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Do physicians accept quality of life and utility measurement?

An exploratory study based on surveys in Austria, Finland, and Germany

Abstract

This study investigates to what extent physicians accept quality of life (QoL) and economic utility measures as endpoints in clinical studies. It also explores who physicians think should value health states. As part of a European study three different physician groups were surveyed using a standardized mail questionnaire. These surveys were carried out by national random sample in Finland (rendering $n=367$) and by nonrandom samples in Austria ($n=33$), and Germany ($n=41$). Acceptance of utility measurement was classified by a four-level hierarchy. Knowledge of the QoL concept ranged between 30% and 54% in the three samples. QoL was accepted by 72–90% of physicians, a summary index of QoL by 62–80%, its combination with duration by 51–68%, and quality-adjusted life years by 44–61%. Most physicians felt that health care professionals should value health states, and 92–94% considered common effect measures in clinical and economic studies to be desirable or necessary. Most physicians surveyed accepted QoL as a study endpoint, a significant share accepted utility measurement. Evaluating health effects by common measures is considered an important challenge.

Keywords

Quality of life · Utility ·
Quality-adjusted life years · Study endpoint

In recent years the concept of health-related quality of life has gained increasing relevance in clinical medicine. Measurement instruments have been developed for many disease problems [1]. For example, in the field of oncology, especially in palliative care, quality of life plays a significant role; it even has been recommended that quality of life be included as an endpoint in all clinical trials [2]. The use of this endpoint has been investigated for all phase II and phase III clinical trials which were published in three leading cancer journals [3]. Measurement of quality of life was rarely found: 0% of trials noted its assessment in 1980, and only 3% did so in 1995. Other studies point out that both physicians and cancer patients consider quality of life a salient issue in palliative treatment, while its formal measurement is rarely performed [4, 5, 6].

Economic evaluation has also increased in relevance. When conducted alongside clinical trials, economic evaluation looks at the same health effects as clinical studies do. In order to relate changes in health to costs a single indicator must be used for all health effects. In cost-utility analysis health states are typically valued on the basis of preferences which then renders utilities. An example of a widely accepted utility instrument is the EuroQol [7]. Clinical studies that employ economic utility in-

struments such as the EuroQol are exceptions [8]. Rather, clinical studies report on survival and on quality of life separately. In measuring quality of life they typically use health profiles which do not render an overall indicator of health state but describe different dimensions and items of it.

Obviously the health effect of a medical intervention does not depend on whether it is assessed from a clinical or from an economic point of view. If clinical and economic studies use different endpoints for measuring health effects, they may come to different conclusions for pure conceptual reasons. It is evident that this should especially be avoided in cases in which the economic evaluation is directly added to the clinical study, with both study types investigating the very same health outcome. A number of decisions in health care, for example, on whether to include a new intervention in the basic package of a health insurance, and how to include this intervention in the treatment policy of a hospital, require both clinical and economic results to be considered. This raises the issue of a single measure for health effects. Accordingly, the puzzling divergence of clinical and

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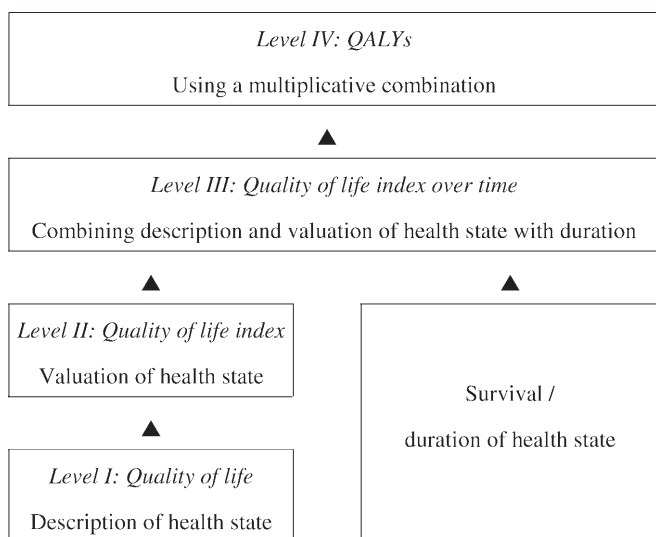


Fig. 1 ◀ A four-level hierarchy in the acceptance of utility measurement

economic measurement of health effects needs to be discussed.

This study investigated physicians' attitude towards measures of health effects that can be used in economic evaluation. It presents a framework to measure the acceptance of utility measurement by physicians. Based on this framework surveys of different physician groups in three European countries were conducted to investigate the acceptance of quality of life and utility measurement and to assess physicians' attitude towards common effect measures in clinical and in economic evaluation. One step in utility measurement is to value health states, for which the preferences of various groups can be used. Accordingly, physicians were also surveyed on whose preferences they think should be used to value health states.

Methods

The elements needed for utility measurement were integrated into a hierarchy of four levels (Fig. 1). The first level is the description of a health state (I) in terms of quality of life, typically including physical, mental, and social aspects of well being. The valuation of this state (II) yields a summary index for a given point in time (valuations must always refer to the description of a health state, at least implicitly). To evaluate a time period health states must be combined with their duration which may extend until survival (III). Most often the summary index is multiplied by its duration. This yields quality-adjusted life years

(QALYs; IV). For the last level there are also other approaches, such as the valuation of alternative lifetime paths of health development, which result in healthy-year equivalents [9]. As this approach is rarely used, it has been omitted from the surveys. The hierarchy consistently classifies the level of acceptance of utility measurement. Maximum acceptance is defined by the highest level accepted, but not preceded by rejection of any lower level.

A European research network that surveyed the use of economic evaluation results in decision making among major groups of actors in health care provided access to the empirical basis of this study [10,11]. The European network approach was the first to survey decision makers by standardized questionnaires. However, random sampling of decision makers was not a feasible standard. Economically relevant decisions are taken at many levels of the health care system, and various groups may participate in the decisions. It is not possible to ascertain in general the extent to which groups, much less individuals, actually determine decisions. Thus the population of decision makers who may use economic evaluation studies can hardly be defined quantitatively. In consequence, most country surveys of the European study used nonrandom samples and, as a first step, directly selected decision makers. Some surveys featured pilot studies. With respect to physicians, partly national random sampling was used, which may represent the point of view of this group. The baseline surveys con-

ducted among physicians in Austria, Finland, and Germany were extended for the study presented here.

The standardized questionnaire briefly introduced the concept of quality of life and mentioned examples of measurement instruments. These included the Sickness Impact Profile [12], the SF-36 [13] and, as utility instruments, the EuroQol [7] and, in the Finnish study, the 15D, an instrument specifically known in the Nordic countries [14, 15, 16]. Physicians were first asked whether they were familiar with the concept of quality of life. They could then indicate step-by-step which of the elements of utility measurement they considered a useful endpoint in assessing clinical effectiveness. It was assumed that the validity, reliability, and sensitivity of quality of life measurement had been demonstrated. Given that health states could be valued by study patients, by the general public, or by health care professionals, physicians were asked whose values they would accept in clinical and in economic studies. They were also asked whether they thought clinical and economic studies should have the same endpoint, including valued quality of life. One question of the baseline survey on the influence of economic considerations on clinical practice was also integrated in the analysis.

All surveys were conducted in the middle of 1998. In Finland, a stratified national random sample of physicians was selected which consisted of 203 health center physicians, 215 hospital physicians, and 215 private physicians, supplemented by 140 physicians in leading positions in the above and other institutions. In Austria and Germany non-random samples were used to ensure access to different subgroups of physicians. The Austrian survey approached 40 general practitioners and 40 hospital physicians, the composition of the latter reflecting the ownership structure of the Vienna hospitals. The German survey addressed 33 principal investigators of clinical studies in oncology which were taken from a national list, complemented by 20 hospital surgeons and 20 general practitioners and internists. Reminders were used in all three surveys. In the German survey a small monetary incentive was offered to increase the response rate.

The definition of variables and indicators as well as the statistical analy-

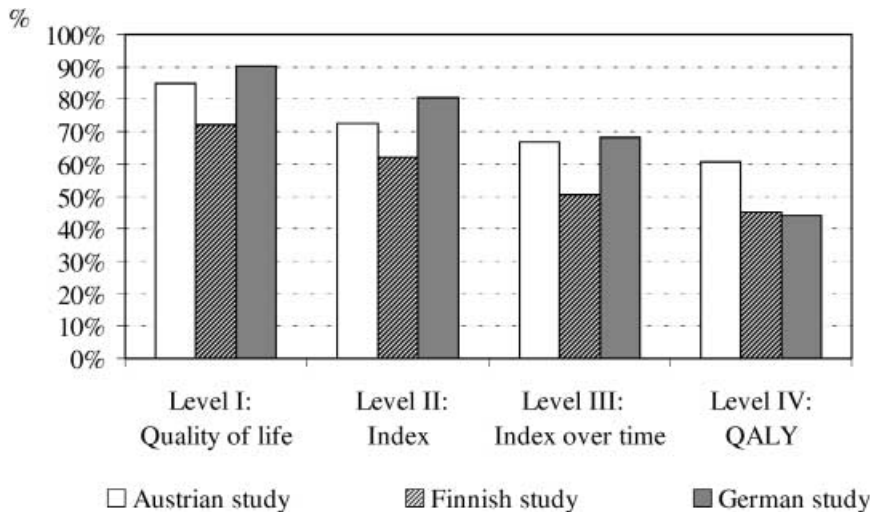


Fig. 2 ▲ Acceptance of QALY components by physicians. Finland, $n=367$; Austria, $n=33$; Germany, $n=41$

sis were fully standardized. Given the diverging characteristics of the samples of the three surveys, it was not possible to test for differences in results between countries. Statistical testing was used to answer three questions: are there significant differences between the physician groups surveyed, whether physicians' acceptance varies by a priori knowledge, and whether physicians' preferences concerning health state valuation differ between clinical and economic studies. To compare distributions the χ^2 test or, in the case of small cell counts, Fisher's exact test was used.

Results

The total number of physicians responding was 441. The response rate in the Austrian survey was 41% ($n=33$), with two-thirds of respondents being hospital physicians. In the Finnish survey the response rate was 47% ($n=367$) with well over one-half of the public health center physicians and hospital physicians responding, but only about one-half of the private ones and smaller shares of the supplementary group. The German survey reached a response rate of 56% ($n=41$) with about one-half of the respondents being principal investigators in clinical studies in oncology.

A priori knowledge of physicians was greater in quality of life than in cost-utility analysis. The proportion of physicians who claimed to be familiar with the concept of quality of life "to some extent" or "very much" differed significant-

ly between the three surveys ($P=0.002$, χ^2 test). The respective proportions were 30% in the Finnish survey, 45% in the Austrian, and 54% in the German. In all three surveys "moderate" or "very good" knowledge of cost-utility analysis was reported by 18–24% ($P=0.4$, χ^2 test).

Quality of life was considered a relevant measure of effectiveness in clinical studies by 72% of Finnish respondents, by 85% of Austrian, and by 90% of German ($P=0.02$, χ^2 test). Respondents with "no" a priori knowledge were less prepared to accept quality of life as a relevant clinical endpoint than those familiar with the concept in the Austrian (72% vs. 100%, $P=0.04$, Fisher's exact test) and in the Finnish survey (63% vs.

94%, $P<0.001$, χ^2 -test) but not in the German survey (89% vs. 91%, $P=0.64$, Fisher's exact test).

The acceptance of levels I–IV in utility measurement is reported in Fig. 2. At higher levels in the hierarchy a decline in acceptance is observed in all surveys; this lies mostly in the range of about 10 percentage points per step. Overall the majority of all respondents accepted the combination of a quality of life index with time as a relevant measure of clinical effectiveness, with the respective proportion ranging from 51% in the Finnish survey to 67% and 68% in the Austrian and in the German. To compare total hierarchy distributions they were dichotomized into one group accepting quality of life or an index and another one accepting an index over time or QALYs. These distributions were found to be significantly different between the surveys ($P=0.03$, χ^2 test).

In the acceptance of an index over time, a priori knowledge played a significant role for physicians in the Finnish survey but not for those in the Austrian and in the German one (Fig. 3). This is true with respect to knowledge of the quality of life concept (Finnish survey, $P=0.002$; Austrian survey, $P=1.00$; German survey, $P=0.99$; all χ^2 tests) and of the cost-utility analysis concept (Finnish survey, $P=0.005$, χ^2 test; Austrian survey, $P=0.06$; German survey, $P=0.61$; both Fisher's exact tests).

When asked who should value health states in clinical studies, in all surveys physicians proposed study patients

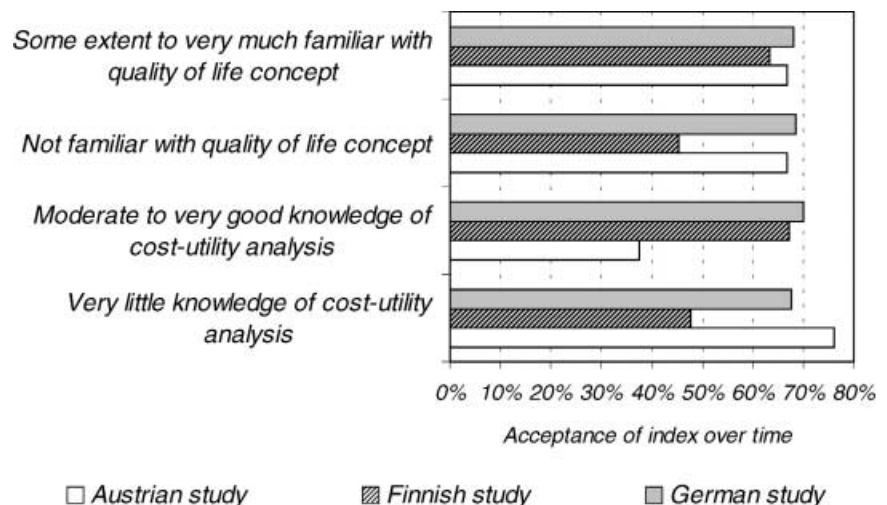


Fig. 3 ▲ Acceptance of a quality of life index over time by groups of a priori knowledge. Finland, quality of life concept, $n=367$; Finland, cost-utility analysis, $n=364$; Austria, $n=33$; Germany

Table 1

Target group proposed by physicians to value health states in clinical and in economic studies. Multiple responses were allowed. Percentages refer to the total number of responses with respect to clinical/economic studies ($n=38/30$ in the Austrian survey, $n=544/491$ in the Finnish survey, $n=70/69$ in the German survey). For each survey, column percentages add up to 100% except for rounding inaccuracy

	Clinical studies	Economic studies
Austrian survey		
Study patients	47	30
General population	8	20
Health care professionals	45	50
Finnish survey		
Study patients	37	20
General population	19	33
Health care professionals	44	47
German survey		
Study patients	44	33
General population	7	23
Health care professionals	49	43

and health care professionals to a greater extent than the general population, with no significant difference between the three surveys (Table 1). Concerning the evaluation in economic studies, proposals differed significantly between the three surveys ($P=0.05$, χ^2 test); yet in all surveys physicians proposed health care professionals most frequently. Except for the Austrian survey, the relative frequency of reference group proposal differed significantly for clinical and economic studies (Austrian survey, $P=0.2$; Finnish survey, $P<0.001$; German survey, $P=0.03$; χ^2 tests). Across all categories, the group named most frequently was health care professionals.

Most of the physicians indicated that common effect measures in clinical and economic studies would be desirable or even necessary (Table 2). The small percentage of responders indicating that common effect measures are useless (6–8%) did not differ significantly between the three surveys (comparing the two extremes, the Finnish and German surveys, $P=0.5$, Fisher's exact test).

In all surveys between 93% and 95% of those physicians who accepted QALYs also indicated that economic considerations should influence clinical practice (comparing the two extremes, the Aus-

trian and German surveys, $P=0.6$, Fisher's exact test).

Discussion

The results presented here are derived from quite different samples, one a national sample and two selected groups of physicians. Our surveys were supplemented to the European study's questionnaire on the use of economic evaluation. This embedded our surveys in a context of decision relevance. As a result of this supplementary design it was not intended to make a representative cross-country comparison. However, the results allow several participating Europe-

an groups of physicians to be investigated and compared. Thus results provide an intriguing exploration of an area of salient relevance for medicine and health economics.

Across all three surveys about one-half of the sampled physicians completed the questionnaire. This response rate is within the range that can be expected when using mail questionnaires in populations without any interest-bound background [17]. In all three surveys more than one-half of the hospital- or health-center-based physicians responded to the survey (this includes the investigators of oncological studies). Lower response rates were found among general practitioners and practice-based internists, and in the Finnish subgroup of physicians in leading positions in various institutions – all physicians for whom especially high opportunity costs of the time needed to answer the survey can be expected.

Quality of life concepts are in an early phase of their diffusion in clinical medicine. It is thus little surprising to find high levels of acceptance of the concept, while – with some variation between the surveys – more than one-half of the physicians reported not to be familiar with it. These results are comparable to those of a similar previous survey among 60 oncologists in the United States and Canada in 1992–1993. This study found that 90% of the physicians consider quality of life a relevant concept and 85% consider it a relevant endpoint in clinical studies. However, only about one-third of these physicians had ever collected data on quality of life or had taken it systematically into account in clinical decision making [5].

Utility measurement is an even more complex task. Less than one-quar-

Table 2

Physicians' assessment of common effect measures in clinical and economic studies. Total number of observations: $n=31$ in the Austrian survey, $n=303$ in the Finnish survey, and $n=38$ in the German survey. Column percentages add up to 100%

	Austrian survey	Finnish survey	German survey
Necessary	42	15	24
Desirable	52	79	68
Useless	6	6	8

ter of physicians reported at least moderate a priori knowledge in cost-utility analysis. With respect to utility measurement, acceptance of components declined with the level in the hierarchy. Still, this left at least one-half of the respondents accepting the minimum concept required for utility measurement, i.e., a quality of life index over time. Only in the Finnish survey did the acceptance of this index differ significantly by a priori knowledge, both on quality of life and on utility measurement.

As physicians must assess health state over time when making clinical decisions, they implicitly make use of an index over time. Reluctance to accept utility measurement components can thus be seen as a challenge for discussion among physicians. In the view of evidence-based medicine it seems necessary to state which summary measure of health effects to base medical decisions on.

The issue of whose preferences should count in the valuation of health states has long been debated [18, 19, 20]. A major result from this discussion is that the choice of the group to value health states depends on the purpose for which the results are to be used [5]. If results are to support decisions on resource allocation across patient groups, it is claimed that the general population should value health states. If the intended use is to choose a medical treatment for a given patient group, it seems plausible to have study patients value their health states. In contrast, physicians in our study most frequently proposed health care professionals to do the valuation (Austrian respondents referring to clinical studies being the exception). From an economic point of view the preferences of the individual consumer are the most important yardstick for efficiency judgements. Accordingly, valuations by individuals other than the consumers would be acceptable only in exceptional cases, for example, when the patient or the member of the general population is not able to do this alone. In this respect, the majority of physicians surveyed did not support preference-based utility measures. This issue calls for further debate.

More than one-third of German physicians accepting an index over time rejected the QALY approach. While this deficit in the acceptance of QALYs was

lower in the two other surveys, this is an important issue. The methods for combining survival and quality of life are still in development. Examples for this are the healthy-year equivalent approach [21] and other new concepts [22, 23].

Finally, the need to better integrate medical and economic research tracks is strongly supported by the great majority of physicians, expressing the view that common effect measures in clinical and in economic studies are necessary or, at least, desirable. Furthermore, almost all of the physicians accepting QALYs also accept a role of economics in clinical decision making. These two findings underline the preparedness of physicians to improve cooperation with economists in the evaluation of medical intervention.

Conclusion

Changes in health are the central endpoint in clinical and in economic studies. However, health is not quantified in the same way in the two types of study. Economists prefer to use utility measures, which physicians hardly employ. Three European physician surveys were conducted to investigate this striking divergence. The surveys show that (a) quality of life is broadly accepted as an endpoint in clinical studies, (b) economic utility measurement is also acceptable to a large share of physicians, and (c) almost all physicians think common effect measures should be used in clinical and in economic evaluation. Since only some physicians accept current economic concepts as endpoints in clinical studies, there is considerable scope for interdisciplinary communication and work.

Common effect measures will make it easier for physicians to integrate economic aspects into treatment policy decisions and into the development of medical technology. Economists must strive to use measures of health effects which physicians are prepared to use in their clinical assessment. Theoretical foundations of measurement as well as the quality criteria for assessing its appropriateness must be accepted by members of both disciplines. As common effect measures will better bring together clinical and economic thinking, an important step towards enhancing efficiency in health care will be made. As this study shows, there is still quite a way to go to achieve this.

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