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ORIGINAL ARTICLE

Meaning in life assessed with the “Schedule for Meaning in Life Evaluation” (SMiLE): a comparison between a cancer patient and student sample

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Abstract

Background The aims of the study were (a) to assess individual meaning in life (MiL) in a mixed sample of cancer patients with the Schedule for Meaning in Life Evaluation (SMiLE), (b) to evaluate the acceptability of its French version, and (c) to compare it to a student sample. **Materials and methods** Consecutive cancer patients ($N = 100$) treated as outpatients in the University Hospital Lausanne ($N = 80$) and in a nearby hospice ($N = 20$) were evaluated with the SMiLE, a reliable and validated respondent-generated instrument for the assessment of MiL. The respondents list three to seven areas, which provide meaning to their life and rate the level of importance (weighting) and satisfaction of each area. Indices of total weighting (index of weighting (IoW), range

20–100), total satisfaction (index of satisfaction (IoS), range 0–100), and total weighted satisfaction (index of weighted satisfaction (IoWS), range 0–100) are calculated. **Results** Patients most often indicated areas related to relationships as providing MiL, while material things were listed less often. Since satisfaction with relevant areas was high, cancer patients reported the same level of weighted satisfaction (IoWS) as a healthy student sample, assessed with the SMiLE in a prior validation study. Patients judged the SMiLE as reflecting well their MiL, not distressing to fill in and were moderately positive with regard to its helpfulness.

Conclusions MiL of cancer patients was surprisingly high, possibly due to the “response shift” of the severely ill. The SMiLE might become a useful tool for research and an opener to communication between patients and clinicians about this highly relevant topic in cancer care. Further studies with larger sample sizes and different designs, complemented by qualitative research, are needed to deepen our understanding of this so characteristically human topic, which is so easy to perceive and so difficult to grasp.

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Introduction

The topic of “meaning in life” (MiL) has stimulated the interest of clinicians and researchers working in oncology. For example, Moadel et al. [1] who assessed cancer patients' most important needs found that 40% indicated a need for help in searching for MiL. A recent systematic literature review [2] of 44 studies on “meaning in the context of cancer” identified (a) studies focusing on the threatening and

growth-enhancing aspects of cancer and the role of meaning attributed to the disease, (b) studies addressing the search for meaning, and (c) studies evaluating meaning as an outcome. The review concluded that there is strong empirical evidence of a relationship between meaning as an outcome measure and psychosocial adjustment to cancer. The authors deplored the lack of precise conceptual and operational definitions, the reliance on homogeneous sampling, and other methodological weaknesses in this field of research.

In clinical psychology, the concept of MiL has been introduced by Frankl [3], a psychiatrist who had a personal history as a survivor of the Nazi concentration camps. He defined MiL as the manifestation of values, which are based on (a) creativity (e.g., work, dedication to causes), (b) experience (e.g., nature, love), and (c) attitude (one's attitude toward suffering and existential problems). However, since Frankl's pioneering work, the interest in MiL has been very limited until it has been observed that loss of meaning is associated with psychological distress, the wish to hasten death and requests for euthanasia of cancer patients [4–7]. Consequently, psycho-oncological interventions focusing on MiL have therefore been developed [8–10].

The different questionnaires developed to assess MiL [11–28] measure intensity, but ignore the content of reported meanings [29], which vary from person to person and from situation to situation. Since measurements of MiL based on standardized models and pre-selected domains may not provide an adequate representation of this highly individual construct, the “Schedule for Meaning in Life Evaluation” (SMiLE), based on a methodology utilized in quality of life (QoL) research [28], has been developed.

QoL assessment researcher faced similar problems, i.e., how to measure a highly individual concept, which is difficult to operationalize from a methodological point of view [29]. O'Boyle et al. therefore developed the “Schedule for the Evaluation of Individual Quality of life—Direct Weighting” (SEIQoL-DW) [30, 31]. In the SEIQoL-DW, the respondent indicates domains of individual QoL and rates their relative importance and satisfaction with each domain. The SMiLE was developed analogously to the SEIQoL methodology with the aim to provide an individualized assessment of MiL [28, 32].

This study aimed (a) to assess individual meaning in life (MiL) in a mixed sample of cancer patients by means of the SMiLE, (b) to evaluate the acceptability of its French version, and (c) to compare it to a student sample.

Materials and methods

The study has been approved by the Ethic Committee of the University Hospital Lausanne, Switzerland, and only patients who provided informed consent were included.

Patients

Consecutive eligible outpatients treated by the Pluridisciplinary Center of Oncology of the University Hospital Lausanne and inpatients of a nearby located palliative care hospice (Rive-Neuve) were approached by their treating physician and asked for participation. Exclusion criteria consisted of insufficient knowledge of French and cognitive deficits hampering the assessment. Consenting patients were referred to the study nurse (CZ) for evaluation with the SMiLE.

Schedule for Meaning in Life Evaluation (SMiLE)

With the SMiLE, the respondents first indicate a minimum of three and maximum of seven areas (n = number of areas) which provide meaning to their life (step 1: area listing).

Then, the importance of each area ($w_1 \dots w_n$; $3 \leq n \leq 7$) is rated with a five-point adjectival scale, ranging from 1 “somewhat important” to 5 “extremely important” (step 2: weighting).

Finally, the respondents rate their current level of satisfaction with each area ($s_1 \dots s_n$; with $3 \leq n \leq 7$) on a seven-point Likert scale, ranging from -3 “very unsatisfied” to $+3$ “very satisfied” (step 3: level of satisfaction).

The *index of weighting (IoW)* indicates the mean weighting of the MiL areas (range 20–100, with higher scores reflecting higher weights). Since the scale starts with “somewhat important”, the floor is set to 20 instead of 0.

$$\text{IoW} = 20 \circ \frac{w_{\text{ges}}}{n}; w_{\text{ges}} = \sum_{i=1}^n w_i.$$

The *index of satisfaction (IoS)* indicates the mean satisfaction or dissatisfaction with the MiL areas (range 0–100, with higher scores reflecting higher satisfaction). To obtain an index varying from 0 to 100, the satisfaction ratings s_i are recalculated (s'_i). “Very unsatisfied” ($s_i = -3$) is set to $s'_i = 0$ and “very satisfied” ($s_i = +3$) is set to $s'_i = 100$ with levels of 16.7, 33.3, 50, 66.7, and 83.3 in between.

$$\text{IoS} = \frac{\sum_{i=1}^n s'_i}{n}.$$

In the *total SMiLE index (index of weighted satisfaction, IoWS)*, the ratings for importance and satisfaction are combined (range 0–100, with higher scores reflecting higher MiL).

$$\text{IoWS} = \sum_{i=1}^n \left(\frac{w_i}{w_{\text{ges}}} \circ s'_i \right).$$

Levels and weights assigned to particular areas are independent. A person may be satisfied in a particular area but assign little importance to it, while another area may be

described at a high level of both importance and satisfaction. Therefore an area perceived as “very unsatisfied” but of little importance will have less impact on MiL than an area that is “unsatisfied” but perceived as very important. This is reflected in the index of weighted satisfaction (total SMiLE index).

The *psychometric properties of the SMiLE* were evaluated in a study [28] with 599 students of the Ludwig-Maximilians-University, Munich, and the Royal College of Surgeons, Dublin (response rate 95.4%). Mean IoW was 85.7 ± 9.4 , mean IoS was 76.7 ± 14.3 , and mean IoWS was 77.7 ± 14.2 . Test–retest reliability of the IoWS was $r = 0.72$ ($p < 0.001$), with 85.6% of all areas listed again after a test–retest period of 7 days. Convergent validity was evaluated with the Purpose in Life test [22] ($r = 0.48$, $p < 0.001$), the Self-Transcendence Scale [33] ($r = 0.34$, $p < 0.001$), and a general NRS on MiL ($r = 0.53$, $p < 0.001$). Convergent validity should not be too high, otherwise the need for a new instrument, except for reasons of acceptability and feasibility, is lacking. Discriminant validity has been tested with the Idler Index of Religiosity, showing no correlations between the two measures [28]. The psychometrics of the SMiLE were reported according to the recommendations of the Scientific Advisory Committee of the Medical Outcome Trust [34].

The *translation procedure* was conducted by independent forward and back translation of the SMiLE (German to French and French to German) by two bilingual German and French speakers.

Acceptability of the SMiLE was tested by Visual Analogue Scales (VAS), on which the patient was asked to indicate if the SMiLE “reflects what gives meaning to your life” (does not reflect = 0 to reflects very well = 10), if it is “helpful” (not helpful = 0 to extremely helpful = 10), and if it is “distressing” to fill in (not at all distressing = 0 to extremely distressing = 10).

Data analyses

In statistical analysis, descriptive methods were used. Since a Kolmogorov–Smirnov test showed that the data were not normally distributed, we used nonparametric methods. To test for significant differences, the chi-square test and Mann–Whitney's *U*-test were used. Differences were considered to be statistically significant at $p = 0.05$. Statistical tests were performed with the Statistical Package for Social Sciences (SPSS), version 15.0.

Results

Demographic and disease-specific characteristics

Of the 100 patients included, 80 were recruited in the University Hospital and 20 in the nearby palliative care

hospice « Rive-Neuve ». Patients were evaluated for inclusion by the treating physicians, excluded or refusing patients were not documented. Mean age was 55 years (SD 14.7), with about two thirds (69%) being between 40 and 70 years old; the majority were women (55%), married (61%), and Catholic or Protestant (91%). Patients suffered from breast cancer (30%), lung (18%), uro-genital (16%), gastro-intestinal (13%), and other cancers (23%), with 36% of them being considered as being « in remission ».

Item characteristics

The listed areas of the SMiLE were assigned to a posteriori categories, which were developed in the validation study [28].

Table 1 illustrates the frequency of MiL areas listed by the patients: “Family” was most often indicated, followed by “leisure time”, “friends”, and “partners”, while “well-being”, “altruism”, “house/garden”, and “finances” were least often indicated. Areas were weighted between 3.5 and 4.9 on the five-point Likert scale, with the highest levels of importance attributed to “family”, “well-being”, and “partners” and the lowest levels for “leisure time” and “work”. With regard to satisfaction, areas were scored between 0.5 and 1.9 (scale ranging from -3 to $+3$), with “spirituality”, “friends”, and “family” scoring highest and “leisure time” and “finances” scoring lowest.

The table also summarizes a comparison of relevant results of the SMiLE between the patient and the student sample. Statistically significant differences were observed with regard to the frequencies of indicated areas. Patients were more likely to list “animals/nature”, “leisure time”, and “pleasure”, while students were more likely to list “work”, “friends”, and “partner”. No statistically significant differences were observed with regard to weighting and satisfaction with listed areas.

Index of weighting, satisfaction, and weighted satisfaction

Mean IoW was 85.9 ± 7.2 , mean IoS was 77.3 ± 15.5 , and mean IoWS was 78.1 ± 15.1 with no significant differences between the patient and student sample (IoW 85.7 ± 9.4 , IoS 76.7 ± 14.3 , IoWS 77.7 ± 14.2).

Acceptability of the SMiLE

Patients rated the SMiLE on a VAS (0–10) as “reflecting what provides meaning to your life” with a mean score of 7.0 (SD 2.8), and as “helpful” with a mean score of 4.5 (SD 3.2). With regard to the “distress” when filling in, a mean score of 3.6 (SD 1.9) was recorded, a lower score indicating that the SMiLE was perceived as “not at all distressing” to fill in.

Table 1 Frequencies of listed MiL areas (percentage), weight and satisfaction in the sample of cancer patients and students

	Patients (<i>N</i> = 100)			Students (<i>N</i> = 599)			Differences <i>p</i>
	%	w_i Mean±SD	s_i Mean±SD	%	w_i Mean±SD	s_i Mean±SD	
Family	80	4.9 ± 0.5	1.8 ± 1.5	89.7	4.8 ± 0.6	2.0 ± 1.2	0.005
Leisure time	61	3.7 ± 0.8	0.9 ± 1.6	46.0	3.7 ± 0.9	1.4 ± 1.1	0.003
Friends	55	4.3 ± 0.7	1.9 ± 1.5	75.8	4.5 ± 0.7	1.9 ± 1.1	<0.001
Partner	34	4.7 ± 0.7	1.8 ± 1.8	50.6	4.6 ± 0.6	1.8 ± 1.6	0.002
Animals/nature	31	4.0 ± 0.8	1.5 ± 1.8	8.2	4.1 ± 0.8	1.7 ± 1.2	<0.001
Work	20	3.5 ± 0.8	1.1 ± 2.0	79.2	3.8 ± 0.9	1.2 ± 1.3	<0.001
Pleasure	19	4.2 ± 0.6	1.5 ± 1.6	4.6	4.0 ± 0.9	1.8 ± 1.1	<0.001
Spirituality	18	4.4 ± 0.7	1.9 ± 0.9	12.2	4.3 ± 1.0	1.7 ± 1.1	Ns
Health	12	4.3 ± 1.0	1.5 ± 1.8	11.5	4.7 ± 0.6	1.6 ± 1.6	Ns
Well-being	8	4.8 ± 0.5	1.4 ± 1.9	4.8	4.4 ± 0.8	1.3 ± 1.5	Ns
Altruism	8	4.0 ± 0.9	1.7 ± 1.4	4.3	3.6 ± 1.0	1.3 ± 1.0	0.05
House/garden	8	4.0 ± 0.7	1.1 ± 2.5	1.2	4.1 ± 0.7	2.3 ± 0.8	<0.001
Finances	3	4.5 ± 0.6	0.5 ± 1.0	8.1	3.5 ± 1.1	0.5 ± 1.7	Ns

Significant differences between the samples with regard to frequencies of MiL areas (percentages) listed

Ns Not significant

Discussion

This study aimed to assess MiL in a cancer patient population by means of the SMiLE. The areas mentioned by patients showed interesting discrepancies when compared to those mentioned by healthy students: “animals/nature”, “leisure time”, and “pleasure” were rated higher by patients, while “work” was more often listed by the student sample. What is surprising is that “partner” is mentioned by a lower proportion in the cancer patient sample; this result may be due to the relatively high proportion of patients (about 40%) reporting to be single, widowed, divorced, or separated, thus possibly indicating loneliness in a substantial proportion of patients. Satisfaction with areas identified by patients as important was high, which explains why cancer patients scored the same index of weighted satisfaction (IoWS) as healthy students. This can be understood as an expression of the “response shift” [35], a well-known phenomenon in the coping process of cancer patients who have to change their expectations towards life when confronted with the limitations of their disease. Beside the differences observed between the cancer patient and student sample, there are also many communalities leaving open, whether the measure and construct behind is an appropriate means to specifically capture individual MiL.

Given the objectives of the study, the sample size, and the many variables influencing MiL, statistical analyses were restricted to a descriptive analysis. Cancer patients indicated and attributed more weight to areas of MiL related to relationships (except for “partner”, see comment above), while areas related to material things were listed less often. This confirms the clinical observation that for

most patients confronted with a life-threatening disease, the feared or anticipated separation from material things is easier to accept than from relationships, which are often increasingly valued [36, 37].

With regard to acceptability, the SMiLE was perceived as reflecting rather well the concept of MiL, as not distressing to fill in, but as only moderately helpful. This may be due to the fact that, although the SMiLE allows an individual expression of MiL, it still represents a structured and quantitative assessment. Patients and investigators alike may share a feeling of ambivalence towards the attempt to “measure meaning in life”. On one side, this seems to be a simplistic and “un-respectful” endeavor; on the other side, one has to remember that the same arguments have been put forward against quality of life research. If one understands that the SMiLE does not objectively “measures” MiL, but represents one possible way of investigating partial aspects of MiL and to introduce a clinically relevant concept into medical care, the ambivalence might diminish. As VAS measuring symptoms, such as pain or quality of life, the SMiLE may be utilized as a “door opener”, which facilitates communication about existential issues for which patients are known to demand to be helped with [2]. We are also confirmed in our approach by quality of life research, which demonstrated that patient-centered, individualized, and weighted measures are adequate for assessing and evaluating highly individualized constructs [38]. From a scientific point of view, the SMiLE may be useful to deepen our understanding of MiL and to serve as an outcome measure, for example for psychotherapeutic interventions, which claim to be specifically designed to enhance MiL.

A limitation of the study is the possible lack of representativeness, since recruitment was conducted by the treating physicians, who did not document excluded or refusing patients. However, types and stages of cancer, as well as sex and age distribution, correspond to a mixed cancer population. Since many variables, such as age, culture, stage of disease, or gender influence MiL, further studies with larger sample sizes and different designs, complemented by qualitative research, are needed to deepen our understanding of this so characteristically human topic, which is so easy to perceive and so difficult to grasp.

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