15	.403	.020	1.11	1.18	1	3	
		Graduate/postgraduate	682	1.10	.342	.013	1.08	1.13	1	3	
	Community role	High School	475	1.13	.437	.020	1.09	1.17	1	4	0.055
		TAFE/Diploma/Trade qualifications	425	1.15	.458	.022	1.11	1.20	1	4	
		Graduate/postgraduate	682	1.09	.338	.013	1.07	1.12	1	4	
SW	Burden	High School	475	1.28	.612	.028	1.22	1.34	1	5	0.320
		TAFE/Diploma/Trade qualifications	425	1.32	.619	.030	1.26	1.38	1	5	
		Graduate/postgraduate	682	1.33	.601	.023	1.29	1.38	1	4	
	Worthless	High School	475	1.83	.886	.041	1.75	1.91	1	5	0.000
		TAFE/Diploma/Trade qualifications	425	1.79	.839	.041	1.71	1.87	1	5	
		Graduate/postgraduate	682	1.63	.761	.029	1.57	1.69	1	4	
	Confidence	High School	475	2.22	.888	.041	2.14	2.30	1	5	0.004
		TAFE/Diploma/Trade qualifications	425	2.20	.881	.043	2.11	2.28	1	5	
		Graduate/postgraduate	682	2.07	.777	.030	2.01	2.13	1	5	
Pain	Serious pain	High School	475	1.45	.787	.036	1.38	1.53	1	4	0.000
		TAFE/Diploma/Trade qualifications	425	1.42	.767	.037	1.35	1.49	1	4	
		Graduate/postgraduate	682	1.28	.689	.026	1.23	1.33	1	4	
	Pain	High School	475	1.47	.555	.025	1.42	1.52	1	3	0.001
		TAFE/Diploma/Trade qualifications	425	1.45	.573	.028	1.39	1.50	1	4	
		Graduate/postgraduate	682	1.35	.550	.021	1.31	1.39	1	4	
	Pain interfere	High School	475	1.81	.840	.039	1.74	1.89	1	5	0.003
		TAFE/Diploma/Trade	425	1.84	.857	.042	1.76	1.93	1	5	

AQoL-8D Instrument		Gender	N	Mean	SD	SE	95% Confidence Interval for Mean		Min	Max	Sig. between Age group
Dimension	Items						LB	UB			
		qualifications									
		Graduate/postgraduate	682	1.69	.774	.030	1.63	1.75	1	4	
Sen	Vision	High School	475	1.95	.773	.035	1.88	2.02	1	4	0.001
		TAFE/Diploma/Trade qualifications	425	1.96	.759	.037	1.89	2.03	1	3	
		Graduate/postgraduate	682	1.82	.747	.029	1.76	1.87	1	3	
	Hearing	High School	475	1.64	.729	.033	1.57	1.70	1	4	0.001
		TAFE/Diploma/Trade qualifications	425	1.69	.734	.036	1.62	1.76	1	4	
		Graduate/postgraduate	682	1.53	.683	.026	1.48	1.59	1	3	
	Communicate	High School	475	1.09	.315	.014	1.06	1.12	1	3	0.176
		TAFE/Diploma/Trade qualifications	425	1.10	.341	.017	1.07	1.14	1	3	
		Graduate/postgraduate	682	1.07	.323	.012	1.04	1.09	1	4	

Appendix 4 Aligning the database with the South Australian Omnibus Sample

Table A4. 1 Ratio of Non Adjusted and Adjusted Mean for AQoL-8D Population Norms

Age group	Gender	Non Adjusted			Non Adj (Freq)		Adjusted (Freq)		Implicit weight	
		N	Mean 4D	HO mean 4D	n1<HO Mean	n2>HO mean	n3<HO Mean	n4>HO mean	n3/n1	n4/n2
18 to 24yrs	Male	41	.80	**.88**	23	18	26	66	1.13	3.67
	Female	58	.77	**.87**	42	16	45	44	1.07	2.75
	Total	99	.78	**.88**	65	34	71	110	1.09	3.24
25 to 34yrs	Male	61	.78	**.88**	35	26	36	83	1.03	3.19
	Female	96	.79	**.84**	58	38	59	116	1.02	3.05
	Total	157	.78	**.86**	93	64	95	199	1.02	3.11
35 to 44yrs	Male	88	.76	**.84**	49	50	41	82	0.84	1.64
	Female	106	.78	**.84**	50	44	35	97	0.70	2.20
	Total	194	.77	**.84**	99	94	76	179	0.77	1.90
45 to 54yrs	Male	103	.76	**.81**	48	55	31	124	0.65	2.25
	Female	104	.76	**.81**	54	50	50	105	0.93	2.10
	Total	207	.76	**.81**	102	105	81	229	0.79	2.18
55 to 64yrs	Male	133	.76	**.79**	58	75	41	133	0.71	1.77
	Female	102	.80	**.80**	38	64	36	103	0.95	1.61
	Total	235	.78	**.80**	96	139	77	236	0.80	1.70
65yrs+	Male	77	.83	**.80**	29	48	30	71	1.03	1.48
	Female	78	.80	**.79**	30	48	34	70	1.13	1.46
	Total	155	.81	**.80**	59	96	64	141	1.08	1.47
Total	Male	503	.78	**.83**	244	259	206	569	0.84	2.20
	Female	544	.78	**.83**	266	278	253	554	0.95	1.99
	Total	1047	.78	**.83**	510	537	459	1123	0.90	2.09

References

Brazier, J., J. Ratcliffe, et al. (2007). Measuring and Valuing Health Benefits for Economic Evaluation. Oxford, Oxford University Press.

Hawthorne, G. and R. Osborne (2005). "Population norms and meaningful differences for the Assessment of Quality of Life (AQoL) measure." Australian and New Zealand Journal of Public Health **29**(2): 136-142.

Lehman, A. (1988). "A quality of life interview for the chronically mentall ill." Evaluation Program Planning **11**: 51-62.

Richardson, J., G. Chen, et al. (2011). Transformations between the Assessment of Quality of Life (AQoL) Instruments, Research Paper 66. Melbourne, Centre for Health Economics, Monash University.

Richardson, J., G. Elsworth, et al. (2011). Increasing the Sensitivity of the AQoL Inventory for Evaluation of Interventions Affecting Mental Health, Research Paper 61. Melbourne, Centre for Health Economics, Monash University.

Richardson, J., A. Iezzi, et al. (2009). Data used in the development of the AQoL-8D (PsyQoL) Quality of Life Instrument, Research Paper 40. Melbourne, Centre for Health Economics, Monash University.

Richardson, J., A. Maxwell, et al. (2012). Health Related Social and Individual Goals: Results from the Conflict Scale, Research Paper. Melbourne, Centre for Health Economics, Monash University.

Richardson, J., J. McKie, et al. (2011). Review and Critique of Related Multi Attribute Utility Instruments, Research Paper 64, (Forthcoming in A Culyer (ed), Encyclopedia of Health Economics, Elsevier Science San Diego). Melbourne, Centre for Health Economics, Monash University [http://www.buseco.monash.edu.au/centres/che/pubs/researchpaper64.pdf].