



Preliminary Results for the Validation of the Assessment of Quality of Life AQoL-8D Instrument

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ABSTRACT

AQoL-8D was designed to be an MAU instrument from which utility scores might be obtained. However, as with other MAU instruments, the questionnaire may be used as a generic, “psychometric” instrument using unweighted average response scores. The present paper presents a number of tests of convergent validity of AQoL-8D as a psychometric instrument. It performs very well on these tests.

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Preliminary Results for the Validation of the AQoL-8D Assessment of Quality of Life (AQoL) 8D Instrument

1 Introduction and background

The AQoL-8D was initially created in 2007 as a specialised version of the AQoL-6D for mental health. However, it soon became apparent that the instrument had much wider application, as the additional dimensions measuring self-worth, life satisfaction and the new items in the mental health dimension are affected by a wide range of conditions and situations in addition to those associated with mental health problems. Consequently, the AQoL-8D may be used as a generic instrument.

Utility weights will not be available until the beginning of 2010. However, the instrument has been subject to a number of preliminary tests of validity. These are reported below. The tests are conventional in the sense that they consist of a comparison of the instrument with other instruments which purport to measure health related quality of life (convergent validity) and subjective wellbeing. They are innovative in their inclusion of the K10 as a measure of psychological distress and both the Personal Wellbeing Index (PWI) and the Satisfaction with Life (SWL) scales as measures of subjective well-being.

2 Psychometric versus utility instruments

Psychometric instruments such as the SF-36 or PWI are scored (scaled) by the simple addition of the order of the response category. Thus, on a 7-category response scale (eg “extremely bad” to “extremely good”) a mid response would typically score 4, the lowest and highest responses would score 1 and 7 respectively. Utility instruments such as the AQoL-6D and AQoL-7D replace the scores with a weight on a 0-1 scale, where 0.00 and 1.00 are the weights for the two extreme responses.

3 Validation

Validation is a process of testing an instrument to determine whether, or to what extent, it measures what it purports to measure. When there is no gold standard (such as those which usually exist in physical measurement), the process involves hypothesis testing. For example, the score obtained on the scale would be expected to correlate positively with the score from

instruments purporting similar measurement (convergent validity) and to correlate poorly with other scales (discriminate validity). Importantly, an instrument is never completely “validated”, as each new context and test may identify a weakness. Thus, the common assertion that an instrument is “validated” on the basis of a single test or the repetition of this test is misleading. Unfortunately, “validated” is a compelling term: it implies a universality which is incorrect. The repetition of a “weak validation” test no more “proves” the universality of an instrument than the repeated observation of falling objects proves Newton’s laws of gravity and motion.

The present paper relates specifically to tests of convergent validity. Results from the AQoL-8D are compared with results from other well known instruments which are widely accepted as reflecting health status or subjective wellbeing. The hypothesis being tested is not, therefore, that the present AQoL-8D score must measure utility, but that they reflect quality of life (QoL) as measured on other scales.

Two data sets are employed. They are the databases used for the construction of the AQoL-8D and the data collected in a 7 instrument comparison of Bangladeshi migrants. They are described in Richardson et al (2009), and Khan and Richardson (2009), and may be accessed on the AQoL website [<http://www.buseco.monash.edu.au/centres/che/aqol/>].

4 The AQoL PWI Comparison

The 645 individuals interviewed in the weights survey for the AQoL also completed the AQoL-8D questionnaire and to the Personal Well-Being Index (PWI). This latter scale evolved from the Comprehensive Quality of Life (CoMQoL) instrument and consists of eight items relating to life satisfaction, each relating to a different domain of life. It is arguably the most sophisticated such instrument to date (International Wellbeing Group 2006).

It commences with the item “satisfaction with life as a whole” which is used to check content validity of the scale (see International Wellbeing Group 2006) and the PSWI itself which comprises eight items which relate to satisfaction with broad areas of life namely:

- | | |
|------------------|-----------------------|
| 1. Health | 5. Feeling safe |
| 2. Achieving | 6. Future security |
| 3. Relationships | 7. Religion |
| 4. Community | 8. Standard of Living |

It was postulated that satisfaction with life as a whole, the overall PWI and, individually, the first four of the PWI items would be related to the AQoL-8D, *albeit* imperfectly. The final 4 items of the PWI relate to elements of wellbeing which are not directly related to the AQoL domain, but should correlate due to an indirect effect upon AQoL items. The PWI purports to “tap into” a person’s mood affect – underlying sense of well-being. The number selected on the 11-point scale reflects a feeling rather than a cognitive response to a defined state. The AQoL on the other hand, like other instruments for measuring specific health states, requires a cognitive response as a person reflects upon the health state descriptions of the item responses. Summary data for the distribution of PWI domain scores by sub-scale are presented in Appendix Table A1.

Unweighted AQL-8D and dimension scores were divided into eleven categories (0.00; 0.01-1.00; 1.01-0.02, etc.) and the average PWI scores were calculated for each. Figure 1 plots the average PWI for the five sub-scales of interest against the AQL-8D score. Figures 2.1 – 2.8 disaggregate the AQL-8D into its eight dimensions. Data used in these figures are reported in the Appendix B in Tables B.1 – B.9.

The way the PWI is constructed, the domains share some 40% of variance with one another (which is why they hang together as a scale) and have a small amount of unique variance, which amount will depend on the target. So using “life as a whole” as the target, the domains only contribute 1-2% unique variance. Thus, the most interesting comparison for the AQL is the PWI. The small amounts of unique variance of other domains explain why they show much the same relationship, in the figures below.

Figure 1 Average PWI score – total AQoL-8D

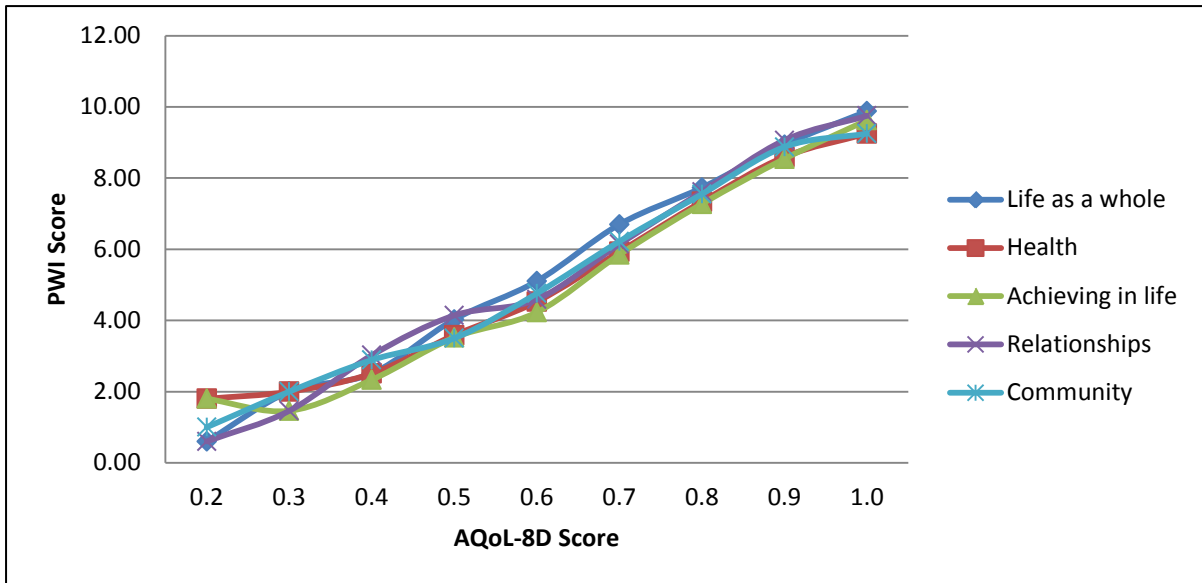


Figure 2 Average PWI score – Independent Living

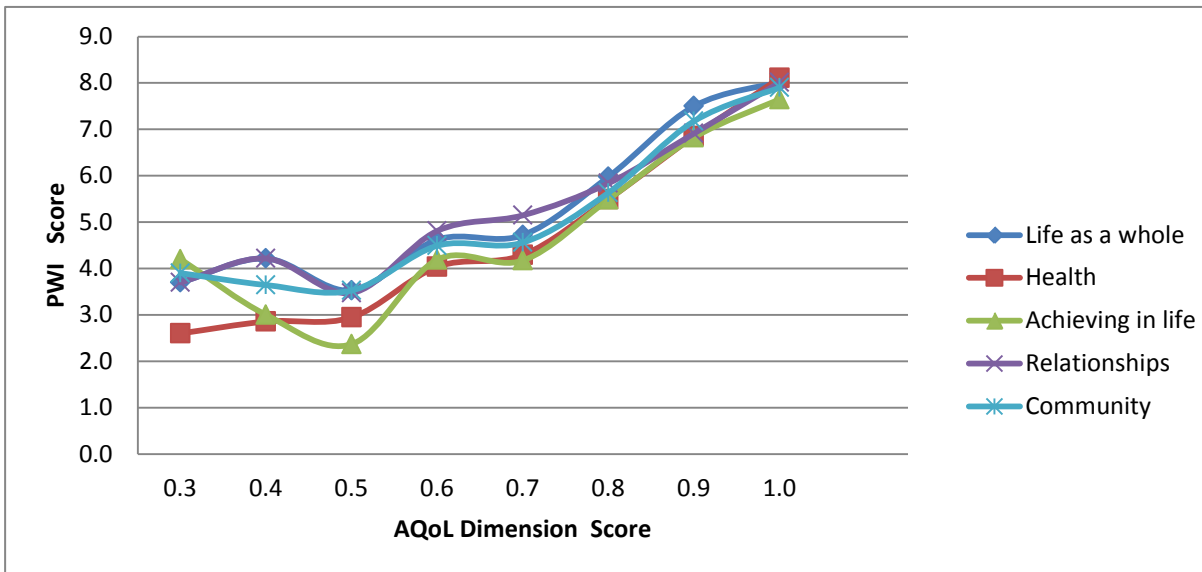


Figure 3 Average PWI score – Life Satisfaction

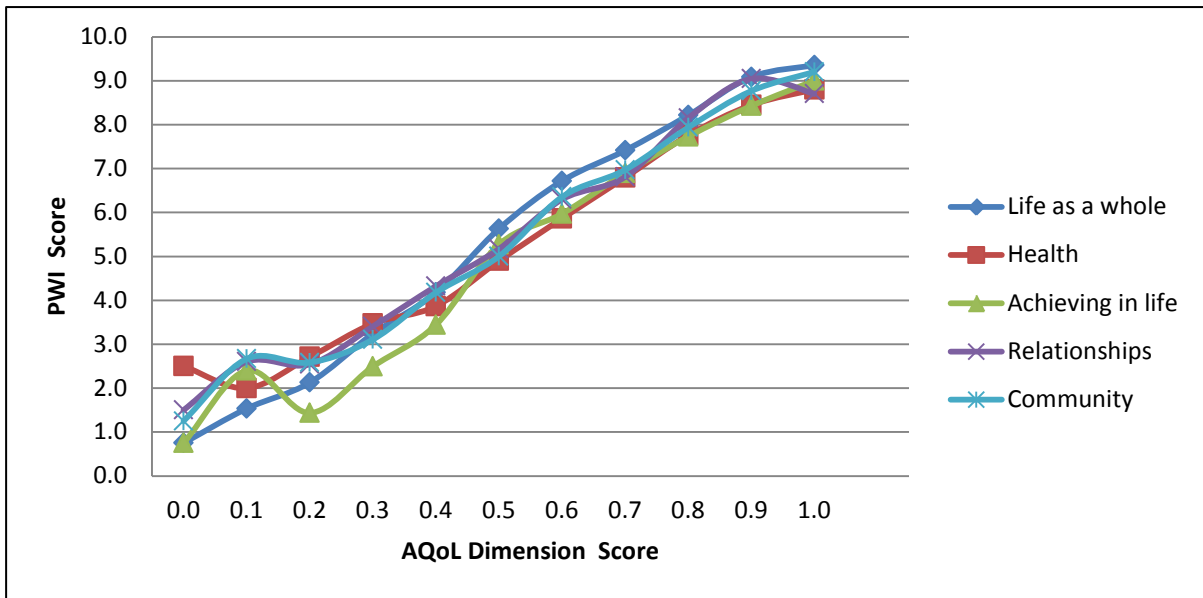


Figure 4 Average PWI score – Mental Health

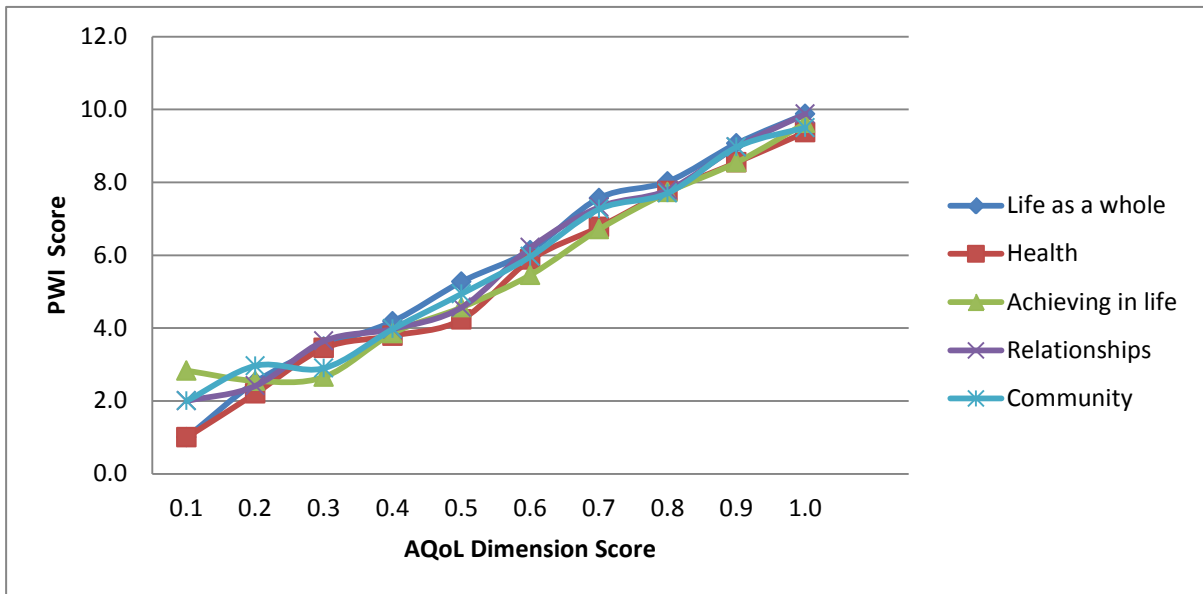


Figure 5 Average PWI score – coping

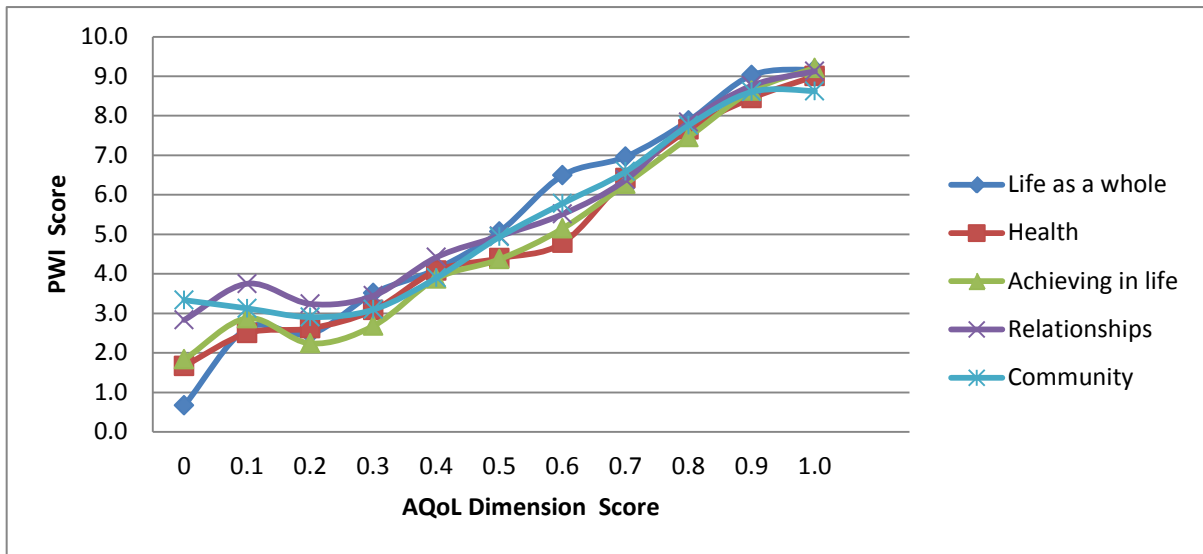


Figure 6 Average PWI score – Relationships

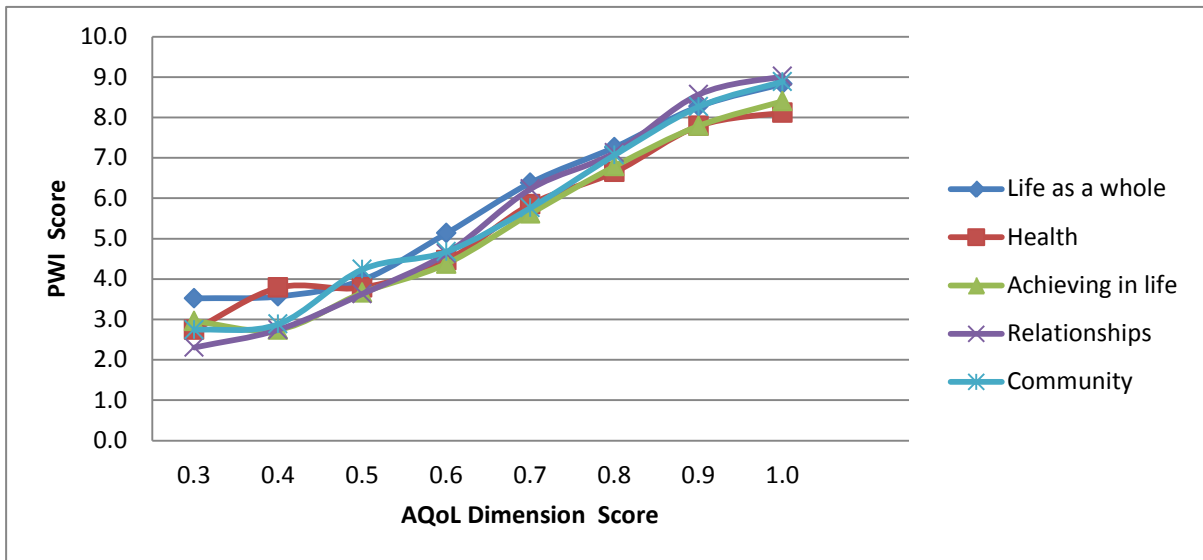


Figure 7 Average PWI score – Self Worth

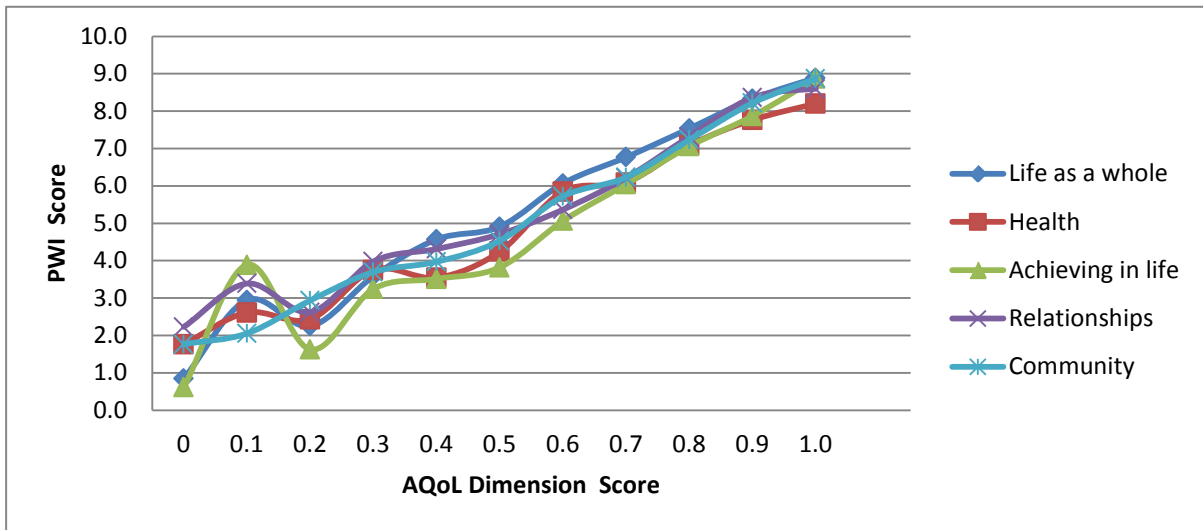


Figure 8 Average PWI score - Pain

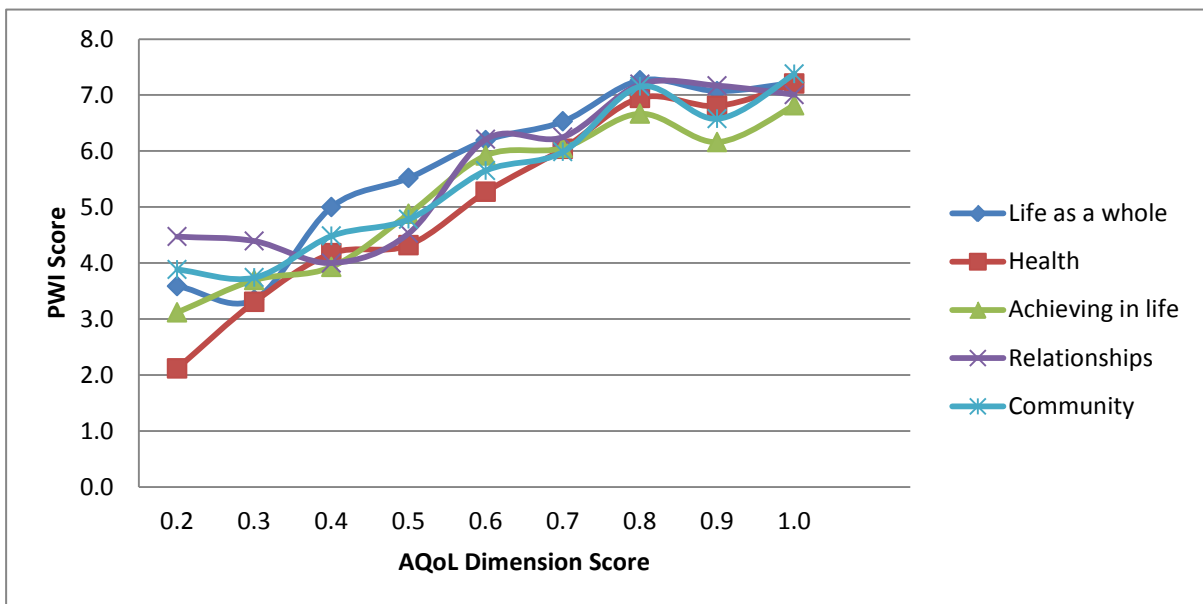
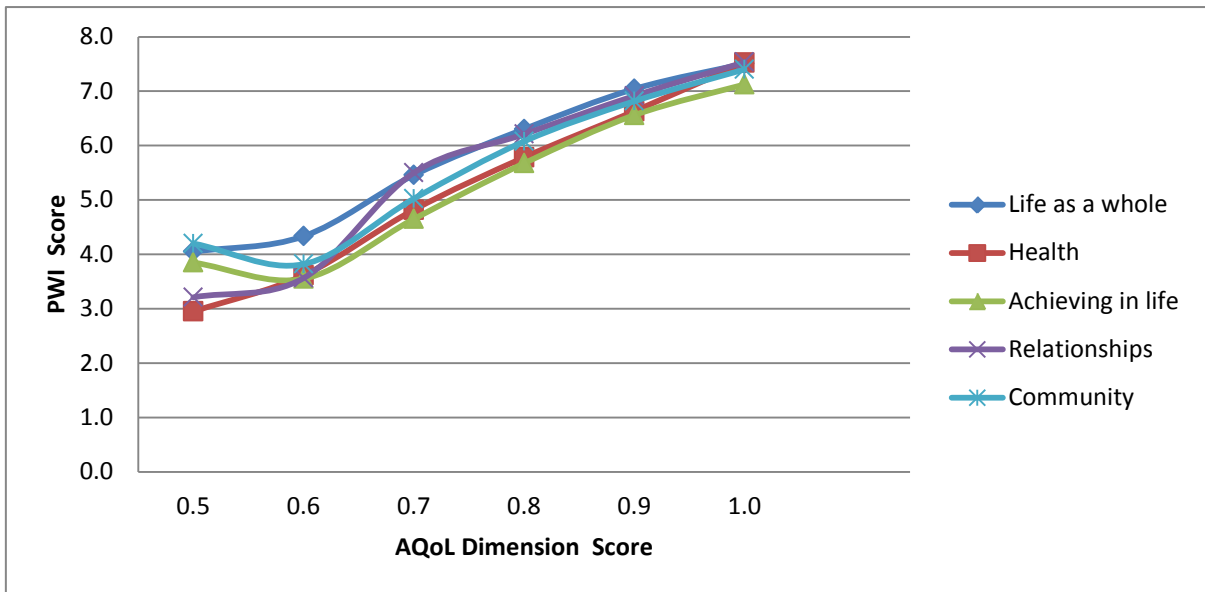


Figure 9 Average PWI score - Senses



Similar data are reported in Figures 10 to 18, except that in these figures the average value of the AQoL and the average dimension scores are classified by PWI score. The corresponding data are reported in Appendix Tables A.2 – A.10.

Figure 10 Average AQoL-8D score

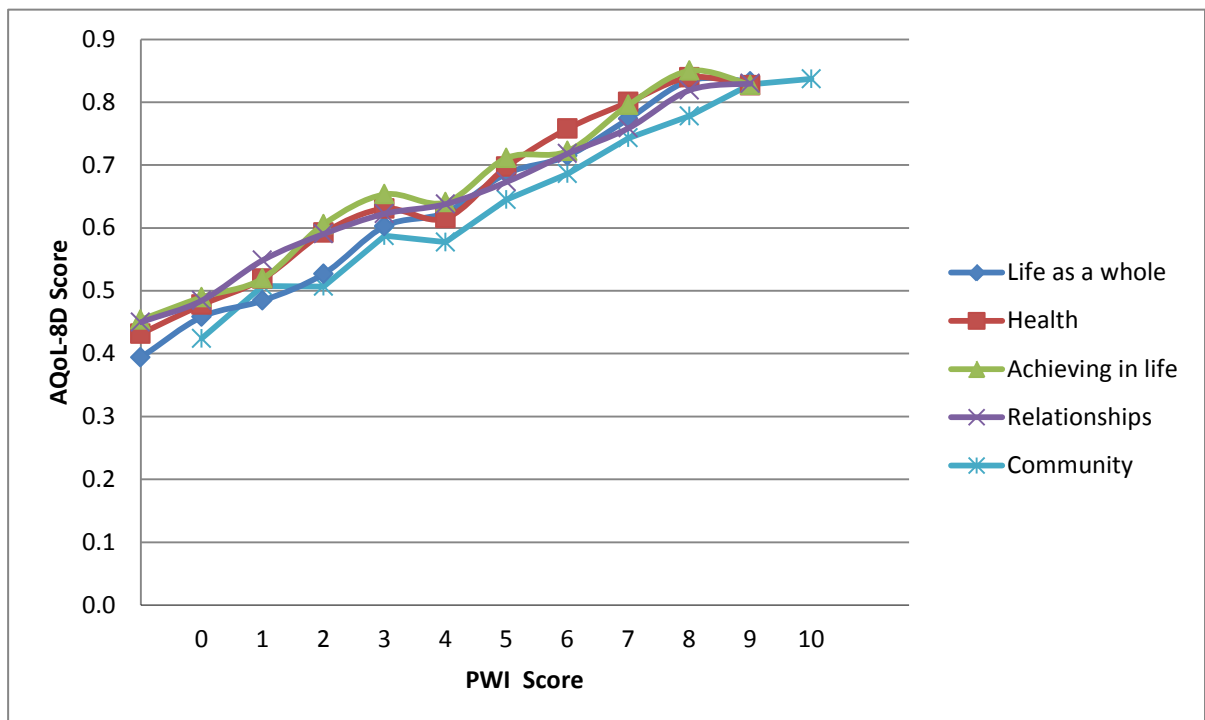


Figure 11 Average dimension – Independent Living score

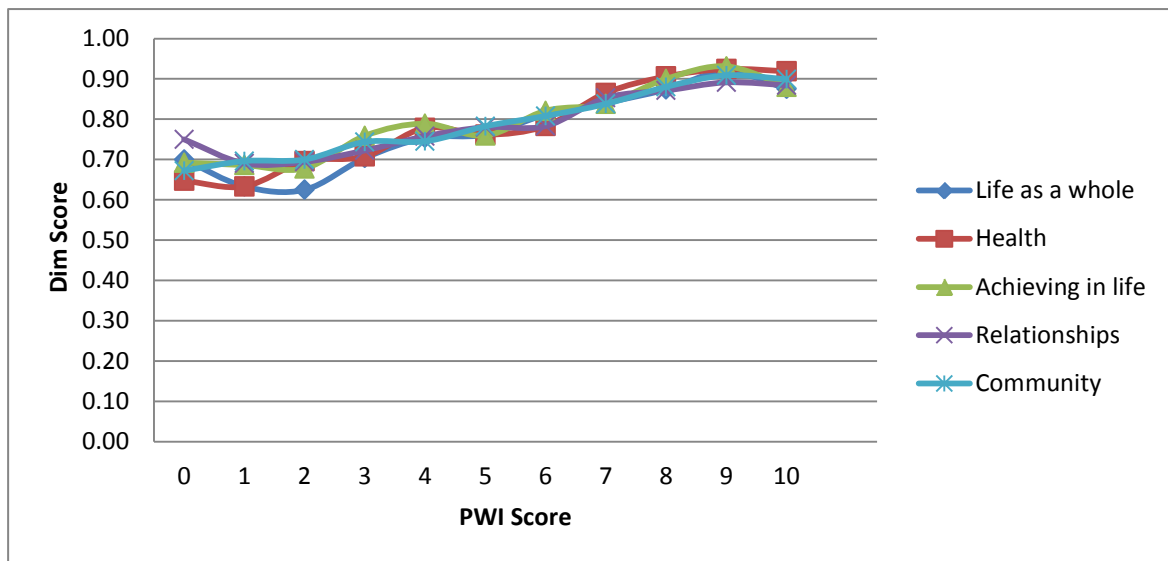


Figure 12 Average Dimension – Life Satisfaction score

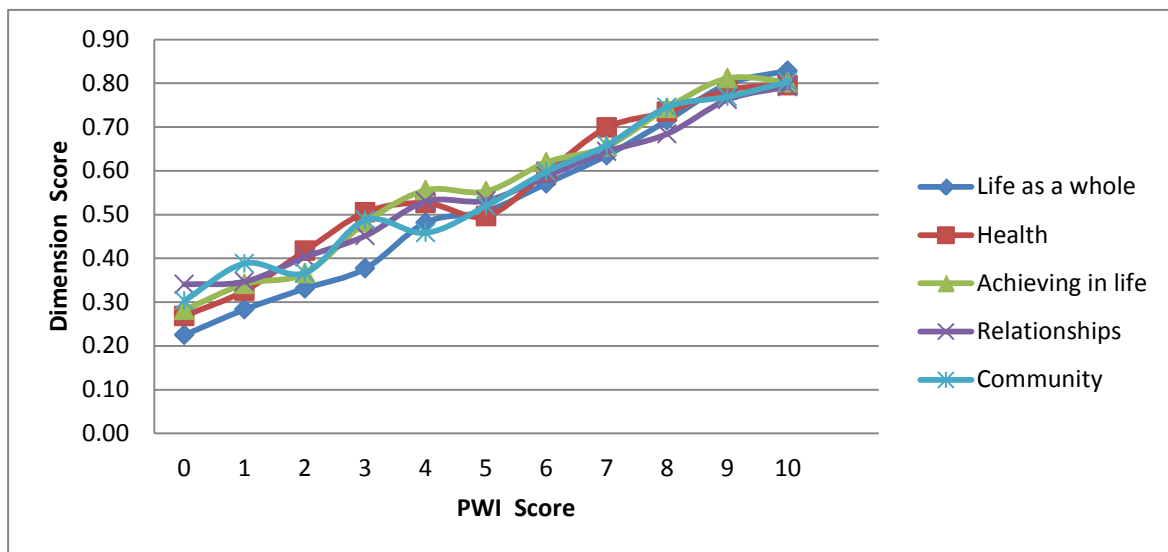


Figure 13 Average dimension – Mental Health score

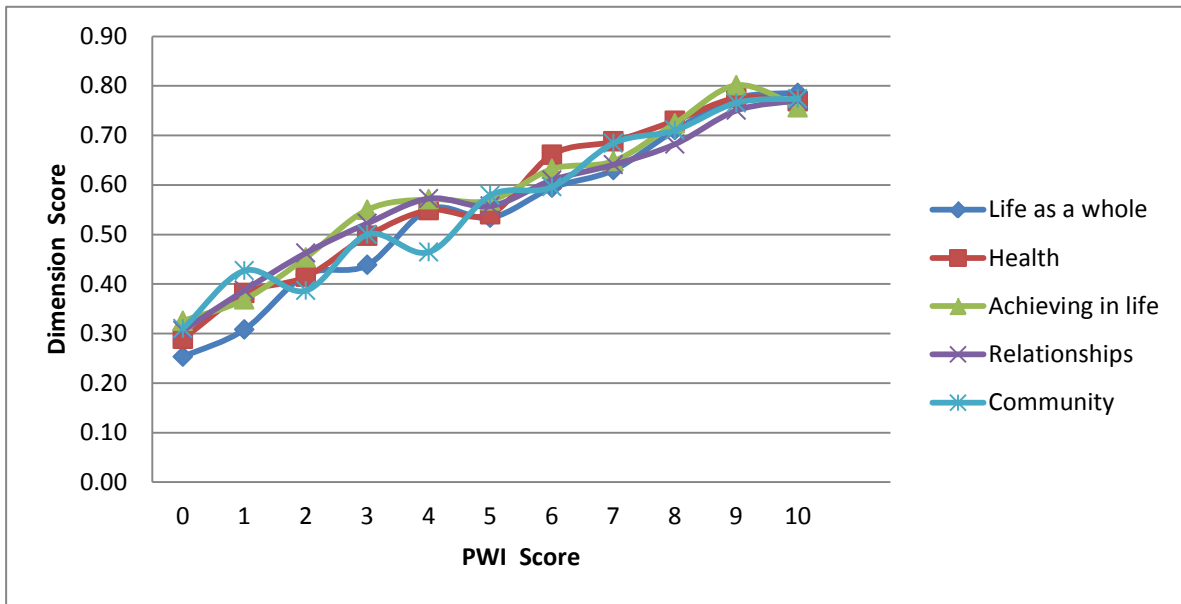


Figure 14 Average dimension – Coping score

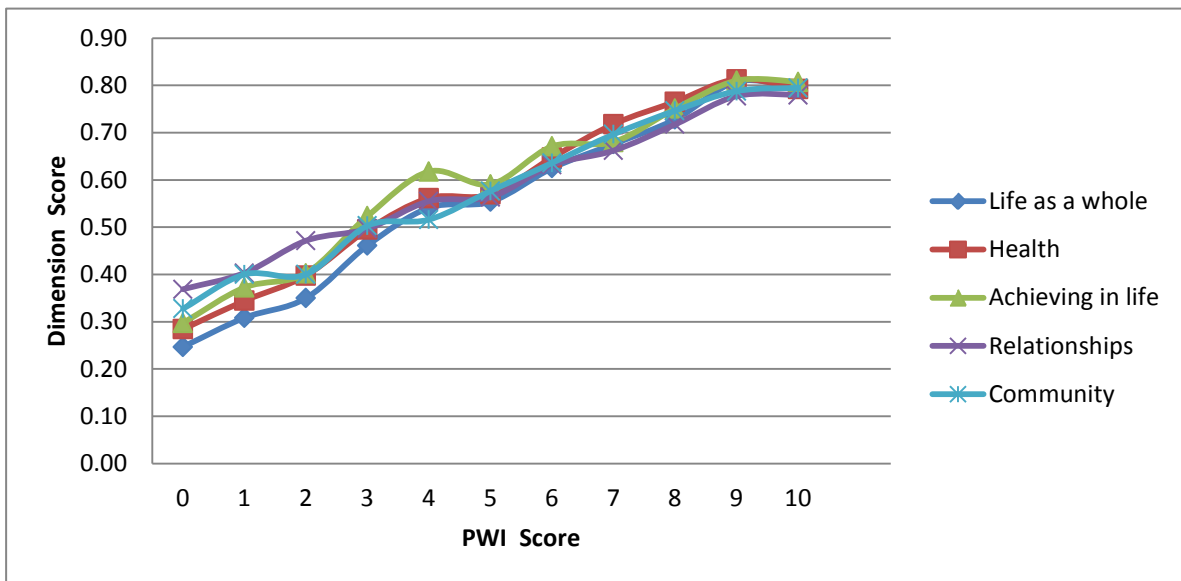


Figure 15 Average dimension – Relationship score

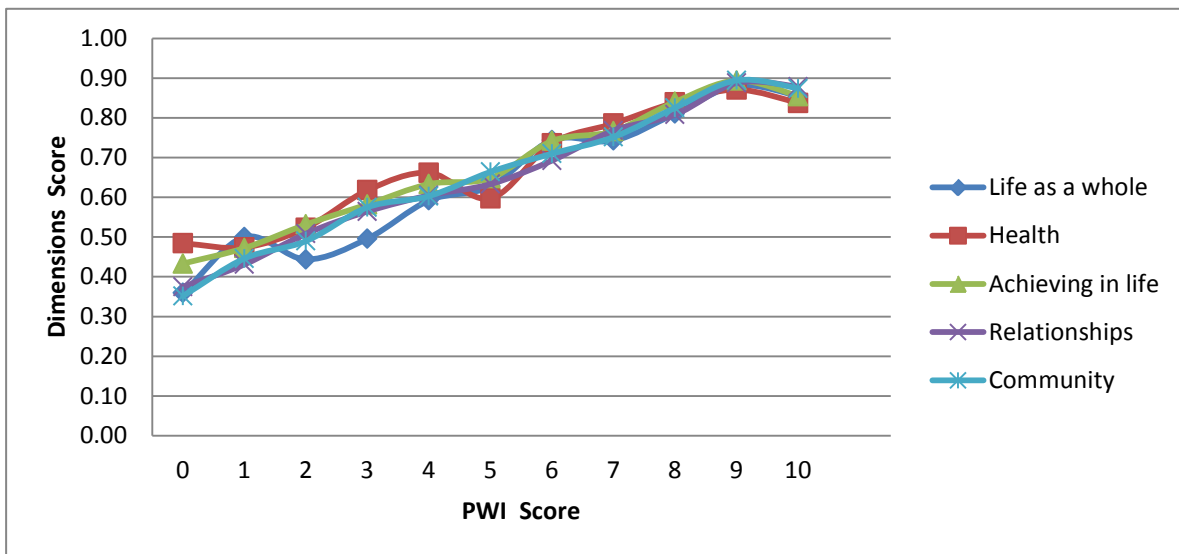


Figure 16 Average dimension – Self Worth score

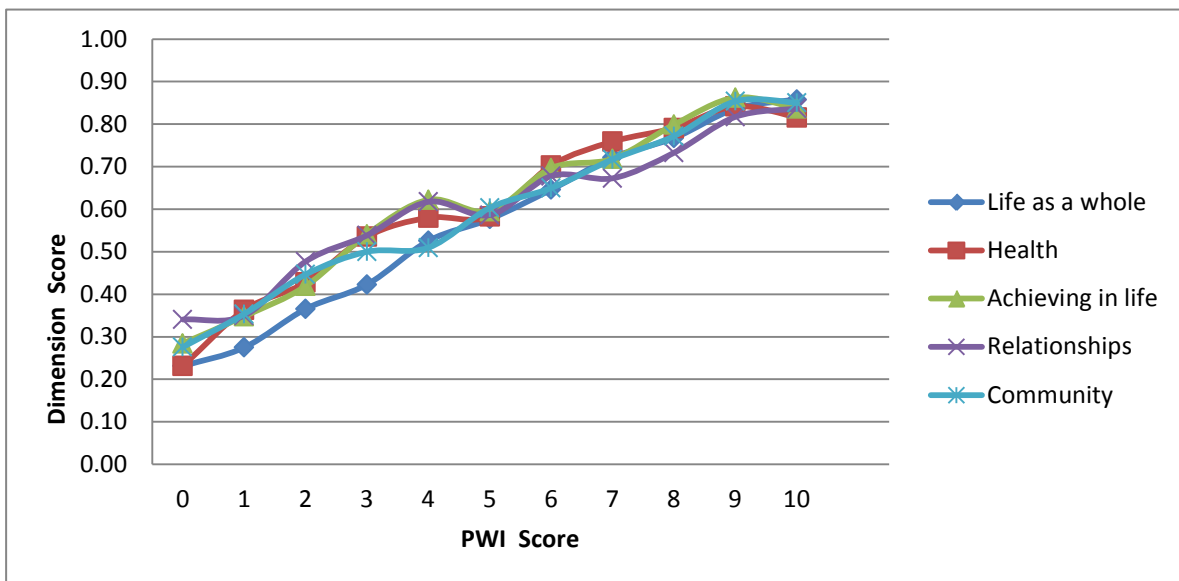


Figure 17 Average dimension – Pain score

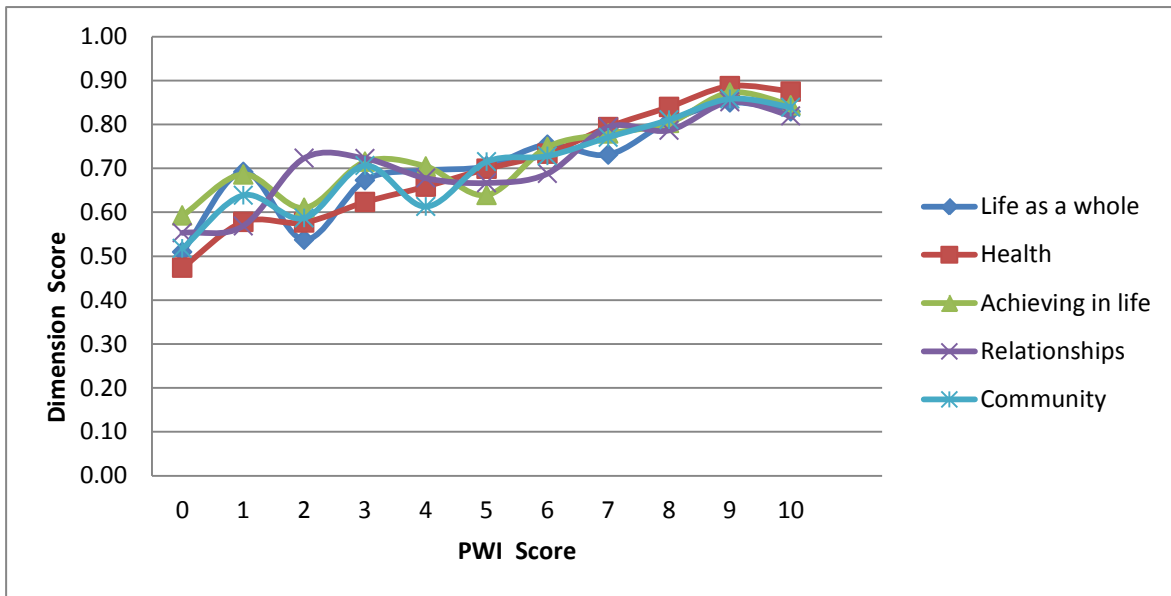
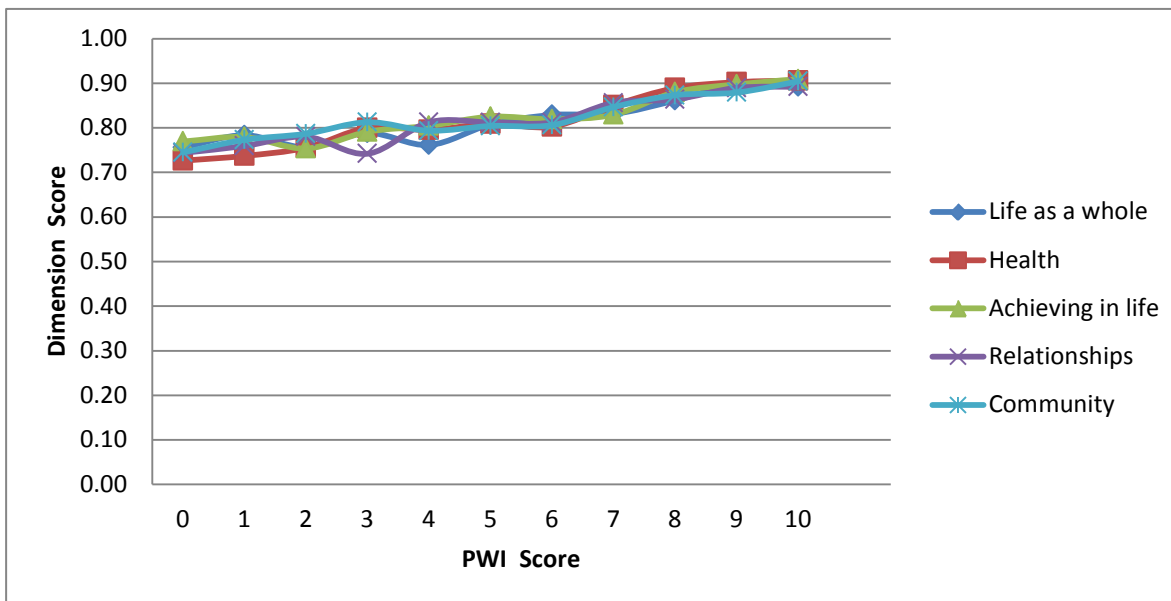


Figure 18 Average dimension – Senses score



The correlations between PWI and AQoL and their sub-dimensions are reported in Table 1.

Table 1 Correlation table for PWI and AQoL-8D and Sub-scales

Correlations	PWI									AQoL-8D								
	Living standard	Health	Achieve in life	Relations	Safe	Community	Security	Religion	PWI	AQoL Total	Independent Living	Life Satisfaction	Mental Health	Coping	Relationships	Self Worth	Pain	Senses
PWI																		
Living standard	1																	
Health	.60**	1																
Achieve in life	.69**	.65**	1															
Relations	.65**	.58**	.66**	1														
Safe	.62**	.61**	.60**	.65**	1													
Community	.68**	.60**	.71**	.67**	.69**	1												
Security	.71**	.61**	.67**	.60**	.71**	.69**	1											
Religion	.43**	.42**	.43**	.43**	.40**	.43**	.44**	1										
PWI	.69**	.67**	.77**	.70**	.68**	.72**	.69**	.48**	1									
Average	0.64	0.61	0.65	0.62	0.63	0.65	0.65	0.44	0.68									
AQoL-8D																		
AQoL Total	.66**	.71**	.70**	.68**	.70**	.71**	.70**	.47**	.75**	1								
Independent Living	.41**	.55**	.47**	.40**	.46**	.45**	.42**	.31**	.47**	.72**	1							
Life Satisfaction	.62**	.66**	.72**	.64**	.65**	.68**	.68**	.49**	.77**	.86**	.57**	1						
Mental Health	.60**	.66**	.64**	.62**	.67**	.65**	.68**	.42**	.70**	.90**	.56**	.79**	1					
Coping	.56**	.68**	.67**	.58**	.64**	.63**	.65**	.42**	.70**	.87**	.62**	.83**	.79**	1				
Relationships	.66**	.58**	.66**	.74**	.63**	.70**	.60**	.39**	.70**	.84**	.56**	.73**	.72**	.71**	1			
Self Worth	.59**	.62**	.67**	.58**	.64**	.65**	.66**	.42**	.71**	.87**	.57**	.80**	.81**	.81**	.72**	1		
Pain	.31**	.47**	.32**	.32**	.39**	.36**	.33**	.19**	.36**	.58**	.50**	.37**	.49**	.42**	.41**	.41**	1	
Senses	.34**	.42**	.35**	.37**	.31**	.34**	.33**	.23**	.35**	.54**	.49**	.42**	.43**	.43**	.43**	.42**	.37**	1
Average	0.53	0.60	0.58	0.55	0.57	0.58	0.57	0.38	0.62	0.78	0.60	0.68	0.69	0.69	0.64	0.68	0.45	0.45
N =	645	645	644	643	643	645	645	645	645	679	679	679	679	679	679	679	679	679

** Correlation is significant at the 0.01 level (2-tailed)

5 Bangladeshi 7-Instrument study

As reported in Khan and Richardson (2009), 158 Bangladeshi Australians completed a questionnaire which contained, *inter alia*, the QoL scales described in Table 2.

Table 2 Quality of Life Scale in the 7-instrument Study

Instrument	Dimension	Items	Response levels
Assessment of Quality of Life (AQoL)-8D	8*	35	4 - 6
EQ-5D	5*	5	3
SF-6D	6*	6	4 - 6
HUI3	8*	8	5 - 6
Personal Wellbeing Index (PWI)	9*	9	10
Satisfaction with Life Scale (SWLS)	5*	5	7
Kessler Psychological Scale (K -10)	10*	10	5

* Dimension and Items are the same

The Health Utility Index (HUI) is the MAU instrument widely used in Canada (Boyle et al 1995; Torrance et al 1995). The SF-6D, the second MAU instrument, was developed by Brazier and consists of a reduced form of the SF-36, the most widely used psychometric HR QoL instrument (Brazier 1998). The EQ-5D developed by the EuroQoL Group (EuroQoL Group 1990) is now the most commonly used MAU instrument in economic studies, partly as a result of its mandated use for studies submitted to the UK National Institute of Clinical Excellence (NICE). The Kessler Psychological Distress Scale, or K10, is a widely used psychological scale for measuring negative emotions (Andrews, Slade 2001). The overall QoL is a summary scale for the overall quality of life (Atlas of Canada 2009; Hunt et al. 2007).

Table 3 reports the correlation between the unweighted (“psychometric”) scores of the four MAU instruments and the three psychometric scales. The right-hand column indicates that the AQoL-8D is the instrument which correlates most highly with 5 of the scales; the SF-6D with two, and the K10 with one (viz, the AQoL-8D).

Table 3 Correlations between 7 Multi-attribute Indices of Quality of Life

Index	AQoL-8D Score	EQ-5D Score	SF-6D Score	HUI3 Score	K10 Total Score	SWLS Score	PWI Score	Overall
AQoL-8D Score	1							
EQ-5D Score	.558**	1						
SF-6D Score	.666**	.605**	1					
HUI3 Score	.487**	.555**	.644**	1				
K10 Total Score	.681**	.560**	.552**	.420**	1			
SWLS Score	.495**	.435**	.420**	.429**	.440**	1		
PWI Score	.530**	.466**	.487**	.520**	.462**	.533**	1	
Overall QoL (Self-reported)	.479**	.306**	.432**	.371**	.283**	.274**	.387**	1
Average	.557	.498	.513	.489	.485	.432	.484	.484

*. Correlation is significant at the 0.05 level (2-tailed).

** . Correlation is significant at the 0.01 level (2-tailed).

Tables 4 and 5 report the correlation between the AQL dimensions, the PWI constituent scales and the other instruments. It similarly indicates the highest correlating “other instrument”.

Table 6 reports the correlation between AQL dimensions and constituent scales of the PWI.

Table 4 Correlations: AQL-8D Dimensions on other Instrument Scales (N - 158)

Index	Indep living	Life Satisfac tion	Mental Health	Coping	Relation -ships	Self Worth	Pain	Senses	Highest
AQoL-8D	.503**	.692**	.817**	.734**	.752**	.684**	.594**	.579**	Mental Health
EQ-5D	.271**	.328**	.391**	.412**	.358**	.394**	.606**	.397**	Pain
SF-6D	.394**	.450**	.496**	.491**	.394**	.433**	.592**	.465**	Pain
HUI3	.250**	.254**	.326**	.375**	.244**	.376**	.520**	.538**	Senses
K10	.199*	.453**	.607**	.492**	.536**	.574**	.440**	.285**	Mental Health
SWLS	.353**	.303**	.329**	.370**	.407**	.336**	.380**	.217**	Relationships
Overall QoL	.362**	.482**	.301**	.322**	.250**	.184*	.428**	.403**	Life Satisfaction

Table 5 Correlations: PWI Scales on other Instrument Scales (N = 158)

Index	AQoL-8D	EQ-5D	SF-6D	HUI3 Score	K10 Total	SWLS	Highest MAU
PWI Whole life	.537**	.484**	.506**	.465**	.492**	.547**	AQoL-8D
PWI Health	.458**	.444**	.466**	.374**	.383**	.391**	SF-6D
PWI Achieve in life	.498**	.500**	.500**	.513**	.455**	.514**	HUI3
PWI Relations	.549**	.382**	.462**	.480**	.482**	.527**	AQoL-8D
PWI Community	.392**	.243**	.330**	.322**	.315**	.316**	AQoL-8D
PWI Total	.530**	.466**	.487**	.520**	.462**	.533**	AQoL-8D
Overall QoL	.479**	.306**	.432**	.371**	.283**	.274**	AQoL-8D
Highest PWI	Relations	Achieve	Whole	Achieve	Whole	Whole	

Table 6 Correlations: AQL-8D on PWI Scales (N = 158)

Index	Indep living	Life Satisfac	Mental Health	Coping	Relation ships	Self Worth	Pain	Senses	Highest
PWI Whole life	.248**	.414**	.385**	.408**	.449**	.320**	.327**	.393**	Relations
PWI Health	.277**	.348**	.252**	.411**	.336**	.281**	.415**	.307**	Pain
PWI Achieve in life	.209**	.351**	.385**	.387**	.397**	.286**	.347**	.337**	Relations
PWI Relations	.206**	.393**	.418**	.389**	.509**	.317**	.350**	.349**	Relations
PWI Community	.120	.169*	.333**	.316**	.420**	.216**	.244**	.194*	Relations
PWI Total	.220**	.351**	.402**	.412**	.472**	.272**	.369**	.348**	Relations
Highest	Whole life	Whole life	Relation	Total/ Health	Relation	Whole life/ Relation	Health	Relation/ Whole	

6 Conclusions

In his review of the properties and validity of 104 QoL scales, McDowell (2006), reports that “convergent validity coefficients between the tests reviewed in this book are low, typically falling between 0.4 and 0.6 ... the attenuation of validity coefficients, due to unreliability, implies that a correlation of 0.6 between two measures represents an extremely strong association” (p36).

Using this criterion the results here represent very strong evidence of instrument validity.

In the first test, the correlation between the average value of the PWI and AQoL, and between the sub-scales of the two instruments, is remarkable, with the average values of each instrument exactly tracking the average value of the other. This is reflected in the correlation between instrument components. Not only are the correlations between PWI scales and the AQoL well above McDowell’s criterion value for an extremely strong association (except religion), but each PWI scale correlates more highly with AQoL than with other PWI scales. It is far higher than anticipated, as the two instruments purport to tap into different brain functions (cognition and affect). They call into question the clarity of the distinction between scales purporting to measure cognitive judgement and affect.

Results from the second study represent the broadest comparison of instruments ever undertaken, the previous largest comparison being between five instruments (Hawthorne and Richardson 2001). In the comparisons reported here, the AQoL out-performs the other instruments: it has the highest average correlation of the MAU instruments, along with the SF-6D, and is the most highly correlated instrument with the other instruments and with the sub-scales of the PWI.

It may be concluded the AQoL-8D has “passed” the tests set here well and the results lend strong support to its use as a psychometric instrument.

Appendix A

Table A.1 Frequency distribution of PWI Score – public, patient and total

PWI Score	PWI Whole life			PWI Health			PWI Achieving life			PWI Relationships			PWI Community			PWI Safe feeling			PWI Future security			PWI Religion			PWI Living standard		
	Public	Patient	Total	Public	Patient	Total	Public	Patient	Total	Public	Patient	Total	Public	Patient	Total	Public	Patient	Total	Public	Patient	Total	Public	Patient	Total	Public	Patient	Total
0	2	30	32	0	19	19	2	37	39	2	30	32	3	26	29	0	17	17	5	35	40	3	18	21	2	21	23
1	0	12	12	5	22	27	7	22	29	4	28	32	5	21	26	2	18	20	6	21	27	1	9	10	2	16	18
2	4	28	32	11	35	46	8	32	40	9	26	35	4	26	30	7	22	29	6	32	38	3	10	13	9	26	35
3	5	21	26	12	27	39	12	22	34	10	21	31	7	25	32	5	28	33	10	24	34	1	5	6	10	22	32
4	10	29	39	27	38	65	17	28	45	12	28	40	6	25	31	11	20	31	21	13	34	6	13	19	8	24	32
5	15	50	65	26	52	78	19	45	64	23	43	66	53	66	119	14	54	68	31	54	85	94	98	192	9	49	58
6	31	20	51	14	22	36	34	28	62	21	20	41	27	23	50	22	17	39	31	29	60	15	18	33	20	28	48
7	52	44	96	56	27	83	51	30	81	40	25	65	29	29	58	21	27	48	51	28	79	24	21	45	50	25	75
8	84	30	114	75	26	101	90	24	114	67	30	97	68	18	86	60	32	92	73	26	99	41	31	72	80	40	120
9	95	18	113	74	12	86	67	13	80	94	21	115	75	16	91	105	30	135	68	16	84	60	20	80	81	24	105
10	39	25	64	37	27	64	30	25	55	55	33	88	60	32	92	90	40	130	35	29	64	89	64	153	66	32	98
Total	337	307	644	337	307	644	337	306	643	337	305	642	337	307	644	337	305	642	337	307	644	337	307	644	337	307	644

Table A.2 Average AQoL-8D score for selected PWI scales

PWI Score	Life as a whole		Health		Achieving in life		Relationships		Community	
	AQoL Average	N	AQoL Average	N	AQoL Average	N	AQoL Average	N	AQoL Average	N
0	0.39	32	0.43	19	0.45	39	0.45	32	0.42	29
1	0.46	12	0.48	27	0.49	29	0.48	32	0.51	26
2	0.48	32	0.52	47	0.52	41	0.55	35	0.51	30
3	0.53	26	0.59	39	0.61	34	0.59	31	0.59	32
4	0.60	39	0.63	65	0.65	45	0.62	40	0.58	31
5	0.62	65	0.62	78	0.64	64	0.64	66	0.65	120
6	0.69	52	0.70	36	0.71	62	0.67	41	0.69	50
7	0.71	96	0.76	83	0.72	81	0.72	66	0.74	58
8	0.77	114	0.80	101	0.80	114	0.76	97	0.78	86
9	0.83	113	0.84	86	0.85	80	0.82	115	0.83	91
10	0.83	64	0.83	64	0.83	55	0.83	88	0.84	92
Total	0.70	645	0.70	645	0.70	644	0.70	643	0.70	645

Table A.3 Average AQL-8D Dimension (Independent Living) and PWI Score

PWI Score	Independent Living				
	Life as a whole	Health	Achieving in life	Relationships	Community
	AV Dim Score	AV Dim Score	AV Dim Score	AV Dim Score	AV Dim Score
0	0.70	0.65	0.69	0.75	0.67
1	0.63	0.63	0.69	0.69	0.70
2	0.63	0.70	0.68	0.69	0.70
3	0.70	0.71	0.76	0.72	0.74
4	0.75	0.78	0.79	0.76	0.75
5	0.76	0.76	0.76	0.78	0.78
6	0.81	0.78	0.82	0.78	0.81
7	0.84	0.87	0.84	0.85	0.84
8	0.87	0.91	0.90	0.87	0.88
9	0.92	0.92	0.93	0.89	0.91
10	0.88	0.92	0.88	0.88	0.90
Total	0.82	0.82	0.82	0.82	0.82

Table A.4 Average AQL-8D Dimension (Life Satisfaction) and PWI Score

PWI Score	Life Satisfaction				
	Life as a whole	Health	Achieving in life	Relationships	Community
	AV Dim Score	AV Dim Score	AV Dim Score	AV Dim Score	AV Dim Score
0	0.23	0.27	0.28	0.34	0.30
1	0.28	0.33	0.34	0.35	0.39
2	0.33	0.42	0.37	0.40	0.37
3	0.38	0.51	0.48	0.45	0.49
4	0.48	0.53	0.56	0.53	0.46
5	0.51	0.50	0.55	0.53	0.52
6	0.57	0.60	0.62	0.59	0.60
7	0.64	0.70	0.66	0.64	0.66
8	0.71	0.73	0.74	0.68	0.75
9	0.80	0.78	0.81	0.76	0.77
10	0.83	0.80	0.80	0.79	0.80
Total	0.62	0.62	0.62	0.62	0.62

Table A.5 Average AQoL-8D Dimension (Mental Health) and PWI Score

PWI Score	Mental Health				
	Life as a whole	Health	Achieving in life	Relationships	Community
	AV Dim Score	AV Dim Score	AV Dim Score	AV Dim Score	AV Dim Score
0	0.25	0.29	0.33	0.31	0.31
1	0.31	0.38	0.37	0.39	0.43
2	0.42	0.41	0.45	0.46	0.39
3	0.44	0.50	0.55	0.52	0.50
4	0.55	0.55	0.57	0.57	0.46
5	0.53	0.54	0.57	0.56	0.58
6	0.59	0.66	0.63	0.61	0.60
7	0.63	0.69	0.65	0.64	0.68
8	0.71	0.73	0.72	0.68	0.71
9	0.78	0.78	0.80	0.75	0.77
10	0.79	0.77	0.76	0.77	0.77
Total	0.62	0.62	0.63	0.63	0.62

Table A.6 Average AQoL-8D Dimension (Coping) and PWI Score

PWI Score	Coping				
	Life as a whole	Health	Achieving in life	Relationships	Community
	AV Dim Score	AV Dim Score	AV Dim Score	AV Dim Score	AV Dim Score
0	0.25	0.28	0.30	0.37	0.33
1	0.31	0.34	0.37	0.40	0.40
2	0.35	0.40	0.40	0.47	0.40
3	0.46	0.49	0.52	0.50	0.50
4	0.54	0.56	0.62	0.56	0.52
5	0.55	0.57	0.59	0.56	0.58
6	0.63	0.65	0.67	0.63	0.64
7	0.68	0.72	0.68	0.66	0.70
8	0.73	0.77	0.75	0.72	0.75
9	0.81	0.81	0.81	0.78	0.79
10	0.79	0.79	0.81	0.78	0.79
Total	0.64	0.64	0.64	0.64	0.64

Table A.7 Average AQL-8D Dimension (Relationships) and PWI Score

PWI Score	Relationships				
	Life as a whole	Health	Achieving in life	Relationships	Community
	AV Dim Score	AV Dim Score	AV Dim Score	AV Dim Score	AV Dim Score
0	0.36	0.48	0.43	0.38	0.35
1	0.50	0.47	0.47	0.43	0.45
2	0.44	0.52	0.53	0.51	0.49
3	0.50	0.62	0.58	0.56	0.58
4	0.59	0.66	0.63	0.61	0.60
5	0.63	0.60	0.65	0.63	0.66
6	0.74	0.74	0.74	0.69	0.71
7	0.74	0.79	0.77	0.77	0.75
8	0.81	0.84	0.84	0.81	0.83
9	0.88	0.87	0.89	0.89	0.89
10	0.85	0.84	0.85	0.88	0.87
Total	0.72	0.72	0.72	0.72	0.72

Table A.8 Average AQL-8D Dimension (Self Worth) and PWI Score

PWI Score	Self Worth				
	Life as a whole	Health	Achieving in life	Relationships	Community
	AV Dim Score	AV Dim Score	AV Dim Score	AV Dim Score	AV Dim Score
0	0.23	0.23	0.28	0.34	0.28
1	0.28	0.36	0.35	0.35	0.35
2	0.37	0.43	0.42	0.48	0.45
3	0.42	0.54	0.54	0.54	0.50
4	0.53	0.58	0.62	0.62	0.51
5	0.58	0.58	0.60	0.59	0.60
6	0.65	0.70	0.70	0.68	0.65
7	0.72	0.76	0.72	0.67	0.72
8	0.77	0.79	0.80	0.73	0.77
9	0.84	0.84	0.86	0.82	0.85
10	0.86	0.82	0.84	0.84	0.85
Total	0.67	0.67	0.67	0.67	0.67

Table A.9 Average AQL-8D Dimension (Pain) and PWI Score

PWI Score	Pain				
	Life as a whole	Health	Achieving in life	Relationships	Community
	AV Dim Score	AV Dim Score	AV Dim Score	AV Dim Score	AV Dim Score
0	0.51	0.47	0.59	0.55	0.52
1	0.69	0.58	0.69	0.57	0.64
2	0.54	0.58	0.61	0.72	0.59
3	0.67	0.62	0.71	0.72	0.71
4	0.69	0.66	0.70	0.68	0.61
5	0.70	0.70	0.64	0.67	0.72
6	0.75	0.73	0.75	0.69	0.73
7	0.73	0.79	0.78	0.79	0.77
8	0.81	0.84	0.80	0.79	0.81
9	0.85	0.89	0.87	0.85	0.86
10	0.83	0.88	0.84	0.82	0.84
Total	0.75	0.75	0.75	0.75	0.75

Table A.10 Average AQL-8D Dimension (Senses) and PWI Score

	Senses				
	Life as a whole	Health	Achieving in life	Relationships	Community
	AV Dim Score	AV Dim Score	AV Dim Score	AV Dim Score	AV Dim Score
0	0.76	0.73	0.77	0.74	0.74
1	0.78	0.74	0.78	0.76	0.77
2	0.76	0.76	0.75	0.78	0.79
3	0.79	0.80	0.79	0.74	0.81
4	0.76	0.80	0.80	0.81	0.79
5	0.81	0.81	0.83	0.81	0.80
6	0.83	0.80	0.82	0.81	0.81
7	0.83	0.85	0.83	0.86	0.85
8	0.86	0.89	0.88	0.86	0.87
9	0.90	0.90	0.90	0.89	0.88
10	0.89	0.91	0.91	0.89	0.90
Total	0.84	0.84	0.84	0.84	0.84

Appendix B

Table B.1 Average PWI Score of selected items for AQoL-8D Scales

AQoL-8D Score	Life as whole		Health		Achieving in life		Relationships		Community	
	AV PWI Score	N	AV PWI Score	N	AV PWI Score	N	AV PWI Score	N	AV PWI Score	N
0.2	0.60	5	1.80	5	1.80	5	0.60	5	1.00	5
0.3	2.00	13	2.00	13	1.46	13	1.46	13	2.00	13
0.4	2.51	45	2.51	45	2.33	45	3.02	45	2.89	45
0.5	4.03	70	3.59	70	3.52	69	4.14	70	3.50	70
0.6	5.10	87	4.53	87	4.23	87	4.59	86	4.76	87
0.7	6.70	113	5.93	113	5.85	113	6.14	112	6.22	113
0.8	7.73	193	7.34	193	7.27	193	7.61	193	7.55	193
0.9	8.94	111	8.59	111	8.54	111	9.06	111	8.87	111
1.0	9.88	8	9.25	8	9.63	8	9.75	8	9.25	8
Total	6.49	645	6.06	645	5.95	644	6.35	643	6.26	645

Table B.2 Average PWI Score by Selected PWI Items - Independent Living

IL Dimens Score	Life as whole		Health		Achieving in life		Relationships		Community	
	AV PWI Score	N	AV PWI Score	N	AV PWI Score	N	AV PWI Score	N	AV PWI Score	N
0.1	10.00	1	5.00	1	5.00	1	6.00	1	10.00	1
0.3	3.70	10	2.60	10	4.20	10	3.70	10	3.90	10
0.4	4.21	14	2.86	14	3.00	14	4.21	14	3.64	14
0.5	3.53	19	2.95	19	2.37	19	3.47	19	3.53	19
0.6	4.62	53	4.04	53	4.19	52	4.81	53	4.49	53
0.7	4.72	75	4.29	75	4.17	75	5.15	75	4.56	75
0.8	5.98	137	5.50	137	5.49	137	5.84	136	5.64	137
0.9	7.50	186	6.85	186	6.83	186	6.91	185	7.18	186
1.0	8.01	150	8.11	150	7.65	150	8.01	150	7.90	150
Total	6.49	645	6.06	645	5.95	644	6.35	643	6.26	645

Table B.3 Average PWI Score by Selected PWI Items - Life Satisfaction

LS Dimens Score	Life as whole		Health		Achieving in life		Relationships		Community	
	AV PWI Score	N	AV PWI Score	N	AV PWI Score	N	AV PWI Score	N	AV PWI Score	N
0.0	0.75	4	2.50	4	0.75	4	1.50	4	1.25	4
0.1	1.53	15	2.00	15	2.40	15	2.60	15	2.67	15
0.2	2.13	24	2.71	24	1.43	23	2.54	24	2.58	24
0.3	3.23	47	3.47	47	2.49	47	3.40	47	3.11	47
0.4	4.17	75	3.87	75	3.44	75	4.32	75	4.17	75
0.5	5.63	59	4.90	59	5.27	59	5.17	59	5.00	59
0.6	6.72	102	5.86	102	5.97	102	6.30	101	6.35	102
0.7	7.41	68	6.79	68	6.90	68	6.81	68	6.97	68
0.8	8.21	184	7.76	184	7.73	184	8.15	183	7.93	184
0.9	9.09	47	8.45	47	8.43	47	9.04	47	8.77	47
1.0	9.35	20	8.80	20	9.00	20	8.70	20	9.20	20
Total	6.49	645	6.06	645	6.0	644	6.35	643	6.26	645

Table B.4 Average PWI Score by Selected PWI Items – Mental Health

MH Dimens Score	Life as whole		Health		Achieving in life		Relationships		Community	
	AV PWI Score	N	AV PWI Score	N	AV PWI Score	N	AV PWI Score	N	AV PWI Score	N
0	0.00	2	2.50	2	0.00	2	0.00	2	0.00	2
0.1	1.00	6	1.00	6	2.83	6	2.00	6	2.00	6
0.2	2.52	29	2.21	29	2.55	29	2.41	29	2.97	29
0.3	3.49	51	3.45	51	2.66	50	3.65	51	2.90	51
0.4	4.19	43	3.79	43	3.86	43	3.98	42	3.98	43
0.5	5.27	51	4.24	51	4.57	51	4.57	51	4.94	51
0.6	6.13	135	5.87	135	5.46	135	6.21	135	5.96	135
0.7	7.57	125	6.78	125	6.71	125	7.32	125	7.26	125
0.8	8.02	133	7.76	133	7.73	133	7.79	132	7.71	133
0.9	9.06	62	8.55	62	8.55	62	8.97	62	8.97	62
1.0	9.88	8	9.38	8	9.63	8	9.88	8	9.50	8
Total	6.49	645	6.06	645	5.95	644	6.35	643	6.26	645

Table B.5 Average PWI Score by Selected PWI Items – Coping

Coping Dimens Score	Life as whole		Health		Achieving in life		Relationships		Community	
	AV PWI Score	N	AV PWI Score	N	AV PWI Score	N	AV PWI Score	N	AV PWI Score	N
0	0.67	6	1.67	6	1.83	6	2.83	6	3.33	6
0.1	2.63	8	2.50	8	2.88	8	3.75	8	3.13	8
0.2	2.48	21	2.62	21	2.24	21	3.24	21	2.90	21
0.3	3.51	63	3.08	63	2.68	63	3.44	63	3.10	63
0.4	4.12	50	4.08	50	3.88	50	4.42	50	3.90	50
0.5	5.07	46	4.39	46	4.37	46	4.96	45	4.93	46
0.6	6.49	55	4.78	55	5.15	54	5.51	55	5.78	55
0.7	6.96	109	6.42	109	6.28	109	6.38	108	6.59	109
0.8	7.88	225	7.65	225	7.46	225	7.84	225	7.76	225
0.9	9.03	38	8.45	38	8.63	38	8.76	38	8.61	38
1.0	9.17	24	9.00	24	9.21	24	9.13	24	8.63	24
Total	6.49	645	6.06	645	5.95	644	6.35	643	6.26	645

Table B.6 Average PWI Score by Selected PWI Items – Relationships

REL Dimens Score	Life as whole		Health		Achieving in life		Relationships		Community	
	AV PWI Score	N	AV PWI Score	N	AV PWI Score	N	AV PWI Score	N	AV PWI Score	N
0.0	1.00	3	2.33	3	1.00	3	0.33	3	1.67	3
0.1	0.00	1	5.00	1	0.00	1	7.00	1	1.00	1
0.2	1.46	13	3.38	13	2.15	13	1.23	13	1.92	13
0.3	3.52	23	2.74	23	2.96	23	2.30	23	2.74	23
0.4	3.57	51	3.78	51	2.75	51	2.75	51	2.88	51
0.5	3.97	38	3.79	38	3.66	38	3.63	38	4.24	38
0.6	5.13	83	4.46	83	4.38	82	4.63	81	4.67	83
0.7	6.38	92	5.85	92	5.62	92	6.23	92	5.76	92
0.8	7.26	119	6.65	119	6.79	119	7.13	119	7.07	119
0.9	8.27	152	7.79	152	7.79	152	8.57	152	8.26	152
1.0	8.83	70	8.11	70	8.40	70	9.01	70	8.89	70
Total	6.49	645	6.06	645	5.95	644	6.35	643	6.26	645

Table B.7 Average PWI Score by Selected PWI Items – Self Worth

SW Dimens Score	Life as whole		Health		Achieving in life		Relationships		Community	
	AV PWI Score	N	AV PWI Score	N	AV PWI Score	N	AV PWI Score	N	AV PWI Score	N
0.0	0.85	13	1.77	13	0.62	13	2.23	13	1.77	13
0.1	2.94	18	2.61	18	3.89	18	3.39	18	2.06	18
0.2	2.25	16	2.44	16	1.63	16	2.63	16	2.94	16
0.3	3.58	53	3.75	53	3.25	53	3.98	53	3.70	53
0.4	4.57	35	3.54	35	3.51	35	4.31	35	3.97	35
0.5	4.91	45	4.24	45	3.82	45	4.71	45	4.53	45
0.6	6.07	61	5.85	61	5.07	61	5.37	60	5.72	61
0.7	6.77	65	6.09	65	6.05	65	6.22	65	6.23	65
0.8	7.54	179	7.09	179	7.06	178	7.32	178	7.23	179
0.9	8.33	115	7.77	115	7.87	115	8.37	115	8.22	115
1.0	8.89	45	8.20	45	8.87	45	8.60	45	8.87	45
Total	6.49	645	6.06	645	5.95	644	6.35	643	6.26	645

Table B.8 Average PWI Score by Selected PWI Items – Pain

PAIN Dimens Score	Life as whole		Health		Achieving in life		Relationships		Community	
	AV PWI Score	N	AV PWI Score	N	AV PWI Score	N	AV PWI Score	N	AV PWI Score	N
0.0	4.33	6	2.0	6	3.3	6	4.17	6	5.00	6
0.1	3.71	7	3.7	7	3.7	7	3.43	7	3.57	7
0.2	3.59	17	2.1	17	3.1	17	4.47	17	3.88	17
0.3	3.35	23	3.3	23	3.7	23	4.39	23	3.74	23
0.4	5.00	29	4.2	29	3.9	29	4.00	29	4.48	29
0.5	5.52	50	4.3	50	4.9	49	4.53	49	4.78	50
0.6	6.19	63	5.3	63	5.9	63	6.21	62	5.65	63
0.7	6.53	72	6.0	72	6.1	72	6.25	72	5.99	72
0.8	7.26	99	6.9	99	6.7	99	7.19	99	7.15	99
0.9	7.07	113	6.8	113	6.2	113	7.17	113	6.58	113
1.0	7.22	166	7.2	166	6.8	166	7.01	166	7.38	166
Total	6.49	645	6.1	645	6.0	644	6.35	643	6.26	645

Table B.9 Average PWI Score by Selected PWI Items – Senses

SENSES Dimensi on Score	Life as whole		Health		Achieving in life		Relationships		Community	
	AV PWI Score	N	AV PWI Score	N	AV PWI Score	N	AV PWI Score	N	AV PWI Score	N
0.3	2.50	2	0.50	2	2.50	2	0.00	2	3.50	2
0.4	6.00	1	6.00	1	6.00	1	2.00	1	8.00	1
0.5	4.05	20	2.95	20	3.85	20	3.21	19	4.20	20
0.6	4.33	39	3.62	39	3.55	38	3.56	39	3.82	39
0.7	5.46	83	4.82	83	4.65	83	5.50	82	5.02	83
0.8	6.30	129	5.78	129	5.67	129	6.21	129	6.08	129
0.9	7.04	266	6.63	266	6.56	266	6.91	266	6.82	266
1	7.50	105	7.52	105	7.12	105	7.53	105	7.40	105
Total	6.49	645	6.06	645	5.95	644	6.35	643	6.26	645

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