Social Indicators Research (2006) 76:5–33
DOI 10.1007/s11205-005-4854-7

SHULAMITH KREITLER and MICHAL M. KREITLER

MULTIDIMENSIONAL QUALITY OF LIFE: A NEW MEASURE OF QUALITY OF LIFE IN ADULTS

(Accepted 29 September 2005)

ABSTRACT. This paper presents a new measure for assessing quality of life (QOL) –the Multidimensional Quality of Life (MQOL)– and describes its derivation, characteristics, structure and several applications. Reasons for developing the MQOL include the restricted range of assessed domains and the heavy emphasis on health in many standard assessment tools. The MQOL was derived by meaning probes into QOL in different samples. It is a 60-item self-report tool of high reliability and validity covering various themes and forming, in line with factor and cluster analyses, 17 scales that constitute five factors according to confirmatory factor analysis. It has been applied with thousands of individuals, in English, Hebrew, Russian and Arabic, and is adequate for healthy and physically or mentally sick individuals, under regular or challenging circumstances. Described studies present findings in samples of sick or healthy individuals (e.g., unemployed, members of a collapsing Kibbutz); relations between the MQOL and coping strategies in partners of sick individuals; and interrelations of overall and scale scores in new and old immigrants. Conclusions focus on the structure of the MQOL, the specificity of coping effects, and the stabilizing mechanisms of QOL.

KEY WORDS: quality of life, coping, assessment

1. INTRODUCTION

The surge of interest in quality of life (QOL) in the last decades of the 20th century has brought about the emergence of assessment tools for quality of life which soon turned from a trickle to a wave. It might have turned into a flood were it not for the efforts at standardization supported by the drug companies which themselves were in no small measure responsible for keeping up the interest in quality of life assessment (Fayers and Machin, 2000). The number of publications dealing with QOL runs by now in the thousands. The number of assessment tools is equally high (Salek, 1999). At present the most salient measures of QOL focus specifically on physical health.

Examples of the major tools of the generic type include the following instruments: The *World Health Organization Quality of Life* (WHOQOL), which is a multidimensional, multilingual questionnaire in several versions:

276 items referring to 29 facets; 100 items referring to 25 facets, and the WHOQOL BREF, which is a 26-item short form (WHOQOL Group, 1995, 1998); The *MOS 36 Item Short Form Health Survey* (SF-36), which is a general health questionnaire with 8 subscales assessing the spiritual, social and mental aspects of QOL (Stewart et al., 1988); *The Psychological General Well-Being Scale* (PGWB), which is a 22-item inventory with 6 subscales (Dimenaes et al., 1993); and, *The Nottingham Health Profile* (NHP), which is a measure of perceived health with 38 items referring to 6 domains (Wicklund, 1990).

The existing tools are marked by high levels of psychometric qualities, mainly reliability and validity. There is a high degree of consensus about the form as well as contents of the items. In view of the nature of the assessment tools and the common interest in QOL in sickness, a large part of the available information about QOL refers to physical health.

The purpose of this paper is to present a new measure for the assessment of QOL and to describe its derivation, construction, structure and applicability by integrating the findings of several studies. Emphasis will be placed on the unique and characteristic features of this measure in contents and structure, and its contribution to understanding the mechanisms underlying perceived QOL under normal and changed life conditions.

2. WHY A NEW MEASURE OF QOL?

In view of the fact that there exist already a fair number of psychometrically good measures of QOL, one may well wonder whether a new measure of QOL is at all needed. There are five major reasons that may be cited in support of this venture. First, the unsatisfactory coverage of content domains in most of the existing tools. The restricted range of domains has caused in recent years a growing uneasiness among those who deal with QOL (e.g., Anderson et al., 1993; Gill, 1995; Salisbury et al., 1999). While the initial measures focused on global assessments of QOL, it soon became evident that it is necessary to complement the global evaluation by items addressing specific domains, such as physical or emotional state and social functioning. However, due to the efforts at standardization of the tools of assessment, to the concern with preserving face validity, and to the common focus on health-related issues, the content of the domains has undergone a restriction. This restriction enjoys indeed the consensual support but has ended up leaving out too many of the domains potentially relevant to QOL.

A second reason is that many of the assessment tools deviate from the recommendation of keeping the items designed to assess QOL as purely phenomenological as possible (O'Connor, 2004). Instead they often use items that require various judgmental evaluations on the part of the responder. Phenomenological means purely descriptive in a photographic manner, without considering causes, results, comparisons and other factors. In contrast, judgmental items may entail comparisons (e.g., "What is the situation in X now as compared with last week, or with the period prior to the onset of disease?"), consideration of causes (e.g., "What is the situation in X now insofar as it has been affected by your health?", or "How has the situation in X changed due to your state of health?"). The bias toward the judgmental approach is particularly salient in assessment tools of the so-called Health-Related Quality of Life (HRQOL), which in many cases has come to replace QOL. Such tools are, *e.g.*, QOL in epilepsy QUOLIE-89, Devinsky et al., (1995); Medical Outcomes Study SF-36, Ware et al., (1993); Centers for Disease Control Health-Related Quality of Life, CDC HRQOL-14, Centers for Disease Control and Prevention (2003). The judgmental approach undermines in fact the goal of getting through the assessment of QOL the direct experiential information from the individual in question.

A third reason is that an inordinate number of items in QOL assessment tools refer directly to physical symptoms. These items occupy an inordinate amount of questionnaire space thus displacing other items. The salience of symptom items brings about a blurring of boundaries between measures of QOL and of functional status and state of health. Further, they draw the attention of the responders communicating implicitly the direction and focus of the inventory toward the pole of health.

A fourth reason is the restricted potential for comparability across different samples, of sick individuals as well as healthy ones. It is commonly agreed that QOL measures need to enable comparison of different samples. However, the increased emphasis on health issues has led to the development of tools addressing specific diagnoses, which are loaded with physical symptoms relevant for specific diagnoses. This has curtailed significantly the possibility of comparing even patients with different diagnoses. Comparability despite specificity is now increasingly solved by differentiating between core and specific modules (e.g., a best known example is the QLQ-C30, Aaronson et al., 1993). This solution, besides being clumsy, does not resolve the problem of restricted comparability with healthy samples. This limits the possibility of understanding QOL issues even in samples of sick individuals and greatly limits the possibility of helping sick individuals proceed toward the status of healthy individuals.

A fifth reason is the restricted suitability of the common QOL measures for healthy individuals in general. It may be recalled that QOL measures were first developed in the social field, for comparing mainly different socioeconomic strata. Most of the common measures today are inadequate for use with such samples or for individuals affected by factors other than health that might impair QOL, such as divorce, unemployment, immigration to another country, bereavement, etc. Studies dealing with factors of this kind mostly rely on measures of life satisfaction and happiness rather than QOL (Argyle, 1999; Diener et al., 1999).

In sum, it appears that the noted insufficiency and inadequacy of the existing tools for measuring QOL is due to the fact that the majority of the better-known and commonly used tools focus on the domain of physical health. This bias is unwarranted in view of the fact that physical disorder is for better or worse neither the most common state of human beings nor the only domain justifying assessment of QOL. Focusing the measurement of QOL on physical health introduces a bias that produces distortions in the contents, structure and applicability of the QOL tools of measurement.

3. OBJECTIVES OF THE NEW MEASURE OF QOL

The major objectives were to construct a psychometrically viable measure of QOL that (a) would enable a better coverage of contents and life domains than are available in the common QOL measures and (b) would be adequate for use with healthy individuals providing a broader basis of comparison between different samples of sick individuals, as well as between sick and healthy individuals.

The rationale underlying both objectives reflects first, the striving to free QOL assessment of the specific context of health, and second, to get as close as possible to providing a measure reflecting the person as a whole, beyond the disease and physical or mental symptoms from which he or she may be suffering

4. METHOD OF CONSTRUCTION OF THE NEW MEASURE

There were several stages in the development of the new measure. The *first stage* was devoted to interviewing representatives of different samples about the meaning of QOL. The purpose was to identify major facets of the construct of QOL that may have been overlooked in the standard instruments and that would have to be included in the new tool. The interviewed individuals were from different samples and were selected so as to represent an array of health and social groups: (a) Healthy individuals of three different socioeconomic levels (low, medium, high). (b) Of both genders and three age groups designed to include representatives of participants along a broad developmental range (young 25–35 years old; medium 40–60 years old; and older people above 65 years). (c) Sick individuals from different diagnostic groups (heart diseases, cancer, asthma, rheumatism, chronic pain, psychiatric disorders etc.), and (d) other individuals likely to be in distress for a variety of reasons, e.g., accidents, sick individuals in their families, terror victims, etc. In addition to age and gender, also education and cultural background were represented in the interviewed samples.

The interviews consisted in asking the respondents to communicate to another non-present person of their choice the interpersonally shared meaning of QOL, as well as the personal-subjective meaning of QOL, using any means of communication considered adequate. This method is based on the theory of meaning that has been applied successfully for describing, analyzing and changing specific meanings of inputs and meaning assignment tendencies in general. The major assets of the method in the present context are that it specifies an interviewing technique likely to yield a rich set of relevant meanings and it provides a set of criteria enabling to test the comprehensiveness of the obtained meanings. The criteria are represented by the 22 meaning variables describing the different facets of meanings, such as the function, manner of operation, or range of inclusion of the input.

A total of 490 participants were interviewed about the meanings of QOL. The responses were analyzed by a standard procedure for identifying the different facets of meaning by three independent coders. Meanings that were coded identically by the three coders and recurred in at least 70% of the respondents were selected as contents for items of the questionnaire (for a detailed description of the method see Kreitler, 2004b; Kreitler and Kreitler, 1990). At this stage the new measure got its name: The Multidimensional Quality of Life (MQOL).

The *second stage* was devoted to constructing a draft of the questionnaire, interviewing respondents about the comprehensibility and adequacy of the items. Several items that were characterized by the respondents as unclear were rephrased; other items that had response alternatives considered as confusing were changed. In the *third stage*, this last version of the MQOL was administered to a total of 500 individuals differing in health, age, gender, and cultural background. The data was used for deleting or changing items that presented curtailed or skewed dispersion of responses or poor item-total reliability coefficients.

In the *fourth stage*, the final form of the MQOL questionnaire was administered to 755 respondents, again differing in health, age, gender, and cultural background, with the goal of testing mainly different facets of reliability and validity. Table I presents information about concurrent validity; for information about construct validity and reliability see section 7 on *Psychometric Information*.

5. DESCRIPTION OF THE MQOL QUESTIONNAIRE

In its present final form the MQOL includes 60 items. It is designed as a self-report measure. Each item is followed by four response alternatives, presented as a discontinuous scale, in a row and labeled verbally (see Appendix A). The items of the questionnaire refer to a great variety of themes, *such as* worries about health, mobility, functioning at work or studies, eating and appetite, sleep, living conditions (home, residence), functioning in the family (as a partner, as a parent, as a sibling, as son/daughter), communication in the family, entertainment, sense of being successful, independence in functioning in daily life, memory, concentration, loneliness, anger, despair, depression, unhappiness, hope, joy, fear, sense of estrangement from oneself, self-esteem,

TABLE I

Pearson's r correlations coefficients (and number of participants) of the MQOL questionnaire with common measures* of QOL in the domain of health

Sample	Questionnaires				
	PAIS	MOS(SF-36)	EORTC QLO-30	SIP	NHP
Cancer patients	0.72 (N = 54)	0.68 (N = 37)	0.82 (N = 71)	0.75 (N = 54)	0.73 (N = 39)
Cardiological patients	0.68 (N = 46)	0.77 (N = 46)	–		
	0.79 (N = 63)	–			
Healthy individuals	0.76 (N = 85)	–	0.81 (N = 63)	–	0.88 (N = 51)

Note: *Overall score of the specific questionnaires. In all cases the correlation coefficients are significant at the $p < .01$ level. PAIS: Psychological Adjustment to Illness Scale (Derogatis, 1986). MOS (SF-36): Medical Outcomes Study (SF-36) (McHorney et al., 1994). EORTC QLO-30: European Organization for Research & Treatment of Cancer QLO-30 (Aaronson et al., 1993). SIP: Sickness Impact Profile (Bergner et al., 1981). NHP: Nottingham Health Profile (Hunt et al.,1981).

sense of coherence and meaningfulness, sense of helplessness, strength, and ability to cope with the tasks of everyday life.

Each item is presented separately and refers to one specific theme. The items are simple, easy to respond to and require no complex comparisons or evaluations. The respondent's task is to read each item and put a check mark near one of the four presented response alternatives.

The MQOL can be administered in a written or oral form, in individual or group sessions, and the participants may respond alone, or have someone read the items to them and record their responses if they have difficulty in reading or writing or both. The usual time of administration is about 10 minutes.

The standard version of the MQOL does not refer to any specific time period, and temporal specification can be added as needed or as appropriate. The MQOL may be administered repeatedly on different occasions.

At present there exist pretested standard versions of the MQOL in four languages: English, Hebrew, Arabic and Russian. A comparable though different version – the Children's Quality of Life (CQL) - has been prepared for use with children and adolescents from 3 to 18 years old (Kreitler & Kreitler, 2004).

6. SCORING OF THE MQOL QUESTIONNAIRE

Scoring is performed by assigning 4, 3, 2, or 1 points to the response alternatives placed from left to right, respectively. Scores on the MQOL are keyed in the positive direction, namely, the higher the score the better the QOL. This holds for all items, both those that indicate positive aspects of QOL (e.g., meaningfulness) and those that indicate negative aspects (e.g., negative emotions or stress). In the case of the latter items, the adequately keyed score is obtained by the arrangement of the response alternatives rather than by reversing scores (see for example items 41–43). Thus, high scores on the three scales with negative connotations –i.e., negative emotions, or confusion, or stress– indicate few or weak negative emotions and low levels of confusion or stress, respectively. The MQOL provides three types of scores:

1. Scores for each item separately: Range 1– 4;
2. Scores for each of the 17 scales: Range 1 – 4 (based on means of the items included in the scale);
3. Total QOL score that may be used as a mean or as a summative raw score. When a more coarse measure is preferred, as a rule of thumb, the raw score

could be considered as defining 4 levels of QOL corresponding to the quartiles of the full range: (a) Low (60–106); (b) Medium low (107–152); (c) Medium high (153–213); (d) High (214–260).

7. PSYCHOMETRIC INFORMATION

Reliability of the MQOL has been tested both in terms of internal consistency and in terms of test-retest reliability. Internal consistency, assessed by Cronbach's alpha, was tested in three different samples of healthy individuals ($N = 974$) and four different samples of sick individuals ($N = 412$): patients diagnosed with chronic pain ($N = 75$), cancer ($N = 157$), cardiological disorders ($N = 83$), or diabetes ($N = 97$). The alpha coefficients were in the range from .76 to .90 for the total score and from .72 to .86 for the 17 scales (see the section following on *Structure of the MQOL questionnaire* for the description of the scales). These coefficients indicate an acceptable level of reliability. There were no significant differences among the results for the different samples.

Test-retest reliability scores were assessed over intervals of 12–14 days, in healthy individuals ($N = 68$) and in sick individuals (50 cancer patients, 45 rheumatoid patients, 62 chronic pain patients) under regular conditions without any particular treatments or crises. The Pearson correlation coefficients ranged from $r = .78$ to $r = .85$ for the total score, and from $r = .69$ to $r = .92$ for the subscale scores. The coefficients indicate an acceptable level of test-retest reliability.

Validity of the MQOL questionnaire was tested in two major ways. Concurrent validity was assessed by means of correlations of the new measure with other common measures of QOL. Table I shows that the Pearson correlation coefficients in samples of both sick and healthy individuals ranged from $r = .68$ to $r = .88$. The correlations are based on summative scores. The coefficients are high enough to suggest that the MQOL assesses a construct, which is within the general domain that enjoys the consensus of QOL.

Criterion validity was assessed by means of mean scores of participants expected to differ in specific directions. Thus, Table II shows that in terms of summative scores, healthy individuals score higher on the MQOL than any of the samples of sick individuals. Further, within the population of sick individuals chronic pain patients have the lowest scores. The latter finding corresponds to findings that have been previously reported (Kreitler and Niv, in press; Niv and Kreitler, 2001; Niv et al., 2000).

TABLE II

MQOL mean scores (and standard deviations) in different samples of sick and healthy individuals

Sample	Overall QOL score	Scores denoting highest QOL	Scores denoting lowest QOL
Chronic pain ($N = 365$)	$M = 1.9$ ($SD = .4$)	Social functioning $M = 2.3$ ($SD = .9$)	Negative emotions* $M = .7$ ($SD = .03$)
Cancer ($N = 145$)	$M = 2.6$ ($SD = .4$)	Meaningfulness $M = 2.1$ ($SD = 1.1$)	Sense of mastery $M = .5$ ($SD = .04$)
Orthopedic patients ($N = 187$)	$M = 3.1$ ($SD = 1.4$)	Physical health $M = 2.3$ ($SD = .7$)	Physical functioning $M = .6$ ($SD = .03$)
Healthy caretakers of chronic patients ($N = 66$)	$M = 2.9$ $SD = 1.2$)	Family functioning $M = 2.5$ ($SD = 1.3$)	Stress*$M = .9$ ($SD = .06$)
Healthy individuals under regular conditions ($N = 152$)	$M = 3.3$ ($SD = 1.3$)	Work and profession $M = 2.5$ ($SD = 1.7$)	Confusion* $M = .3$ ($SD = .02$)

Note: *On these scales high scores denote good QOL, i.e., few negative emotions, low confusion, low stress, whereas low scores denote poor QOL.

8. STRUCTURE OF THE MQOL QUESTIONNAIRE

The items of the MQOL form 17 scales identified both by factor analysis and by cluster analysis (Table III presents the results of the factor analysis, Table IV the proximity coefficients based on cluster analysis). The names of the scales and their constituting items are shown in Table IV. The scales indicate that QOL is basically a multi-dimensional construct, which consists of a great number of elements, whose weight and relative contributions are similar and fairly small.

Of the 17 scales, the three with the highest explained variance are the following: functioning in the family, physical functioning, and social functioning, each with about 7%. The next set of six scales includes those with explained variance ranging between 6% and 7% (body image, negative emotions, meaningfulness of life, stress, living conditions and active living). The following set of six scales have an explained variance of around 5%, namely, they have small yet still stable contributions to QOL. The last two factors represent the scales of cognitive functioning and work and profession with 4.1% of explained variance. Notably, nine of the scales have proximity indices higher than 0.5, which indicates a high level of cohesion.

To further explore the structure of the MQOL confirmatory factor analysis was applied. A measurement model, based on previous preliminary findings (Kreitler et al., in press), was set up in order to test the interrelations of the 17 scales. The five following factors were defined: Factor 1, labeled Physical Functioning, represented the sum of the following scales in the MQOL questionnaire: Physical state, Physical health, and Active living. Factor 2, labeled Emotional Functioning, represented the sum of the following scales in the MQOL questionnaire: Negative Emotions, Positive Emotions, Confusion and Bewilderment, Self Image, and Body Image. Factor 3, labeled Cognitive Functioning, represented the scale of Cognitive functioning in the MQOL questionnaire. Factor 4, labeled Social Functioning, represented the sum of the following scales in the MQOL questionnaire: Family functioning, Sexuality, and Social functioning. Factor 5, labeled Perceived Coping, represented the sum of the following scales in the MQOL questionnaire: Ability to cope, Stress, Meaningfulness of Life, Living conditions, and Work and profession.

Confirmatory factor analysis showed that the five factor model of measurement had a satisfactory goodness of fit according to all standard indices: The goodness of fit index (GFI = .987), adjusted goodness of fit index (AGFI = .952), normed fit index (NFI = .992), and the root mean square error of approximation (RMSEA = .000). The chi-square value, which re-

TABLE III

Results of factor analysis (Varimax with Kaiser normalization) on the items of the Multidimensional Quality of Life questionnaire

Items	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	F14	F15	F16	F17
1										.30							
2										.37							
3										.31							
4										.32							
5					.68												
6					.72												
7																	.30
8																	.31
9											.34						
10											.34						
11		.75															
12		.39															
13	.63																
14	.67																
15	.38																
16	.44																
17														.33			
18														.33			
19		.57															
20	.39																
21			.71														
22			.59														
23											.33						
24															.30		
25							.32										
26							.46										
27									.31								
28						.51											
29						.33											
30						.40											
31									.33								
32																.32	
33																.31	
34																.32	
35				.37													
36				.35													
37				.30													
38				.39													
39		.62															
40		.48															
41				.30													
42				.34													
43				.32													
44				.31													

TABLE III

Continued

Items	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	F14	F15	F16	F17
45				.30													
46				.33													
47				.30													
48															.30		
49									.36								
50												.33					
51												.30					
52												.30					
53												.36					
54				.31													
55													.33				
56													.32				
57													.35				
58								.32									
59								.33									
60																	
E.V.	1.75	1.75	1.72	1.60	1.56	1.56	1.56	1.55	1.50	1.38	1.37	1.29	1.29	1.25	1.25	1.01	1.01
%	7.2	7.2	7.1	6.5	6.4	6.4	6.4	6.3	6.1	5.6	5.6	5.3	5.3	5.1	5.1	4.1	4.1

Note. Only loadings of .30 or higher are presented. Only factors with eigenvalue (E.V.) at least 1.00 and/or accounting for $\geqslant$ 5% of the variance are presented. The table is based on a sample of healthy individuals ($N = 350$), of both genders (170 women, 180 men) in the age range of 25 to 58 years ($M = 34.85$, $SD = 7.23$). %: Percentage of variance explained. For the labels of the numbered factors, see Table 4.

flects the discrepancy between the data and the assumed model, was non-significant, $x^2(4) = 1.981$, *ns*; $x^2/\mathrm{DF} = .495$. The model tested is shown in Figure 1.

All five factors had high standardized regression weights, which in all cases were highly significant. The highest, .99, was obtained for the factor “Cope” (Factor 5) and the lowest, .62, for the factor “Social Functioning” (Factor 4). The squared multiple correlations indicate that the percentages of variance of the factors accounted for by the latent variables are high in the case of all factors (usually a value of > 0.3 is considered as satisfactory). The percentage is highest in the case of Factor 5 (Coping), .97, and lowest in the case of Factor 4 (Social Functioning), .39. The five factors together account for 69% of the variance (see Figure 1). All five factors were significantly and positively intercorrelated. Correlation coefficients ranged from $r = .516$ for Factors 2 and 4 to $r = .848$ for Factors 1 and 5.

Notably, the error terms for Factors 4 and 3 shared a component of variance (.38) that is not accounted for by the relation of the factors to the

TABLE IV

Scales of the MQOL questionnaire

Title of scale	MQOL items	No of factor[a]	Proximity coefficients[b]
Functioning in the family	13, 14, 15, 16, 20	1	0.7
Physical health	1, 2, 3, 4	10	0.5
Physical functioning	11, 12, 19, 39, 40	2	0.6
Active living	9, 10, 23	9	0.7
Sexuality	17, 18	14	0.4
Body image	25, 26	7	0.7
Cognitive functioning	32, 33, 34	16	0.5
Work & profession	7, 8	17	0.8
Social functioning	21, 22	3	0.5
Positive emotions	55, 56, 57	12	0.7
Negative emotions	35, 36, 37, 38, 41, 42, 43, 44, 45, 46, 47, 54	4	0.8
Meaningfulness of life	58, 59	8	0.6
Confusion and bewilderment	24, 48	15	0.3
Ability to cope (sense of mastery)	27, 31, 49	11	0.5
Stress	28, 29, 30	6	0.6
Self-image	50, 51, 52, 53	13	0.5
Living conditions	5, 6	5	0.4

Note: [a]For information about the factors' numbering see Table 3. [b]The proximity coefficients are based on between group linkage cluster analysis. The coefficients range from 0 to 1, whereby 1 denotes high proximity.

construct of QOL. Factors 4 and 3 are also the factors that have relatively the lowest standardized regression weights and the lowest percentages of variance accounted for.

9. SAMPLES IN WHICH THE MQOL QUESTIONNAIRE HAS BEEN ADMINISTERED

Up to now the MQOL questionnaire has been administered to different samples varying in different parameters and whose QOL may be of interest from a variety of perspectives.

(a) Healthy individuals under regular conditions varying in gender, age, education, profession, work place, socioeconomic status, and cultural background;

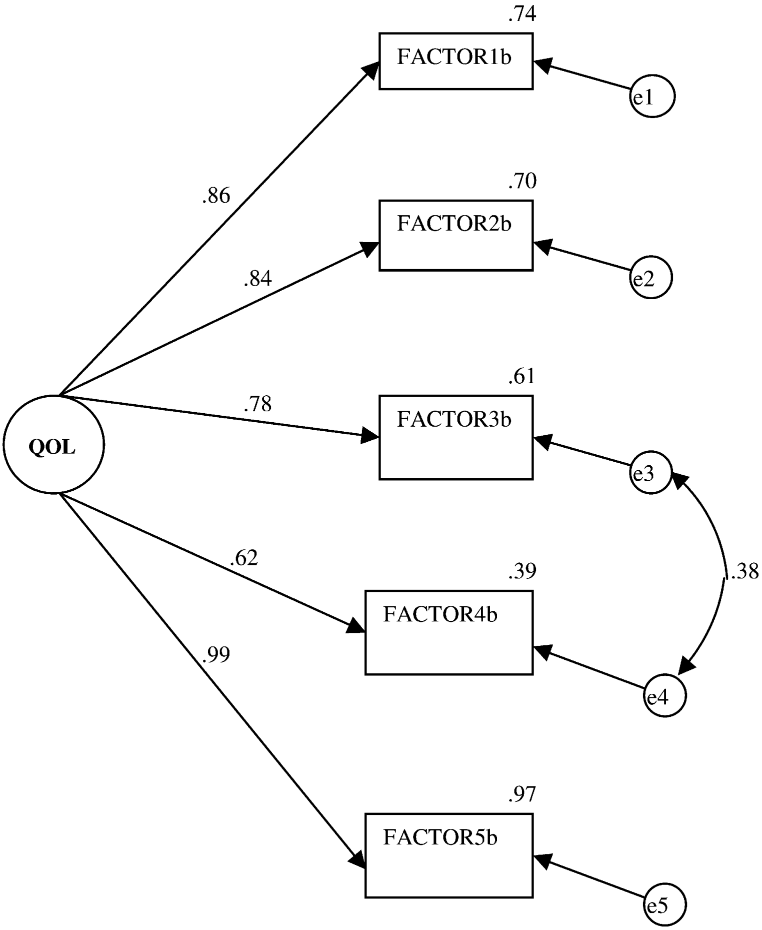

Fig. 1. Results of confirmatory factor analysis on the 17 scales of the MQOL. *Note*: The numbers on the lines represent the standardized regression weights of the factors (all $p < .001$); the numbers near the boxes represent the squared multiple correlations of the factors.

(b) Healthy individuals under special conditions. For example, unemployed for long periods of time, new immigrants in another country, recently divorced, recently bereaved, having recently married, having recently given birth or got a new baby, taking care of a sick individual in their close family, having been injured physically or psychologically in a terror act, having failed an exam, or living in a Kibbutz that is about to be disbanded.

(c) Individuals suffering from various physical disorders, varying in severity or chronicity, such as cancer, cardiological diseases, gastrointestinal disorders, chronic pain, diabetes, or multiple sclerosis.
(d) Individuals suffering from some mental disorder, such as depression or schizophrenia, staying in a hospital or in a hostel.

10. RESULTS

In the present context three types of results will be presented in order to illustrate the range of effects that may be assessed by the MQOL questionnaire.

10.1. QOL in Different Samples

Tables II and V present information about means in different samples. Some of the more interesting results in samples of sick individuals (Table II) are that the lowest overall QOL scores were observed in the chronic pain patients rather than in the group of cancer patients. Notably, in cancer patients the highest scores were in the scale of meaningfulness and the lowest on sense of mastery, possibly reflecting the helplessness these patients tend to experience. An intriguing result was observed in the sample of orthopedic patients who scored highest on physical health but lowest on physical functioning. This discrepancy reflects the gap between pathology and disability.

Previous studies were based on applying the MQOL questionnaire to different groups of patients. Thus, one study showed that breast cancer patients who have undergone lumpectomy did not differ from those who had undergone mastectomy in the summative score of QOL but had lower scores on negative emotions, stress, and self- image (Kreitler, Kovner, et al. 1993). Another study showed that lung cancer patients in China scored higher than lung cancer patients in Israel on the overall summative score of QOL as well as on the scales of social functioning, self image and positive emotions (Kreitler et al., 2000).

Concerning healthy individuals, it is notable that although healthy individuals under regular non-compromising conditions enjoy a high QOL (Table II), under difficult conditions their QOL may be seriously impaired. Tables II and IV show that the lowest level of overall QOL has been observed in a sample of unemployed individuals whose unemployment has lasted so far a short period (6–10 months). A somewhat higher level of QOL

TABLE V

Means of the MQOL questionnaire in different samples of healthy individuals in difficult circumstances

MQOL questionnaire	Unemployed 6–10 months ($N = 54$)	Unemployed 18–24 months ($N = 38$)	Members of a Kibbutz about to be disbanded ($N = 71$)
Functioning in the family	1.9	2.7[a]	1.5
Physical health	2.3	2.1	2.0
Physical functioning	2.7	2.5	2.4
Active living	3.1	2.9	2.8
Sexuality	1.3	2.9[a]	1.7
Body image	2.7	2.8	3.1
Cognitive functioning	3.3	3.0	2.9
Work and profession	2.2	2.4	1.7
Social functioning	2.6	2.8	2.2
Positive emotions	2.4	2.6	2.6
Negative emotions*	1.4	0.7[a]	1.1
Meaningfulness of life	0.6	1.1[a]	1.4
Confusion and bewilderment*	0.3	1.8[a]	0.9
Ability to cope (sense of mastery)	1.9	2.0	1.7
Stress*	2.9.	1.7[a]	0.9
Self-image	2.0	2.2	1.8
Living conditions	2.6	2.7	3.1
Overall sum	1.5	2.1[a]	1.9

Note: In all three groups the participants were 35–46 years old, of both genders, and healthy. There were no significant differences in age, gender distribution or physical health. The respondents were requested not to provide names or any identifying information. *On these scales high scores denote good QOL, i.e., few negative emotions, low confusion, low stress. [a]Mean comparisons by *t*-tests for independent samples showed that the differences between the means for the unemployed 6–10 months and for the unemployed 18–24 months are significant at the $p < .05$ level.

was observed in individuals who have been unemployed for a longer period of time (18 to 24 months).

Comparisons of the means of corresponding scales, in the two groups of unemployed individuals, shows that the QOL scores of those who have been unemployed for a short period are significantly lower than of those who have been unemployed for a long period on the following scales: family functioning, sexuality, negative emotions, stress, and confusion. Hence, it seems that the longer the period of unemployment, the more opportunity and incentive the individuals have to get organized in their lives and compensate to a certain extent for the stress and bewilderment characterizing the initial phase of unemployment. These observations may reflect the tendency for optimizing QOL that has been found in cases of prolonged difficulties and impairments in life and health conditions (Kreitler et al., 1993).

Notably, a remarkably low level of QOL was observed in members of a collective settlement in Israel (Kibbutz) that was about to be disbanded. Decisions to disband Kibbutzim in Israel have been fairly common in recent years and stemmed mostly from economic reasons. It implied often also a kind of ideological failure and the need to get reorganized with a different social order and daily routine. Our findings show that members of a Kibbutz about to be disbanded scored low (<2.0) on nine of the 17 scales: family functioning, sexuality, work and profession, meaningfulness, ability to cope, self image, negative emotions, stress and confusion. The findings suggest that being in a state of uncertainty concerning the future of one's community life may affect seriously a great many domains of QOL, ranging from work and profession to sexuality.

10.2. QOL and Coping Strategies

The relationship between coping strategies and QOL is one of the most intriguing domains of study for both theoretical and applied reasons. In a previous study these relationships were examined in a sample of 252 cancer patients (1–5 years after diagnosis) who were administered the MQOL questionnaire and the Coping with Difficulties (CD) questionnaire (Kreitler, 2004a). The CD questionnaire includes 48 items forming 21 primary level clusters and 6 secondary-level clusters defining the following 6 scales: 1. Focusing on the disease and health improvement. 2. Coming to terms with the situation. 3. Denial. 4. Strengthening oneself and seeking support. 5. Psychological change. 6. Helplessness.

The findings revealed a great number of relationships between coping strategies and QOL. The relations highlighted specific effects of coping strategies in regard to QOL, both the overall summative score and the particular scales. Some coping strategies contributed positively to QOL, some negatively and some were unrelated. Denial was found to be related positively to the overall QOL score and to all scales except family functioning and sexuality; helplessness was related negatively to the overall QOL score and to all scales. Notably, coping by psychological change was also related to negative effects on QOL, the overall score as well as scores in the specific scales of negative emotions, confusion, stress, meaningfulness, self image, cognitive functioning, sexuality and ability to cope. Other coping strategies had mixed effects in regard to QOL. Thus, focusing on the disease and health improvement (e.g., fighting the disease, preoccupation with the disease) was related positively to the overall QOL as well as to negative emotions and confusion, but it was related negatively to positive emotions, self-image, ability to cope, and cognitive functioning.

The study with cancer patients showed that the relations between coping strategies and QOL are multiple and specific. Hence, it was reasonable to expect that these relations would be specific also to particular samples. Accordingly, the questionnaires of MQOL and the CD questionnaire were administered to a sample of 79 partners of individuals with chronic diseases (cancer, neurological diseases, Alzheimer's disease; 46 women, 33 men; age range 52–67 years).

The data presented in Table VI supports our specificity expectation. It shows that the relations of coping strategies with QOL in the sample of partners of sick people differ from those observed in the sample of sick people with the diagnosis of cancer. The most salient difference concerns

TABLE VI

Interrelations between the MQOL questionnaire and coping strategies in a sample of partners of individuals with chronic diseases

MQOL questionnaire	Significant correlations ($p < 0.05$) with coping
Functioning in the family	Denial, $r = -0.64$
Physical health	
Physical functioning	
Active living	Focusing on the disease, $r = 0.45$
Sexuality	
Body image	Strengthening oneself and seeking support, $r = 0.38$
Cognitive functioning	Psychological change, $r = 0.47$
Work and profession	
Social functioning	Strengthening oneself and seeking support, $r = 0.45$
Positive emotions	Psychological change, $r = 0.39$
Negative emotions*	Denial, $r = -0.75$
Meaningfulness of life	
Confusion and bewilderment*	Denial, $r = -0.48$
Ability to cope (sense of mastery)	Psychological change, $r = 0.50$
Stress*	Denial, $r = -0.52$
Self-image	Helplessness, $r = -0.61$
Living conditions	
Overall sum	Denial, $r = -0.44$

denial. Whereas in the patients' sample denial proved to have positive effects as regards QOL, in the partners' sample all the effects of denial were negative, i.e., it was related negatively with functioning in the family, with negative emotions, with confusion and with the overall score of QOL. Changing oneself is another coping mechanism that had different effects in the samples of patients and partners: while in patients it was related with negative effects, in partners it was related with positive effects in regard to cognitive functioning, ability to cope and positive emotions. These and further findings presented in Table VI support the conclusion that coping effects on QOL are context bound and need to be examined in specific samples, in specific domains of QOL and in regard to specific coping strategies.

10.3. Interrelations Between the Overall Score of QOL and the Scores of Scales

Interrelations between the overall score of QOL and the scores of scales are of particular interest because they may shed light on the dependence of the overall score on particular domains or, alternately, the contribution of particular domains to the overall score. A previous study (in which a more preliminary version of the MQOL was used) showed that the number and nature of these interrelations are a function of the state of the individual (Kreitler et al., 1993). In healthy individuals under regular conditions, the overall score is correlated positively only with physical health, work and profession (which was then indicative of economic state) and family functioning. However, in cancer patients it was correlated positively with 10 domains; and in orthopedic patients, who suffered impairments due to an accident but had a fair chance of regaining their original state of functioning, the overall score was correlated positively with four domains. These results were interpreted as indicating that in individuals under regular condition the overall QOL depends primarily on health, work and family. But when one of these major domains is impaired chronically –as in cancer patients– QOL is stabilized by improving QOL in as many different domains as possible. This stabilization does not occur in orthopedic patients because their impairment is considered as temporary.

To check these conclusions, the MQOL was administered to healthy individuals long-term (over 10 years) citizens of Israel ($N = 75$) and new immigrants (immigrants from Russia, who had immigrated to Israel at least 10 months previously) ($N = 72$). The two samples were matched in health (no sick individuals were included), gender distribution, age, and education.

The sample of new immigrants was considered as being more impaired in life circumstances (mainly work and profession) than the sample of long-term citizens. Table VII presents the intercorrelations of the overall score of MQOL with the scales, in each sample. As expected, the number of significant intercorrelations in the group of long-standing citizens is only 3, but it rises to 9 in the sample of new immigrants. The high number of correlated domains indicates that the new immigrants were probably not expecting serious changes in their professional employment in the future. These results confirm the conclusion based on previous findings: when a major domain of QOL is impaired there is tendency to stabilize it by grounding it in a great number of domains.

11. DISCUSSION AND CONCLUSIONS

The presentation of the MQOL questionnaire as a new measure of QOL shows that it fulfills the expectations of a measure with broad coverage of

TABLE VII

Significant correlations between the overall score of the MQOL questionnaire and the scores of the scales in a sample of residents and new immigrants in Israel

MQOL questionnaire	Sample of Israeli citizens	Sample of new immigrants to Israel
Functioning in the family	0.61	0.42
Physical health	0.75	0.35
Physical functioning		
Active living		0.52
Sexuality		0.29
Body image		
Cognitive functioning		0.44
Work and profession	0.46	
Social functioning		0.68
Positive emotions		
Negative emotions*		
Meaningfulness of life		0.78
Confusion and bewilderment*		
Ability to cope (sense of mastery)		0.43
Stress*		
Self-image		
Living conditions		0.35

Note: All correlations are significant at the $p < .05$ level. * On these scales high scores denote good QOL, i.e., few negative emotions, low confusion, low stress themes, adequate for use in samples of both healthy and sick individuals, without compromising in any way in regard to the required standards of reliability and validity. The generic yet rich nature of the MQOL renders it possible to explore new samples, preserving both the relevance of the assessment and comparability across samples (e.g., comparing QOL in the unemployed and in a Kibbutz on the verge of disbanding).

It is of particular interest that applying the MQOL has enabled exploring several issues of importance for understanding QOL and its dynamics. One issue of this kind concerns the interrelations of coping strategies and QOL. The possibility of applying the MQOL in samples of sick and healthy individuals has led to the conclusion that the contribution of coping to QOL is context specific. This implies that no one specific coping strategy can be identified as better than another in general terms, but only in a specific sample and in regard to specific domains (or scales) of QOL.

Another issue of importance concerns the dynamics of QOL. Applying the MQOL in samples of individuals under challenging circumstances has led to three conclusions. The first is that there seems to be a tendency for stabilization of QOL that is set into operation when one's QOL is lowered by a serious impairment to an important domain of QOL, e.g., health or work. Another conclusion is that the stabilizing process involves a kind of compensatory spread-of-effect mechanism. The compensation consists in gleaning whatever potential increases in QOL are possible from any of the domains of QOL that under regular circumstances contribute little if anything to the overall QOL. The third conclusion is that the compensatory mechanism is set into operation mostly if the impairment in QOL is considered to be chronic. When it is considered to be temporary –either because the individuals are realistic or optimistic– the concerned individuals seem to prefer the inconvenience of a lowered QOL to undertaking the effortful task of reconstructing their QOL. Be it as it may, the domains covered by the MQOL questionnaire provide the guidelines for identifying the impaired domains as well as the potentially compensation-providing domains.

APPENDIX

Multidimensional Quality of Life (MQOL)

Appendix A

What is your state in the last month, concerning each of the following items? Please respond by checking one of the 4 stated responses.

1. WORRIES CONCERNING HEALTH:			
None __	Some, a few __	Quite a lot __	Many __
2. GENERAL SENSE OF HEALTH:			
Very good __	Quite good __	Medium __	Not so good __
3. FREQUENCY OF PAIN:			
None or almost none __	Sometimes, rarely __	Quite often __	Very often. almost always __
4. INTENSITY OF PAIN (Please don't respond if you have no pain at all):			
Very weak, hardly noticable__	Medium __	Quite strong __	Very strong __
5. ECONOMIC STATE:			
Very good __	Quite good __	Medium, some difficulties __	Very hard, many difficulties __
6. PLACE WHERE YOU LIVE:			
I have a place which is mine and where I enjoy staying __	I have a place and it is alright __	I have no place or I have a place but I don't enjoy staying in it __	I have no place which is mine or in which I enjoy staying __
7. FUNCTIONING AT WORK (For housewives: work in the household) (If you don't work at all, please check here: __):			
No problems, alright __	Some difficulties, on the whole alright __	Very difficult to work __	Cannot work __
8. FUNCTIONING IN STUDIES AND LEARNING (If you don't study, please check here: __):			
No problems, alright __	Some difficulties, on the whole alright __	Very difficult to study __	Cannot study __
9. ACTIVITIES OUTSIDE THE HOME (e.g., sport, classes, courses, etc.):			
Very often, almost always __	Quite often __	Sometimes, rarely __	None or almost none __
10. ABILITY TO ENGAGE IN ACTIVITIES OUTSIDE THE HOME (Please do not respond if you don't engage in such activities):			
No difficulties at all __	Some difficulties __	Very difficult to engage in activities outside the home __	Cannot engage in activities outside the home __

11. ABILITY TO MOVE THE BODY, MOVEMENT ABILITY:			
Alright __	Some difficulties, but on the whole alright __	Movement very difficult __	Cannot move or only a little __
12. ABILITY TO MOVE AROUND, TO MOVE FROM ONE PLACE TO ANOTHER, GET TO PLACES:			
Alright __	Some difficulties, but on the whole quite alright __	Very difficult to move around __	There is no or almost no ability to move around __
13. FUNCTIONING IN THE FAMILY – AS A PARTNER, HUSBAND OR WIFE (If you don't have a partner, please check here __):			
Alright __	Some difficulties, but on the whole alright __	Many difficulties, misunderstandings and tension __	Does not function as a partner, many difficulties __
14. FUNCTIONING AS A PARENT – AS FATHER OR MOTHER (If you are not a parent please check here __):			
Alright __	Some difficulties, but on the whole alright __	Many difficulties, misunderstandings and tension __	Do not function as a parent, many difficulties __
15. FUNCTIONING AS SON OR DAUGHTER TO MY PARENTS (If you have no parents please check here __)			
Alright __	Some difficulties, but on the whole alright __	Many difficulties, misunderstandings and tension __	Many difficulties and problems __
16. FUNCTIONING AS BROTHER OR SISTER (If you have no siblings, please check here __):			
Alright __	Some difficulties, but on the whole alright __	Many difficulties, misunderstandings and tension __	Many difficulties and problems __
17. SEXUAL FUNCTIONING:			
Alright __	Quite alright __	Medium, some problems __	Not so well, many problems __
18. SEXUAL DESIRE:			
Alright __	Quite alright __	Medium, it exists to some degree __	Not so well, there is none at all or almost none __
19. FOOD:			
Alright __	Quite alright __	Not so well __	Not at all well __
20. COMMUNICATION IN THE FAMILY – DISCUSSING PROBLEMS AND DIFFICULTIES:			
Discuss everything or almost everything__	Discuss quite a lot of the things but not everything __	Discuss a little, a small part of the problems __	Don't discuss things at all or almost none __

Appendix A
Continued

21. CONTACTS AND RELATIONS WITH FRIENDS, RELATIVES, ACQUAINTANCES:			
Many relations & good __	Quite many relations and quite good __	Some relations, or not quite so good __	No relations at all, or all not good __
22. ONE OR MORE CLOSE PERSONS WITH WHOM IT IS POSSIBLE TO TALK ABOUT EVERYTHING:			
Such a person exists and I can tell him/her everything __	Such a person exists and I tell him/her almost everything __	There is a person with whom I can talk about some of the things __	There is no such person __
23. ENTERTAINMENT, HAVING FUN:			
Alright __	Quite alright __	Not so good, only a little __	None or almost none__
24. CONCERN AND INTEREST IN WHAT HAPPENS AROUND YOU:			
A lot __	Quite a lot __	Little concern & interest __	No or almost no concern and interest __
25. SATISFACTION WITH THE EXTERNAL APPEARANCE OF YOUR BODY AND ITS PARTS:			
Highly satisfied__	Quite satisfied __	Not so satisfied __	Not at all satisfied __
26. TAKING CARE OF YOURSELF AND YOUR EXTERNAL APPEARANCE:			
Alright __	Quite alright __	Some tendency to neglect oneself __	Not so well, neglecting oneself __
27. ABILITY AND STRENGTH TO MANAGE AND COPE WITH THE TASKS OF EVERYDAY LIFE:			
Alright __	Sometimes difficult __	Very difficult __	No or almost no ability and strength to cope __
28. FEELINGS OF HAVING NO CONTROL OVER SITUATIONS, OF BEING UNABLE TO DETERMINE ANYTHING IN REGARD TO WHAT HAPPENS:			
None or almost none __	Sometimes, rarely __	Quite often __	Very often, almost always __
29. ABILITY AND TIME TO FULFILL DEMANDS AND COMMITMENTS:			
Enough ability and/or time __	Moderate ability and/or time __	Little ability and/or time __	No ability and/or time at all __
30. STRENGTH AND ABILITY TO COPE WITH THE PROBLEMS I HAVE IN LIFE (If you have no problems, please check here __):			
Enough strength and/or ability __	Moderate strength and/or ability __	Little strength and/or ability __	No strength and/or ability __

31. INDEPENDENCE IN FUNCTIONING AND IN EVERYDAY ACTIVITIES:			
Completely independent __	Quite independent, needs a little help __	Medium independent, needs help __	Not independent, needs a lot of help __
32. ABILITY TO CONCENTRATE ON WHATEVER YOU ARE DOING:			
Alright __	Quite alright __	Not so good, some difficulties __	Many difficulties in concentrating__
33. MEMORY:			
Alright __	Quite alright __	Not so good, some difficulties __	Many memory difficulties __
34. ABILITY TO THINK AND SOLVE PROBLEMS __			
Alright __	Quite alright __	Not so good, some difficulties __	Many difficulties in thinking __
35. FEELINGS OF ANXIETY:			
None or almost none __	Sometimes, rarely __	Quite often __	Very often, almost always __
36. FEELINGS OF UNCERTAINTY, UNCLARITY:			
None or almost none __	Sometimes, rarely __	Quite often __	Very often, almost always __
37. DEPRESSION:			
None or almost none __	Sometimes, rarely __	Quite often __	Very often, almost always __
38. FEELINGS OF LONELINESS:			
None or almost none __	Sometimes, rarely __	Quite often __	Very often, almost always __
39. PROBLEMS IN SLEEP:			
None or almost none __	Sometimes, rarely __	Quite often __	Very often, almost always __
40. FEELING FATIGUE, EXHAUSTION, WEAKNESS:			
None or almost none __	Sometimes, rarely __	Quite often __	Very often, almost always __
41. FEELINGS OF GUILT AND BLAME:			
None or almost none __	Sometimes, rarely __	Quite often __	Very often, almost always __
42. FEELINGS OF ANGER AND RAGE:			
None or almost none __	Sometimes, rarely __	Quite often __	Very often, almost always __

Appendix A
Continued

43. DESPAIR:			
None or almost none __	Sometimes, rarely __	Quite often __	Very often, almost always __
44. FEELING OF FEAR:			
None or almost none __	Sometimes, rarely __	Quite often __	Very often, almost always __
45. FEELING OF THREAT, THAT SOMETHING TERRIBLE MAY HAPPEN:			
None or almost none __	Sometimes, rarely __	Quite often __	Very often, almost always __
46. NERVOUSNESS, TENSION, RESTLESSNESS:			
None or almost none __	Sometimes, rarely __	Quite often __	Very often, almost always __
47. FEELING OF SADNESS:			
None or almost none __	Sometimes, rarely __	Quite often __	Very often, almost always __
48. FEELING OF CONFUSION, BEWILDERMENT:			
None or almost none __	Sometimes, rarely __	Quite often __	Very often, almost always __
49. FEELING OF LACK OF SECURITY:			
None or almost none __	Sometimes, rarely __	Quite often __	Very often, almost always __
50. FEELING OF ESTRANGEMENT, DISCONNECTED FROM ONESELF:			
None or almost none __	Sometimes, rarely __	Quite often __	Very often, almost always __
51. FEELING OF HAVING CHANGED, OF BEING DIFFERENT FROM WHAT ONE HAS BEEN:			
None or almost none __	Sometimes, rarely __	Quite often __	Very often, almost always __
52. IF YOU HAVE CHANGED1 ¼ (Please don't answer if you don't feel you have changed)			
It was for the better __	It was for the better to some extent __	It was not quite for the better __	It was not at all for the better __
53. FEELING WORTHLESS, LOW SELF-ESTEEM, LOW SELF-CONFIDENCE:			
None or almost none __	Sometimes, rarely __	Quite often __	Very often, almost always __
54. FEELING MISERABLE, UNFORTUNATE, WRETCHED:			
None or almost none __	Sometimes, rarely __	Quite often __	Very often, almost always __

55. HOPE:
Very often, almost always __ Quite often __ Sometimes, rarely __ None or almost none __

56. GOOD MOOD:
Very often, almost always __ Quite often __ Sometimes, rarely __ None or almost none __

57. JOY AND PLEASURE:
Very often, almost always __ Quite often __ Sometimes, rarely __ None or almost none __

58. READINESS TO MAKE EFFORTS AND MOTIVATION TO GO ON:
Very often, almost always __ Quite often __ Sometimes, rarely __ None or almost none __

59. EXISTENCE OF SOMETHING THAT MAKES LIFE MEANINGFUL (a person, an occupation, etc.)
Definitely yes __ Yes, in general __ Yes, to some extent __ So-so, not sure __

60. GENERAL SATISFACTION WITH LIFE:
A lot of satisfaction __ Medium satisfaction __ Low satisfaction __ Not at all satisfied __

REFERENCES

Aaronson, N.K., S. Ahmedzai, B. Berman, M. Bullinger, A. Cull, N.J. Duez, A. Filiberti, H. Fletchtner, S.B. Fleishman, J.C.J.M. Haes, S. Kaasa, M.C. Klee, D. Osoba, D. Razavi, P.B. Rofe, S. Schraub, K.C. A. Sneeuw, M. Sullivan and F. Takeda: 1993, 'The european organization for research and treatment of cancer QLQ-C30: A quality-of-life instrument for use in international clinical trials in oncology', Journal of the National Cancer Institute 85, pp. 365–376.

Anderson, R.T., N.K. Aaronson and D. Wilkin: 1993, 'Critical review of the international assessments of health-related quality of life', Quality of Life Research 2, pp. 369–395.

Argyle, M.: 1999, 'Causes and correlates of happiness', in, D. Kahneman, E. Diener and N. Schwarz (eds.), Well-Being: The Foundations of Hedonic Psychology (Sage, New York), pp. 353–373 .

Bergner, M., R.A. Bobbitt, W.B. Carter and B.S. Gilson: 1981, 'The Sickness Impact Profile: Development and final revision of a health status measure', Medical Care 19, pp. 787–805.

Centers for Disease Control and Prevention (CDC)., (2003). Public Health Surveillance for Behavior Risk Factors in a changing environment. Morbidity & Mortality Weekly Report (MMRW) 52, (No. RR-9).

Derogatis, L.R.: 1986, 'The psychosocial adjustment to illness scale (PAIS)', Journal of Psychosomatic Research 30, pp. 77–91.

Devinsky, O., B.G. Vickrey, J. Cramer, K. Perrine, B. Hermann, K. Meador and R.D. Hays: 1995, 'Development of quality of life in epilepsy inventory', Epilepsia 36, pp. 1089–1104.

Diener, E., E.M. Suh, R.E. Lucas and H.L. Smith: 1999, 'Subjective well-being: Three decades of progress', Psychological Bulletin 125, pp. 276–302.

Dimenaes, E., H. Gliese, H. Hallerbaeck, J. Svedlund and I. Wiklund: 1993, 'Quality of life in patients with upper gastrointestinal symptoms', Scandinavian Journal of Gastroenterology 28, pp. 681–687.

Fayers, P.M. and D. Machin: 2000, Quality of Life: Assessment, Analysis and Interpretation (Wiley, Surry, UK).

Gill, T.M.: 1995, 'Quality of life assessment: Values and pitfall', Journal of Royal Society of Medicine 88, pp. 680–682.

Hunt, S.M., S.P. McKenna, J. McEwen, J. Williams and E. Papp: 1981, 'The Nottingham Health Profile: Subjective health status and medical consultations', Social Science and Medicine 15A, pp. 221–229.

Kreitler, S.: 2004a, 'Defense mechanisms and physical health', in U. Hentschel, Smith J.G. Juris and W. Ehlers (eds.), (Elsevier, New York), pp. 477–519.

Kreitler, S.: 2004b, 'The cognitive guidance of behavior', in J.T. Jost, M.R. Banaji and DA. Prentice (eds.), (American Psychological Association Washington, DC), pp. 113–126.

Kreitler, S., S. Chaitchik, Y. Rapoport, H. Kreitler and R. Algor: 1993, 'Life satisfaction and health in cancer patients, orthopedic patients and healthy individuals', Social Science and Medicine 36, pp. 547–556.

Kreitler, S. and H. Kreitler: 1990, The Cognitive Foundations of Personality Traits (Plenum, New York).

Kreitler, S. and M.M. Kreitler: (2004). 'Quality of life in children with cancer Definition, assessment, results', in S. Kreitler and M. Ben-Arush (eds.), Psychological Aspects of Pediatric Oncology (Wiley, Chichester UK), pp. 139–210.

Kreitler, S., F. Kovner, M. Inbar, N. Wigler, S. Lelchuk, S. Chaitchik and H. Kreitler: 1993, 'Quality of life in breast cancer patients with mastectomy and lumpectomy', in, J.C. Holland, M.J. Massie, W.S. Breitbart, P.B. Jacobsen and SD. Passik (eds.), Psycho-Oncology V: Psychosocial factors in cancer risk and survival (Memorial sloan kettering cancer center, New York), pp. 219.

Kreitler, S., Lu Shun, M. Kreitler and M. Inbar: 2000, 'Quality of life and coping in Israeli and Chinese lung cancer patients', Lung Cancer 29(Suppl. 1), pp. 270 .

Kreitler S., Niv D. (in press). 'Quality of life and coping in chronic pain patients', in Kreitler S., Beltrutti D., Lamberto A. and Niv D. (eds.), Handbook of chronic pain (New York: Nova Science).

Kreitler S., and D. Peleg, M. Ehrenfeld: (in press). Stress, self-efficacy and quality of life in cancer patients. Psycho-Oncology.

McHorney, C.A., J.E. Ware, J.F. R. Lu and C.D. Sherbourne: 1994, 'The MOS 36-item short-form health survey (SF-36). 3. Tests of data quality, scaling assumptions and reliability across diverse patient groups', Medical Care 32, pp. 40–66.

Niv, D. and S. Kreitler: 2001, 'Pain and quality of life', Pain Practice 1, pp. 150–161.

Niv, D., S. Kreitler, E. Donatelli and G. Varrassi: 2000, 'Gli effetti del dolore sulla qualita della vita [The effects of pain on quality of life]', in Tiengo (ed.), (Springer, Berlin), pp. 7–13.

O'Connor, R.: 2004, Measuring quality of life in health (Elsevier/Churchill Livingstone, New York).

Salek, S.: 1999, Compendium of quality of life instruments (5 volumes set plus CD-ROM) (Wiley, Chichester, UK).

Salisbury, C., N. Bosanquet, E.K. Wilkinson, P.J. Franks, S. Kite, M. Lorentzon and A. Naysmith: 1999, 'The impact of different models of specialist palliative care on patients' quality of life: A systematic literature review', Palliative Medicine 13, pp. 3–17.

Stewart, A.L., R.D. Hays and J.E. Ware: 1988, 'The MOS short form general health survey', Reliability and validity in a patient population. Medical Care 26, pp. 724–735.

Ware, J.E., Jr., K.K. Snow, M. Kosinsky and B. Gandek: 1993, SF-36 Health Survey manual and interpretation guide (New England Medical Center, Boston, MA).

WHOQOL Group: 1995, 'The World Health Organization Quality of Life assessment (WHOQOL): Position paper from the World Health Organization', Social Science and Medicine 41, pp. 1403–1409.

WHOQOL Group: 1998, 'Development of the WHOQOL BREF quality of life assessment', Psychological Medicine 28, pp. 551–558.

Wicklund, I.: 1990, 'The Nottingham Health Profile - A measure of health-related quality of life', Scandinavian Journal of Primary Health Care Supplement 1, pp. 15–18.

Department of Psychology
Tel-Aviv University
Tel-Aviv 69978
Israel
E-mail: Krit@netvision.net.il

Tel-Aviv Sourasky Medical Center
Psychooncology Unit
6, Weitzman Street
Tel-Aviv, 64239, Israel