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Patron: Buchanan, Erin

Journal Title: Journal of chronic diseases.

Volume: 40 **Issue:** 6

Month/Year: 1987 **Pages:** 503-512

Article Author: warner, williams

Article Title: The meaning in life scale;
determining the reliability and validity of a measure

Imprint: St. Louis ; C.V. Mosby, 1955-c1987.

ILL Number: 113410800



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THE MEANING IN LIFE SCALE: DETERMINING THE RELIABILITY AND VALIDITY OF A MEASURE*

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(Received)

Abstract—The Meaning in Life (ML) Scale and Uniscale were developed to assess the sense of purpose, beliefs, and faith of patients in hospice and rehabilitative programs. Specialists have called for such instruments as meaning in life is not adequately measured by quality of life measures. The reliability and validity of the measures were tested with 257 English and French patients in long term care facilities in Montreal. The internal consistency of the responses to the 15 items in the ML Scale and the stability of the measures over a two week period were at acceptable levels. With respect to construct validity, the direction and magnitude of the correlation of the measures with those of subjective well-being, social support, pain, activities of daily living, quality of life, and social desirability were generally as predicted. Further research is required to determine the utility of the ML Scale and Uniscale in clinical research.

Meaning in life Subjective well-being Quality of life Reliability Validity

STATEMENT OF THE PROBLEM

IN CLINICAL trials, the principal outcomes of interest are survival, complications, infections, remission, and recurrence of disease [1, 2]. These measures are particularly appropriate when the return to normal health within a relatively short time period is the expected outcome.

When the goals are to arrest the disease or to control its progression and related symptoms and complaints, as in rehabilitation and palliative care, there is interest in expanding the outcomes [3]. The expansions may be along the following planes:

(1) from medical outcomes to issues of importance to the lives of the patients,

(2) from points near the time of diagnosis and treatment to points more distant in the future (e.g. 1, 2, 5, 7, and 10 years post diagnosis).

(3) from objective evidence of the effects of disease and treatment to the subjective or personal perceptions of the patients.

Measures of physical, psychological, and social functioning and measures of patient satisfaction are examples of extensions of clinical outcomes which have been used in clinical trials [3].

In the more generic use of the term "quality of life," measures have been directed along all three planes at the same time. Whether the quality of life measures should be global in character and yield aggregate scores, or whether they should be directed to domains or dimensions of outcome which are specific to diseases or treatments remains in question.

Research teams under the leadership of Walter O. Spitzer have developed three measures related to the quality of life:

(1) *The Quality of Life (QL) Index* is a global measure which provides an aggregate total score for the dimensions of activity, daily living, health, support, and outlook [4]. The QL Index, in a slightly modified form, has been used to

*The study was funded in part by the National Cancer Institute of Canada and the Kellogg Center, Division of Clinical Epidemiology, Montreal General Hospital.

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show changes in the status of palliative care of patients over time in the National Hospice Study [5]. It addresses issues in living, and it is based on reasonably objective evidence which can be assessed by health professionals, significant others, and the patient. The QL Uniscale, a visual analog created for quick, global assessments, also can be completed by patients, significant others, and health professionals; and, it performs in much the same way as the index.

(2) *The Reintegration to Normal Living Index* is directed toward a domain of inquiry of central importance to the patient which is reasonably distant from the point of diagnosis. As reported by Wood-Dauphinee and Williams, the ratings reflect the subjective personal assessments of the patients rather than evidence which can be rated by others [6].

(3) *The Meaning in Life (ML) Scale* is the third measure and the one under discussion in this paper. Meaning in life is of central importance to the patient. The intent of the ML Scale is for the patient to report his or her assessment of the worth of life remaining.

RATIONALE FOR THE ML SCALE

Before describing what the Meaning in Life Scale measures, we briefly discuss what it does not measure. There is a large literature on life satisfaction, whose measures are based on the subjects' responses of satisfaction with marriage, children, work, social activities, recreational activities, home, and community [7]. Subjective well-being is a related concept, but it includes ratings of "happiness" and affective feelings, positive and negative [8]. The Bradburn Affect Balance Scale, Dupuy's General Well-Being Schedule, and the General Well-Being Measure developed by Rand for the Health Insurance Study are examples of well-being scales [9-11]. The ML scale was designed to reach beyond the dimensions or domains covered by life satisfaction and life measures.

Numerous publications have been written by patients who have experienced cancer, heart attacks, bypass surgery, and other life threatening diseases. The authors reflect on the impact of the disease, diagnosis, treatment, and follow-up management on their lives. In describing their experiences, they discuss changes in their reflections on life and the meaning which these events had for them and their families. As Angell has noted, there are claims that a strong

will to live can alter the progress of disease and even restore health [12].

The ML scale does not seek to report existential responses.

A goal of rehabilitative and palliative care programs is to enhance the meaning in life of patients who face adversities and crises. Meaning in life is centered in a sense of purpose, beliefs, and statements of faith. Specialists in palliative care have argued that it is enhanced through personal commitment and emotional support from others, religious affiliations, and/or purposeful activities in life. For example, the providers of hospice care were the ones to ask for a measure which would indicate the degree to which meaning in life can be sustained in the process of dying.

A HISTORY OF THE PROJECT

The development and testing of the Meaning in Life Scale began in February of 1982. Potential items for the construction of the index were identified through unstructured patient interviews, consultations with care providers, and a review of the literature [13]. The subject areas reviewed included thanatology, personality theory, and palliative care [14-28]. The only related measure identified was the Purpose-in-Life Test (PIL) developed by Crumbaugh [29, 30]. It was developed to test the principles and concepts of logotherapy developed by Viktor Frankl [31]. It contains 20 items with seven point, Likert type, response scales. Crumbaugh tested its basic psychometric properties and found it to be satisfactory [29, 30].

During the first phase of the project 59 patients suffering from cancer, severe trauma, myocardial infarction, and end stage renal disease participated in taped, semi-structured interviews. Independent ratings of the tapes by two researchers were used to identify domains and items for the instrument.

After developing a basic interview schedule, 13 terminally ill patients, 10 relatives, and 25 health professionals agreed to be interviewed. This was phase two. The results were used to develop the construct of meaning in life and to refine the interview schedule.

Next, two versions of the meaning in life schedule were developed and administered along with a revised version of the Personal Reaction Inventory to 18 patients in palliative care, 41 institutionalized elderly patients, five cardiac and five dialysis patients [32]. The psy-

chometric properties of the measures were tested, and the responses were assessed to determine if they were biased in the direction of socially desirable answers. A visual analog version, called the Meaning in Life Uniscale (UNI) was developed and tested as well.

In the fourth phase, the above instruments and the short form of the McGill Pain Questionnaire were administered to 224 residents of facilities for the chronically ill, 61 terminally ill patients, and 59 renal dialysis and myocardial infarct patients [33]. Based on the results of psychometric testing, the working version of the ML schedule was adopted for use and revised to include 15 items. French and English versions essentially had the same measurement properties and were deemed to be equivalent instruments. As in the third phase, there appeared to be minimal bias in the answers toward socially desirable response patterns. The next step was to test the reliability and validity of the revised ML Scale.

THE DESIGN AND METHODS FOR THE PROJECT'S LAST PHASE

The objectives for the last phase of the study were to:

- (1) evaluate the reliability of the 15 item measure,
- (2) assess the validity of the ML Scale for epidemiologic use,
- (3) examine the influence of covariates on total scores, individual items, and subscores.

Sampling design and strategies

One goal was to recruit a panel of individuals in acute and long term care facilities who would respond to a battery of measures and then be restored approximately two weeks later. To be eligible for the study, the patients had to be:

- (1) fluent in English or French,
- (2) without physical limitations that would interfere with comprehension of the items,
- (3) free of acute psychologic distress or psychiatric episode at the time of interview,
- (4) unaffected by medications or other factors which could alter their level of consciousness.

The protocol was submitted to the ethics review committees of 11 hospitals. All hospitals agreed to participate. Two teaching hospitals were included as approximately 15% of beds in all acute care facilities have been designated for long term patients by the Government of Quebec. The remaining facilities were chronic care hospitals and nursing homes/homes for the aged (Centres d'hébergement et d'accueil).

A member of the research team reviewed the patient lists with the nursing staff. Three hundred forty-five patients were screened, 291 were deemed eligible for the study. Of those eligible, 257 patients (88%) agreed to participate in the first interview, and 221 (76%) were able and willing to complete the second interview. The pairs of interviews permitted further testing of the internal consistency and the stability (test-retest reliability) of the scores. The assumption was that the perceptions of meaning in life should be fairly stable over the test-retest period of two weeks.

Selection of measures for construct validation

This phase of research presented the opportunity to compare the performance of the ML Scale with theoretically related constructs. In selecting measures we had to be conscious of the number of questions which could be asked during an interview. The measures selected for inclusion in the patient interview schedules were the Purpose-in-Life Test by Crumbaugh, Wood's version of the Life Satisfaction Index (LSI-Z) developed by Neugarten, the Affect Balance Scale by Bradburn, the Present Pain Inventory by Melzack, the OARS Social Resource Scale, and the Personal Reaction Inventory [9, 29, 30, 32, 34-36]. In addition, nurses were asked to complete for patients the Katz Activities of Daily Living, the Spitzer QL Index, and the ML Uniscale [4, 37, 38].

As indicated earlier, Crumbaugh's PIL was developed to determine if individuals had a sense of meaning or purpose in life, in accordance with Frankl's assessments of existential conditions [29-31]. Frankl, a Viennese psychiatrist who survived the concentration camps of the Germans and studied other survivors, believed that a lack of meaning in life led to an "existential frustration" which resulted in "noological neurosis." Crumbaugh included statements in his instrument which reflected the concepts of Frankl.

The PIL was tested against the Minnesota Multiphasic Personality Inventory (MMPI), the Allport-Vernon-Lindsey Scale of Values (A-V-L), and Srole's Anomie Scale of psychiatric patients and normals [29, 30]. The PIL did not relate to the A-V-L or any of the MMPI subscales, except for depression ($r = -0.65$). A moderate relationship was ob-

served between the PIL and the Anomie Scale ($r = 0.35$). While the measure was not related to the MMPI subscale for psychopathology, the scores for psychiatric patients were lower than those for normal subjects. Crumbaugh took this finding as an indication of the concurrent validity of his measure [30].

Because the wording of the items was directly related to concepts of existentialism, we questioned whether a relatively high level of literacy would be required to understand the wording. We decided to compare the responses of the patients to the questions, as well as to compare the scores.

The Affect Balance Scale (ABS) presents respondents with five positive statements (PAS) and five negative statements (NAS). They answer "yes" or "no" to indicate if the statements describe how they have felt in the past few weeks. A "yes" is given a score of 1 and a "no" is scored 0. The ABS is calculated by subtracting the number of "yeses" to the negative statements from the number of "yeses" to the positive ones [$\text{ABS} = \text{PAS} - \text{NAS}$]. Bradburn contends that the measure assesses both positive and negative affect, that the dimensions are statistically independent, and that the ABS is the best summary measure of subjective well-being [9].

The ABS has been used widely in the United States and Great Britain, and it was included in the Canada Health Survey. In the Canada Health Survey the response categories were changed from "yes" and "no" to "often", "sometimes", and "no", and the scores assigned were 2, 1, and 0, accordingly. In a secondary analysis of the data ($n = 17,279$), McDowell and Praught found that the items represented the positive and negative dimensions equally well for francophones and anglophones [39]. They found that the ABS was not always the best summary measure, and that the PAS and NAS were statistically related under certain circumstances. Viet and Ware [40] have also questioned whether the PAS and NAS are statistically independent.

More specifically, McDowell and Praught found the responses to the statements "Restless" and "Upset" weakly related to the other negative items [39]. Even with these limitations, there is a consensus that the ABS is short, easy to administer, and generally measures what it is supposed to measure [39, 41].

For this study the response categories used in the Canada Health Survey were retained so

comparisons could be made between the responses of the patients and those obtained in national samples. It was expected that the ABS and PAS would be positively related to the ML and PIL while negative affect (NAS) would be inversely related to these measures.

The Life Satisfaction Index—A was developed by Neugarten *et al.* [35] as part of the Kansas City Study of Adult Life of 177 men and women over 50 years of age in the late 1950s. The instrument contained 20 items, and the positive responses were designed to indicate the degree to which the respondent "takes pleasure from the round of activities that constitutes his everyday life, regards his life as meaningful and accepts resolutely that which life has been; feels he has succeeded in achieving his major goals; holds a positive image of self; and maintains happy and optimistic attitudes and moods" [35].

Adams used an 18 item version, and subsequent research by Wood *et al.* and Lehman indicated that a 13 item version would measure the same construct more efficiently [34, 42, 44]. The correlation between the short form, LSI-Z, and the original version was 0.94. Given the debilitated state of the patients in this study and the number of instruments to be included, the LSI-Z was selected for use.

Even though the operational definitions of the ML and the LSI-Z are similar in content, the two scales differ considerably. Only three items on the ML (numbers 2, 8 and 12—see Table 1) reflect comparable items on the life satisfaction measure. One would expect a positive relationship of moderate magnitude between the scores of the two measures.

Pain can be a major symptom or complaint among patients in long term care facilities, and the presence of pain could modify the responses to the ML items. The Present Pain Inventory was selected to assess the presence and intensity of pain [33].

The ADL schedule by Katz is a widely used instrument for the assessment of the functional status of patients in long term care settings [37, 38]. Nurses were asked to complete it along with the QL Index for each of the patients.

In conceptual terms, social support is believed to be strongly associated with the meaning in life and related measures. As Donald and Ware have indicated, there are no measures of social support which have been widely used or accepted [45]. It was the assessment of Kane and Kane that the Social Resource Scale developed

at the Older American Research and Service Center of Duke University (OARS) is probably the best known general measure of social support and functioning among the elderly [36, 41]. The OARS items and a scoring algorithm were adapted for this study.

The last measure included in the study was the Personal Reaction Inventory, a reduced version of the Crowne-Marlowe index [32]. It was used to determine if the patients were subject to give socially desired responses to the question.

Interviews

The instruments were translated into French and back into English to test the comparability of content. Pretests were conducted to assure that the length and content of the interviews would be acceptable to the patients and nurses.

The measures were divided as follows into the two schedules:

First Interview

- (1) ML—15 item Meaning in Life Scale
- (2) PIL—20 item Purpose in Life Test
- (3) UNIP1—Meaning in Life Uniscale for patients
- (4) ABS—10 items Affect Balance Scale
- (5) PPI—1 item Present Pain Inventory
- (6) ADL—Nurses' rating of patient on 6 items of Activities of Daily Living.

Second Interview

- (1) LSI-Z—13 item Life Satisfaction Index
- (2) SML—15 items of ML randomly sorted into a new order

(3) UNIP2—Second use of uniscale by patients

(4) PRI—10 item Personal Reaction Inventory

(5) OARS—10 item Social Resource Scale

(6) QL—Nurses' rating of patients on 5 item QL Index.

The social demographic variables were included in the first interview.

As noted earlier, the response rates were reasonably high. The interviewers noted that the patients complained about the length of the interviews, having to answer the "same question" twice and having to repeat the interview.

Data processing

The data were key entered and verified by a professional service. They are on tape and disk at McGill University and the University of Michigan where they are being analyzed with SPSS-X and SAS computer packages.

RESULTS

This section focuses on the analysis of the internal consistency of the ML, the stability of the measure, the relationship between the scores of the ML and other measures, and the relationship between the ML and background characteristics of the patients. An extensive analysis of the internal structure and construct validity of the measures has been reported by Warner [13].

Response patterns and the internal consistency of the measure

The relative frequency distributions, the

Table 1. Frequency distributions, means, and standard deviations of item scores in the first interview ($n = 257$)

Items	Frequency distributions % by score					Missing	Mean	SD
	5 Positive	4	3	2 Negative	1			
1. Believing in God	63.0	13.2	12.8	1.9	8.2	0.8	4.2	1.3
2. Being around people	42.4	21.0	11.7	7.4	17.5	0.0	3.6	2.0
3. Coming to terms with illness	51.4	15.2	10.5	7.4	14.4	1.2	3.7	2.2
4. Looking forward to each new day	34.6	16.0	12.5	11.7	24.1	1.2	3.3	1.7
5. Participating in religious activities	39.7	16.3	12.5	9.7	21.8	0.0	3.4	1.6
6. Giving affection to loved ones	68.5	12.8	4.7	5.1	7.0	1.9	4.4	1.4
7. Receiving love and support	62.3	17.5	11.3	4.7	3.9	0.4	4.3	1.7
8. Life is useful and worthwhile	39.3	18.3	16.3	10.1	15.6	0.4	3.6	2.4
9. Activities and hobbies	49.8	13.6	6.6	6.2	23.0	0.8	3.6	2.4
10. Doing things for myself	58.4	13.6	5.8	7.4	14.0	0.8	4.0	1.6
11. Support from other patients	36.6	18.7	12.1	5.8	26.8	2.7	2.7	1.6
12. Life full of good things	42.4	21.4	17.5	7.0	11.3	0.4	3.8	1.4
13. Setting daily and short term goals	35.0	19.5	15.2	7.4	21.4	1.6	3.3	1.7
14. Philosophy of life as a guide	58.8	14.4	10.5	5.4	10.5	0.4	4.0	2.0
15. Will to live	47.5	16.3	14.4	7.4	14.4	0.0	3.8	1.5

Table 2. Meaning in Life Items ML1 to ML15 correlation matrix.

Items	Items														Item to total	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
1	(0.51)															0.458
2	0.134	(0.40)														0.388
3	0.162	0.195	(0.52)													0.506
4	0.115	0.125	0.215	(0.40)												0.505
5	0.539	0.225	0.216	0.142	(0.55)											0.557
6	0.090	0.174	0.136	0.235	0.173	(0.34)										0.482
7	0.026	0.092	0.226	0.142	0.121	0.305	(0.52)									0.443
8	0.138	0.045	0.234	0.278	0.137	0.272	0.383	(0.47)								0.621
9	0.035	0.311	0.227	0.194	0.227	0.172	0.264	0.339	(0.58)							0.547
10	0.102	-0.054	0.116	0.192	0.081	0.106	0.083	0.157	0.063	(0.25)						0.326
11	0.199	0.299	0.156	0.137	0.261	0.163	0.098	0.142	0.281	0.086	(0.54)					0.485
12	0.188	-0.039	0.253	0.185	0.133	0.296	0.307	0.358	0.167	0.089	-0.003	(0.50)				0.467
13	0.048	0.070	0.197	0.200	0.099	0.237	0.197	0.293	0.297	0.165	0.308	(0.49)				0.490
14	0.502	0.246	0.212	0.215	0.487	0.194	0.094	0.298	0.244	0.122	0.285	0.196	(0.47)			0.611
15	0.200	0.138	0.296	0.299	0.219	0.266	0.492	0.330	0.330	0.188	0.222	0.314	0.149	0.229	(0.56)	0.599

means, and standard deviations of the responses to the 15 items of the ML are displayed in Table 1. The descriptive statistics for the SML responses at the retest were similar to those for the ML, so only one set is displayed.

The ML Scale contains both positive and negative items. For the analysis the responses to the negative items were recoded so they correspond to those for the positive ones. The scores for the items range from 1, a low negative meaning, to 5, a high positive meaning.

The items for which more than 30% of the patients responded in the lowest two categories were:

4. Looking forward to each new day
5. Participating in religious activities
11. Support from other patients
13. Setting daily and short term goals.

Overall, responses were on the positive side of the rating scales, but there were clusters of low scores as well.

The item-to-item and item-to-total correlations for the ML are displayed in Table 2. The mean and standard deviation of the correlations were 0.20 and 0.11 respectively. The Cronbach alpha was acceptably high (0.78) even though 17% of the correlations were below 0.10 and 38% of them were between 0.10 and 0.19. The statistical characteristics of the SML were essentially the same as for the ML.

The percentage distribution of the responses to the first administration of the uniscale are displayed in Table 3. It is in the shape of a lazy U with the highest frequencies for the highest positive score of 10 and the next highest frequencies being for the lowest negative score of 1. The distributions, means, and standard devi-

Table 3. Percentage distribution of scores for the Meaning in Life Uniscale (ML-U)

	Score	%
Completely without meaning	0	12.8
	1	4.7
	2	5.1
	3	1.9
	4	4.7
	5	8.6
	6	3.1
	7	3.1
	8	9.7
	9	8.9
Very meaningful	10	34.2
Missing		3.1
Total		100.0%
Mean		6.4
SD		3.7

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Table 4. Correlation Matrix of ML, SML, UNIP1, and UNIP2

	ML	SML	UNIP1
SML	0.734 (197)	—	—
UNIP1	0.602 (229)	0.574 (203)	—
UNIP2	0.489 (200)	0.653 (206)	0.594 (210)

ations for the two testings of the uniscale are nearly identical.

The Cronbach alphas for the other measures were as follows: PIL (0.83), LSI-Z (0.73), PAS (0.69), and NAS (0.69). The scores were sufficiently high to use the measures as unidimensional scales.

Correlations of scores

The correlation matrix of the scores of the ML, SML, UNIP1, and UNIP2 are displayed in Table 4. The Meaning in Life scale is more stable over two testings (0.73) than the uniscale (0.59).

The test-retest correlations for each of the 15 items are shown in the diagonal of Table 2. There are five items with stability correlations of 0.40 or less:

2. Being around people (0.40)
4. Looking forward to each new day (0.40)
6. Giving affection to loved ones (0.34)
10. Doing things for myself (0.25)
13. Setting daily and short term goals (0.27)

It is not clear why the stability for these items, particularly the last three, is so much lower than for the other items in the scale. While one would expect the meaning in life to change with age, health, and the daily circumstances of health, the responses should be reasonably consistent over a two week time period. The relative stability of the items requires further examination.

The descriptive statistics of the ML, PIL, LSI-Z, and ABS measures are displayed in Table 5, and the correlation matrices for the measures in the first and second interviews are displayed in Table 6. The strongest association is between the ML and the PIL (0.77). Twenty percent of the sample failed to respond to one or more of the items of the PIL, which indicates that either the patients had difficulty with the items or disliked them. Of the 77 patients who failed to complete the PIL, 68 completed the ML, and their mean ML score was 4.4 points

Table 5. Descriptive statistics for the key subjective measures in the study

Measure	n	X	S	MD	Range	CV
ML	234	56.8	10.9	58.0	20-75	0.19
SML	210	57.2	11.3	58.0	24-75	0.20
UNIP1	249	6.4	3.8	8.0	0-10	0.59
UNIP2	214	6.4	3.8	8.0	0-10	0.59
PIL	188	96.8	21.6	98.0	38-138	0.22
LSI-Z	207	25.5	5.8	25.0	13-39	0.23
ABS	244	0.9	4.3	1.0	-9-10	4.62
PAS	248	4.7	2.6	5.0	0-10	0.55
NAS	250	3.7	2.7	4.0	0-10	0.73

n = sample size.

X = mean.

S = standard deviation.

MD = Median.

Range = minimum-maximum values.

CV = Coefficient of variation (S/X).

lower than patients who completed the PIL. The difference was statistically significant at the 0.01 level.

The correlations of the ML and the SML with the respective uniscales were only moderately strong, and certainly less than the association between the ML and PIL. There is some question whether the multiple item scale and the uniscale are comparable.

The PIL correlated more strongly with the ABS than the ML; the correlations were 0.63 and 0.53 respectively. This is interesting in that the correlations of the PIL and the ML with the PAS (0.46 and 0.47) and the NAS (-0.41 and -0.40) were nearly identical. The differences in the correlations with the ABS may be spurious. It is also interesting to note that the PAS and NAS were significantly correlated (-0.34).

The SML correlated with the LSI-Z (0.63), but less strongly than the ML with the PIL. This

Table 6. Correlation matrices of key subjective measures

	First interview			
	ML1	PIL	UNIP1	ABS
PIL	0.774 (180)*	—		
UNIP2	0.602 (229)	0.635 (183)	—	
ABS	0.530 (226)	0.627 (181)	0.390 (236)	—
Second interview				
UNIP2	SML 0.653 (203)	UNIP2 —	LSI-Z 0.525 (203)	
LSI-Z	0.629 (197)		—	

*Number of respondents completing both measures being correlated.

suggests that LSI-Z taps more the dimensions of subjective well-being than meaning in life, but there were no direct comparisons of this instrument with the ABS to confirm this.

Responses of the patients to the items in the ABS were compared to the responses of individuals 55 years of age and older in the community samples of the Canada Health Survey, as reported by McDowell and Praught [39]. In general, the patients had less favorable scores than the community samples, as one might expect. There are two differences which stand out. Nearly 40% of the patients said they were often bored, and depressed or unhappy, as compared to less than 10% of the Canadian Health Survey respondents.

Consideration had been given to including a measure of depression. Given that depression may result from the processes of disease and management, acute or chronic psychiatric states, or situational responses to the environment, it was unclear how the results would have been interpreted. The relationship between meaning in life and depression require further study.

Associations of the ML and PIL with predictor variables

Table 7 displays the percentage distributions of patients characteristics by age, language, sex, education, activity level (ADL), social support (OARS), social desirability (PRI), and pain. These, in turn, were correlated with the ML and the PIL, (Table 8). It should be noted that the OARS and PRI were used only in the second interview.

Table 7. Frequency distribution of background characteristics of patients with ML scores $n = 234$

Age	%	Activity level (ADL)	%
Under 65	27.4	Poor	29.1
65-74	26.9	Moderate	32.1
75+	45.7	Good	30.8
Language		Social support (OARS)†	
English	48.7	Poor	27.8
French	50.0	Fair	47.9
Other	1.3	Good	10.3
Sex		Social desirability (PRI)†	
Female	59.8	Low	12.8
Male	40.2	Moderate	36.8
		High	36.3
Education		Pain (PPI)	
Less than H.S.	69.7	Mild	59.0
Complete H.S.	25.6	Moderate	31.6
Post H.S.	4.7	Severe	7.7
		Missing	1.7

*Second interview, patients with SML scores = 210.

Table 8. Product moment correlations of ML and PIL with predictor variables

Predictor variables	ML	PIL
Age	0.06	0.15*
Language	-0.14*	-0.17**
Sex	-0.22**	-0.23**
Education	0.04	0.15*
Activity level (ADL)	0.14*	0.19**
Social support (OARS)†	0.26**	0.34**
Social desirability (PRI)†	0.25**	0.24**
Pain (PPI)	-0.21**	-0.25**

* $p < 0.05$; ** $p < 0.01$.

†Scores are from second interview.

In the bivariate analysis, sex, language, pain, social desirability, activity, and social support were statistically significant predictors of ML. All eight predictors were significantly related to PIL. It can be noted that all of the associations were relatively weak as all but one coefficient is 0.26 or less.

When forward multiple regression analysis was used, pain, social support, social desirability, and sex were the main independent predictor variables for both ML and PIL. There were no significant interaction terms. Women, patients more independent in activities of daily living, patients relatively free of pain, and those with more social resources were more likely to have higher ML and PIL scores. Patients who were more likely to give socially desired responses on the PRI were also more likely to have higher ML and PIL scores. The combined effects of the predictor variables were moderate to weak, the proportion of variance explained by the models was under 20%.

It was a surprise to discover that the correlations between social support and activity and the two measures were not strong. The patients are in long term care beds because of needs for professional and personal care and a lack of appropriate support services in the home. The fact of institutionalization may well have blunted the effects of these predictors.

SUMMARY AND CONCLUSIONS

A measure of the meaning in life has been constructed which is:

1. Short
2. Easy to administer
3. Acceptable to clinicians and patients
4. Sensitive

5. Not highly influenced by socially desirable responses
6. Reliable with respect to internal consistency
7. Reasonably stable over a two week period.

While the scores were distributed to the high side of the scale, there were variations with a small, but not insignificant, number of patients with low scores. The measures were relatively stable over the test-retest period.

The Purpose in Life Test was identified as one which assesses the meaning of life from an existential perspective. The ML Scale is shorter, and the patients were decidedly more likely to complete it than the PIL. The patients who failed to complete the PIL had lower ML scores on average than those who did. The ML Scale appears to be the superior of the two research instruments. The meaning in life scores were related to measures of life satisfaction and subjective well-being, but both the ML and PIL appear to cover a dimension beyond those domains.

In theory, meaning in life should be stable but should change as one's perspective changes with life experiences. The patients in this study were old, were in residential care facilities, were incapacitated to a degree, and had diminished social resources. While the instrument works as a research tool, to date there are no criteria or rules for relating the scores to the clinical status of the patients.

A measure of depression was not included in this study, but the responses to the ABS suggest that the levels of depression were relatively high in our samples of patients. Depression could stem from the state of health, the circumstances of living in a long term care facility, or psychological problems. Depression may be viewed as a normal response for persons who find little meaning in remaining life. It may also be viewed as a clinical problem which can be managed, and thereby improve the patient's outlook on life. Further study of the relationship between depression and meaning in life among long term care patients is required in order to better understand the use of the ML Scale in clinical studies.

There are other issues and questions which should be explored. It has yet to be demonstrated that the meaning in life can be modified in response to palliative or long term care. If the instrument is used for such purposes, there must be agreement on how baseline scores will be

measured and how changes in scores over time will be interpreted. There is also the problem of assessing the meaning of life in those who are unable to respond for physical or psychological reasons.

Technically speaking, the instrument has promise. The next step will be to test it with related measures in a cross section of disabled, chronically ill, and "healthy" individuals in and out of hospitals or long term care facilities, and to determine if the scores change over time and circumstances. Such work will be required before the pertinence and the potential of the ML scale can be established.

REFERENCES

1. Fletcher RH, Fletcher SW, Wagner EH: *Clinical Epidemiology*. Baltimore: Williams and Wilkins, 1982
2. Jenicek M, Cleroux R: *Epidemiologie Clinique: Clinimétrie*. Paris: Edisem, 1985
3. Wood Dauphinee S, Troidl H: *Surgical Textbook*, Section II, chap. 2. *Endpoints for Clinical Studies. Conventional and Innovative Medicine*. 1986
4. Spitzer WO, Dobson AJ et al: Measuring the quality of life of cancer patients. A concise QL-Index for use by physicians. *J Chron Dis* 34: 585-597, 1981
5. Morris JN, Suissa S et al: Last days. A study of the quality of life of terminally ill cancer patients. *J Chron Dis* 39: 47-62, 1986
6. Wood Dauphinee S, Williams JI: *Reintegration to Normal Living as a Proxy to Quality of Life*. Portugal Conference, 1986
7. Rodgers WL, Converse PE: Measures of the perceived overall quality of life. *Social Indicators Res* 2: 127-152, 1975
8. Campbell A: Subjective measures of well-being. *Am Psychol* 31: 117-124, 1976
9. Bradburn NM: *The Structure of Psychological Well-Being*. Chicago: Aldine Publishing, 1969
10. Dupuy HJ: *Developmental Rationale, Substantive, Derivative, and Conceptual Relevance of the General Well-Being Schedule*. Fairfax, Virginia: National Center for Health Statistics, 1973
11. Ware JE Jr: Scales for measuring general health perceptions. *Health Serv Res* 11: 396-415, 1976
12. Angell M: Disease as a reflection of the psyche. *N Engl J Med* 312: 1570-1572, 1985
13. Warner SC: *The Measurement of Subjective Variables in Epidemiology: Development and Validation of an Instrument for Quantifying Self-Perceived Meaning in Life among the Chronically Ill Institutionalized Elderly* [Dissertation]. Ann Arbor, Michigan: The University of Michigan, 1986
14. Ajemian I, Mount BM: *The Royal Victoria Hospital Manual on Palliative/Hospice Care*. Montreal, 1980
15. Barton D: *Dying and Death: A Clinical Guide to Caregivers*. Baltimore: Williams and Wilkins, 1977
16. Kubler-Ross E: *On Death and Dying*. New York: Macmillan, 1969
17. Kubler-Ross E: *Death: The Final Stage of Growth*. Englewood Cliffs, New Jersey: Prentice Hall, 1975
18. Saunders CM: Terminal Care. In *Psychological Care of the Dying Patient*, Garfield CA (Ed.). New York: McGraw-Hill, 1978
19. Twycross RG: *The Dying Patient*. London: Stanley Hunt, 1975

20. Weisman AD, Worden JW: Psychosocial analysis of cancer deaths. *Omega* 6: 61-65, 1975
21. Frankl VE: *Man's Search for Meaning*. New York: Simon and Shuster, 1963
22. Maslow AH: *Motivation and Personality*. New York: Harper and Row, 1954
23. Rogers CR: *On Becoming a Person*. Boston: Houghton Mifflin, 1961
24. Hinton JM: Comparison of places and policies for terminal care. *Lancet* I: 29-32, 1979
25. Linn BS, Linn MW: Late stage cancer patients: age difference in their psychological status and response to counselling. *J Gerontol* 36: 689-692, 1981
26. Parks CM: Psychological management. In *The Management of Terminal Disease*. Saunders CM (Ed.). London: Edward Arnold, 1978
27. Priestman TJ, Baum M: Evaluation of quality of life in patients receiving treatment for advanced breast cancer. *Lancet* I: 899-901, 1976
28. Spiegel D, Bloom JR, Yalom I: Group support for patients with metastatic cancer. A randomized outcome study. *Arch Gen Psychiat* 38: 527-533, 1981
29. Crumbaugh JC: Cross-validation of the Purpose-In-Life Test based on Frankl's concepts. *J Individ Psych* 24: 74-81, 1968
30. Crumbaugh JC: Aging and adjustment: the applicability of logotherapy and the Purpose-In-Life Test. *Gerontologist* 12: 418-420, 1972
31. Crumbaugh JC: An experimental study in existentialism: the psychometric approach to Frankl's concept of noogenic neurosis. *J Clin Psych* 2: 200-207, 1964
32. Crowne PP, Marlowe D: A new scale of social desirability independent of psychopathology. *J Consult Psych* 24: 349-354, 1960
33. Melzack R: The McGill Pain Questionnaire: major properties and soaring methods. *Pain* 1: 277-279, 1975
34. Wood V, Wylie ML, Sheafor B: An analysis of a short self-report measure of life satisfaction: correlation with water judgments. *J Gerontol* 24: 465-469, 1969
35. Neugarten BL, Havighurst RJ, Tobin SS: The measurement of life satisfaction. *J Gerontol* 16: 134-143, 1961
36. Older Americans Research and Service Center: *Research Manual*. Durham, North Carolina: Duke University, 1978
37. Katz S et al: Studies of illness in the aged. *JAMA* 185: 94-99, 1963
38. Katz S et al: Progress in the development of the index of ADL. *Gerontologist* Spring, part 1: 20-30, 1970
39. McDowell I, Praught E: On the measurement of happiness: an examination of the Bradburn scale in the Canada Health Survey. *Am J Epidemiol* 116: 949-958, 1982
40. Veit CT, Ware JE Jr: The structure of psychological distress and well-being in general populations. *J Consulting Clin Psychol* 51: 730-742, 1983
41. Kane RL, Kane RA: *Assessing the Health of the Elderly: A Practical Guide to Measurement*. Toronto: Lexington Books, 1981
42. Adams RL: Analysis of a life satisfaction index. *J Gerontol* 24: 470-474, 1969
43. Lohmann N: Correlations of life satisfaction, morale, and adjustment measures. *J Gerontol* 32: 73-75, 1977
44. Stock WA, Okun MA: The construct validity of life satisfaction among the elderly. *J Gerontol* 37: 625-627, 1982
45. Donald CA, Ware JE Jr: The measurement of social support. *Res Commun Mental Health* 4: 325-370, 1984
46. Cronbach LJ: Coefficient alpha and the internal structure of tests. *Psychometrika* 16: 297-334, 1951