Validity Studies the Comprehensive Quality of Life Scale (Comqol): Instrument Development and Psychometric Evaluation on College Staff and Students

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THE COMPREHENSIVE QUALITY OF LIFE SCALE (ComQol): INSTRUMENT DEVELOPMENT AND PSYCHOMETRIC EVALUATION ON COLLEGE STAFF AND STUDENTS

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This article describes the development and validation of a new 35-item, multidimensional Comprehensive Quality of Life Scale (ComQol). Psychometric properties of the scale are described. Consistency between the data yielded by the scale and findings reported in the literature are argued to support the validity of the instrument. It is concluded that ComQol constitutes a unique and comprehensive measure of the quality of life construct.

Quality of life (QOL) is an elusive construct. The term is used in diverse disciplinary settings and may refer to health, happiness, self-esteem, mental health, life-satisfaction, and so forth. It is, therefore, hardly surprising to find an enormous diversity of opinion about the way QOL should be measured and very little general agreement concerning the content of QOL scales (Cummins, 1993).

The process by which most QOL scales have been generated is usually not stated in detail. Typically, it appears that the author(s) constructed a scale

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with face validity for their particular measurement situation, often by modifying a previously published questionnaire. Within this context, the Comprehensive Quality of Life Scale (ComQol) (Cummins, 1991) is unique in having been constructed through the systematic application of principles devised from the QOL literature.

A paramount consideration for the construction of ComQol was that QOL is multidimensional. All contemporary scales incorporate this view to varying extents. The second characteristic was that the scale should comprise both objective QOL (OQOL) and subjective QOL (SQOL) variables. Although both kinds of variables are highly relevant to the QOL construct, the correlation between them is generally agreed to be low (Headey, 1981; Heal & Sigelman, 1990; Spilker, 1990), implying that they are tapping different types of data. For example, OQOL indicators are generally norm referenced to some society or group, whereas SQOL is considered more idiosyncratic in composition. It is therefore not surprising to find broad agreement that OQOL indicators cannot be used to measure SQOL unless the value of such indicators to the individual is known (Blunden, 1988; Cheng, 1988; Lehman, 1983). This understanding determined the third characteristic of this general QOL scale, which is that the SQOL ratings must be weighted according to their perceived importance to the individual. Thus ComQol uses importance data as a weighting factor for individual ratings of satisfaction.

Scale Development

With the application of the above theoretical insights into the QOL construct, ComQol has been developed (Cummins, 1991) in four phases. The first involved a literature review of over 500 publications involving QOL as a dependent variable within the disciplines of psychology, sociology, and medicine. From this review, 64 dependent variables were identified, which appeared to address different QOL aspects.

The second phase involved the conceptual classification of these 64 variables into seven domains. A tentative set of "domain" labels was generated such that, at the end of this process, there appeared to be face validity between the domain headings and their component variables.

The third phase involved verification of the conceptual classification. Ninety-two college students (26 ± 2.4 years, 62% female) were provided with the randomly ordered list of 64 variables and the seven domain headings. They were asked to place each variable under one heading, or under an "other" category if it was considered that a variable would be inappropriately placed under any of the provided headings. The result was that 97% of the variable sortings were placed under the seven domain headings. It was concluded that this provided verification that the domain headings together encompassed the full range of QOL variables. However, the distribution was

very uneven, ranging from 32 variables being sorted into one domain and only 3 into another.

The fourth phase used the three most highly discriminating variables per domain as determined from Phase 3. A randomly ordered list of these 21 variables and the seven domain headings were presented to 60 college students. As before, they were requested to sort the variables under the most appropriate heading. As a result of this procedure, each domain was found to contain at least one variable that had been sorted under that domain heading, with a minimum consistency of 75%. It was concluded that this provided further verification of the utility of the domain headings and provided information for the selection of variables in scale construction as described below. The domain headings are Material Well-Being, Health, Productivity, Intimacy, Safety, Place in Society, and Emotional Well-Being.

Scale Construction

The scale was constructed in two parts called dimensions, one measuring subjective QOL and the other objective QOL. Within the SQOL dimension, two subscales were constructed, one to measure importance and the other to measure satisfaction. Domains are rated using Likert-type scales. For satisfaction, a 7-point delighted-terrible scale is used (Andrews & Withey, 1976). This form of scale has been reported by Andrews and Withey to increase discrimination between extreme responses better than the more conventional anchor labels of *completely satisfied* and *completely dissatisfied*. However, as ratings of importance are constrained in permitting no negative view, a 5-point scale is used consisting of *no importance* (1), *slightly important* (2), *somewhat important* (3), *very important* (4), and *could not be more important* (5).

Within the objective dimension, a variable number of two to five item statements were constructed for each domain. The statements were derived from the most discriminating variables that had been identified earlier. For example, within the Material Well-Being domain, subjects were required to indicate their income, type of accommodation, and number of possessions.

Objective domain scores were derived by summing item scores within each domain. The full description of these items is contained within the ComQol manual, available on request.

Method

The initial psychometric evaluation of ComQol involved both students and staff on the metropolitan campuses of Deakin University. Completing the scale were 243 students and 65 staff. The participants were predominantly female (79% and 72%, respectively, for students and staff) with respective

median ages of 21 and 41 years. All questionnaires were completed anonymously in group situations. Data analysis was conducted using SPSS-X (1988).

Results

Subjective Data

In terms of the perceived importance of each domain, the discrepancies between the mean values for staff and students ranged from zero (Emotional Well-Being) to 5.3% (Safety). In terms of satisfaction ratings, the discrepancies ranged from 0.4% (Productivity) to 5.9% (Emotional Well-Being). Due to these small differences, the two data sets have been combined for further analysis.

Domain Importance and Satisfaction

The data on domain importance are provided in Table 1. The statistic, percentage scale maximum, will be used descriptively and has been calculated from the formula (score –1) × 100/(number of scale points – 1). It can be seen that all of the domain means are above the scale midpoint (3 = *somewhat important*) except for Place in Society, which is 2.8 or 45% of scale maximum. The domain rated as most important was Emotional Well-Being, which attained 80% of scale maximum. The overall mean is 3.8 ± .41, which is 69% of the scale maximum.

The data on domain satisfaction range from 66% scale maximum (Place in Society) to 79% (Intimacy). The overall mean is 5.3 ± .52, which is 71% of the scale maximum.

Table 2 presents intercorrelations between the domains of importance and satisfaction. The following observations can be made: (a) of the 16 significant correlations, all were positive; (b) of the 7 intradomain correlations, three were strongly related (i.e., Health, Productivity, Intimacy) and the other 4 were unrelated; and (c) of the 13 significant interdomain correlations, 23% were contributed by Health, 19% by each of Intimacy, Safety, and Emotional Well-Being, 8% by each of Productivity and Place in Society, and 4% by Material Well-Being.

Objective QOL

In terms of objective QOL, there were differences between the two groups of staff and students, as might be expected. These can be summarized as the staff having higher material well-being, poorer health, poorer safety, and better emotional well-being.

Table 1
Distribution Percentage of Domain Importance and Satisfaction (N = *306*)

Category	Material Well-Being	Health	Productivity	Intimacy	Safety	Place in Society	Emotional Well-Being
Could not be more important	2.6	28.2	14.3	28.9	25.6	2.6	34.9
Very important	39.6	57.8	69.2	52.9	53.2	17.9	51.8
Somewhat important	42.5	13.3	16.2	13.6	14.6	45.6	11.4
Slightly important	14.0	0.6	0.3	3.2	5.8	25.7	1.6
No importance	1.3	—	—	1.3	0.6	8.1	0.3
Mean ± *SD*	3.3 ± .78	4.1 ± .65	4.0 ± .56	4.1 ± .82	4.0 ± .84	2.8 ± .91	4.2 ± .72
Delighted	10.1	7.5	7.2	30.1	5.2	2.0	12.7
Pleased	35.3	31.7	35.0	35.6	40.2	24.8	31.7
Mostly satisfied	38.2	35.6	39.9	17.6	42.5	46.4	26.5
Mixed	13.7	16.3	15.4	11.8	10.1	22.9	21.2
Mostly dissatisfied	2.0	5.2	2.3	2.6	1.0	2.9	4.6
Unhappy	0.7	2.9	0.3	1.6	0.7	1.0	1.6
Terrible	—	0.7	—	0.7	0.3	—	1.6
Mean ± *SD*	5.4 ± .95	5.1 ± 1.17	5.3 ± .91	5.7 ± 1.24	5.4 ± .86	5.0 ± .87	5.2 ± 1.27

Note. The mean values have been calculated according to the scoring system described in the text.

Table 2
Importance versus Satisfaction Correlations

	Importance						
Satisfaction	Material Well-Being	Health	Productivity	Intimacy	Safety	Place in Society	Emotion Well-Being
Material Well-Being	.01	.09	.05	.12*	.04	.06	.06
Health	−.08	.30***	−.04	−.07	.12*	.10*	.07
Productivity	−.06	.11*	.25***	.06	.05	.19***	.05
Intimacy	−.01	.10*	.06	.33***	.16**	.06	.15**
Safety	.01	.16**	.06	.04	.03	.08	.18***
Place in Society	−.06	.03	.03	.01	.05	.00	.01
Emotion Well-Being	−.03	.12*	.01	.14**	.14*	.07	.08

*$p < .05$; **$p < .01$; ***$p < .001$.

The relationships between these objective scores and subjective QOL (Importance × Satisfaction) are provided in Table 3. The I × S score was derived by using the Importance scale scored 1 to 5, and a satisfaction scale where 1 (*terrible*) = –4, 2 = –3, 3 = –2, 4 = +1, 5 = +2, 6 = +3, 7 = +4. The point of scale neutrality has been transformed as +1 rather than zero because the latter procedure would create a zero I × S combination, with a subsequent loss of discriminative data. A total of 23 of the 49 correlations (47%) were significant. This finding included six of the seven intradomain correlations, all of which were positive except for Material Well-Being. Both subjective Intimacy and objective Emotional Well-Being correlated with five of the six other objective domains, whereas subjective Productivity correlated with none. Of the three significant negative correlations, all involved Material Well-Being.

Internal-Consistency Estimates of Reliability

Cronbach's alpha for the objective subscale comprising the seven domain scores was 0.39, for the equivalent importance subscale was 0.65, and for the satisfaction subscale 0.73. All of these are within the acceptable range of values for internal consistency, especially considering the small number of items (Boyle, 1991).

Low versus High Quality of Life: Discriminant Function Analyses

Discriminant function analyses were conducted to determine which domains made the strongest contributions to the variance explained with OQOL or SQOL total scores.

Objective quality of life. Two extreme groups were formed by selecting, as close as possible given the frequency distribution, the top 25% and bottom 25% of cases. The low and high OQOL groups contained scores ranging from 29 to 32, and 37 to 43, comprising 17.8% and 24.8% of the sample, respectively.

A discriminant function was conducted to determine which OQOL domains best discriminate between low and high scores on overall OQOL. This was significant, Wilks's lambda ($df = 7$) = 0.13, $p < .001$. In order of discrimination, and with standardized discriminant function coefficients provided in parentheses, the domains that best discriminated between the two groups were Emotional Well-Being (0.32), Material Well-Being (0.30), Safety (0.28), Productivity (0.25), Health (0.16), Place in Society (0.11), and Intimacy (0.10). This analysis correctly classified 100% of cases.

An analysis, Wilks's lambda ($df = 7$) = 0.83, $p < .05$, was also conducted to determine which SQOL (Satisfaction × Importance) domains best discriminated between low and high scorers on overall OQOL. In order of

Table 3
Objective Domain Scores versus (Importance × Satisfaction) Correlations

	Importance × Satisfaction						
Objective	Material Well-Being (n = 294)	Health (n = 306)	Productivity (n = 289)	Intimacy (n = 280)	Safety (n = 304)	Place in Society (n = 299)	Emotion Well-Being (n = 277)
Material Well-Being	−.13*	.12*	−.06	.14*	.06	.07	.01
Health	−.01	.22***	.03	.06	.03	.07	.27***
Productivity	−.12*	−.02	.01	.10*	−.04	.04	.21***
Intimacy	−.08	−.07	−.03	.27***	−.02	.12*	.15**
Safety	−.04	.09	.09	.11*	.15**	.15**	.15**
Place in Society	.02	.09	.03	.16**	.08	.24***	.22***
Emotional Well-Being	−.12*	.12*	−.05	.27***	−.09	.22***	.19**

*p < .05; **p < .01; ***p < .001.

discrimination, the domains were Productivity (0.61), Health (0.59), Place in Society (0.46), Emotional Well-Being (0.40), Intimacy (0.26), Safety (0.17), and Material Well-Being (0.14). However, this analysis was found to correctly classify only 67.03% of cases.

Subjective quality of life. Two extreme groups were formed, as for the OQOL analysis. The low and high SQOL groups contained scores ranging from –36 to 46, and 75 to 104, comprising 25.2% and 27.0% of the sample, respectively. The first discriminant function analysis was carried out to determine which SQOL (i.e., Satisfaction × Importance) domains best discriminated between low and high scores on overall SQOL. This analysis was significant, Wilks's lambda ($df = 7$) = 0.20, $p < .0001$, and correctly classified 100% of cases. In order of discrimination, the seven SQOL domains were Emotional Well-Being (0.51), Intimacy (0.44), Health (0.42), Place in Society (0.37), Safety (0.34), Productivity (0.31), and Material Well-Being (0.28).

An analysis to determine whether the OQOL domains discriminated between low and high SQOL was not significant, Wilks's lambda ($df = 7$) = 0.89, n.s., classifying only 64.5% of cases.

An additional analysis was carried out to determine which of the seven satisfaction and which of the seven importance items best discriminated between low and high SQOL. The discriminant function was significant, Wilks's lambda ($df = 14$) = 0.17, $p < .001$, and correctly classified 100% of cases. The top seven discriminating domains were all derived from satisfaction as follows: Emotional Well-Being (0.50), Intimacy (0.43), Health (0.38), Productivity (0.31), Place in Society (0.30), Material Well-Being (0.27), and Safety (0.25).

Discussion

Overall, the scale proved to be easily understood and quick to administer. The sorting tasks used during scale construction indicate that seven domains comprehensively assess the QOL construct. The use of two dimensions is reinforced by the remarkable similarity between SQOL ratings by staff and students despite marked OQOL differences. This confirms the relative independence of subjective and objective QOL indexes, as do the discriminant function analyses.

Within the SQOL dimension, both importance and satisfaction provide domain values that cluster at the upper end of the scale. This finding is consistent with much of the literature, indicating that people generally provide positive subjective ratings of their lives, a phenomenon that has been termed a *sense of relative superiority* by Headey and Wearing (1988).

Intradomain correlations between importance and satisfaction tended to be positive. This observation seems somewhat counterintuitive in that it

might be expected that people would consider as most important those domains of their lives that they perceived to be in deficit. An extended discussion of this in relation to the domain of Health can be found in Cummins, McCabe, and Romeo (1992).

In examining the power of objective domains to discriminate the OQOL total score, the strongest influences were exerted by Emotional Well-Being, Material Well-Being, and Safety. The two domains with the least discriminatory influence were Place in Society and Intimacy. The equivalent analysis using the subjective domains to discriminate the SQOL total score revealed that the strongest influences were exerted by Emotional Well-Being, Intimacy, and Health, whereas the two domains with the least discriminatory influence were Productivity and Material Well-Being. It is evident that Emotional Well-Being tops both lists. However, in other respects, the ordering of domains is quite different. This again attests to the essential difference between the two axes, as do also the poor discrimination outcomes between the two axes.

It is interesting to note that it was the satisfaction ratings rather than importance ratings that best discriminated between high and low total SQOL. Moreover, Emotional Well-Being, Intimacy, and Health appeared to be most significant in determining overall QOL, whereas Place in Society and Material Well-Being were less significant. Such findings provide some support for the proposal that QOL perceptions follow a hierarchy of relevance (Andrews & Withey, 1976; Flanagan, 1978), with concerns about aspects of self and relationships to other people being of more relevance than community concerns.

In conclusion, it has been demonstrated that the ComQol, which is a quick and simple scale to administer, yields a great deal of information reflecting the complexity of the QOL construct. The patterns of data are consistent with the QOL literature, thus supporting the validity of the scale. Further, the separate measures of objective, importance, and satisfaction data facilitate examination of the QOL process in addition to the use of the data as outcome variables. Studies to further elucidate the psychometric properties of the scale are in progress.

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