ASSESSMENT METHODS FOR QUALITY ADJUSTED LIFE YEAR IN THE CONTEXT OF SUSTAINABLE DEVELOPMENT

METODE DE MĂSURARE A ANILOR DE VIAȚĂ AJUSTAȚI CALITATIV ÎN CONTEXTUL DEZVOLTĂRII DURABILE

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Abstract: *Assessing a population's quality of life is one of the most important aspects that determine sustainable development. The main tool used in economic and social evaluation is quality adjusted life years (QALYs). The current literature includes several types of assessment methodologies for healthcare investments. As such, the purpose of this paper is approach sustainable development in terms of health problems and its method of measurement, namely to indicate the appropriate economic evaluation method.*

Key words: *human health, quality adjusted life years, assessment methods, economic evaluation, sustainability social indicator*

INTRODUCTION

Sustainable development is generally presented as the intersection between environment, society and economy, which are conceived of as separate although connected entities (Giddings, B. et al., 2002).

As such, human health plays an important role in a country's development in terms of economic growth, aspect that motivates this paper's research.

Human health can be considered an economic good, continually produced and reproduced by individuals, through their interaction with the environment and their communities and the companies they work for (Sassi, F. et al., 2001).

A defining feature in this area is reflected in the unitary approach, which brings together the microeconomic and macroeconomic aspects, to

achieve a subtle transfer of patient behavior, insured persons and health professionals to the correlations between health and economic growth (Cunningham, Susan, 2001).

The economic evaluation of healthcare interventions has become an integral part of health policy and decision-making for the allocation of the limited healthcare resources. The basic principle of economic evaluation is that of evaluating the benefits to patients that are foregone by using a resource in one way rather than its next best alternative (Stamuli, Eugena, 2011). Those responsible for allocating resources need to prioritize between competing uses so that maximum benefit can be obtained from any given budget.

While the discussions around the appropriate perspective for these decisions and methods for the calculations of cost are still very vibrant in the field of health economics, this paper will focus only on the issues related to the measurement and valuation of health outcomes and the controversies surrounding these, approaching sustainable development in terms of health problems and its method of measurement.

1. RESEARCH FRAMEWORK

The paper is centered on a theoretical approach, a literature review of the most significant methods to assess a quality adjusted life year, indicator in quality of life valuation.

Currently, the simplest and widely used methods to provide information about a populations' health is the aggregation of individual data to generate proportions of the overall population, by age and gender groups affected by certain health problem (Mihaila, Valentina, 2006). However, this approach becomes difficult when an increasing number of health problems should be monitored and when temporal comparisons are desired between population groups.

In this context, a more accurate indicator is needed thus use of quality adjusted life year (QALY) is highly beneficial on both mentioned cases.

Defined as an indicator that combines the effects of health interventions on mortality and morbidity into a single index, thereby providing a common currency to enable comparisons across different disease areas (Whitehead, Sarah j., Shehzad, Ali, 2010), QALYs have been

used in the assessment of health interventions for three decades with a constantly increasing popularity in spite of different debates regarding its theoretical or practical implications.

The QALY concept of combining the survival of an individual with their health related quality of life can be seen in Figure 1.

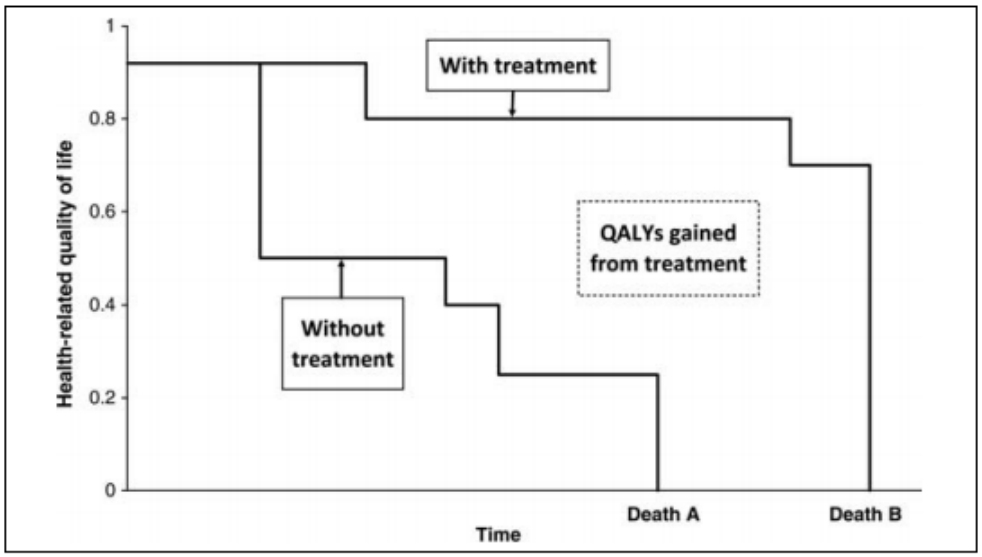


Figure 1. QALYs gained from treatment
Source: Whitehead, Sarah j., Shehzad, Ali, 2010

This figure presents the QALYs that can be gained by an individual from receiving treatment as opposed to no treatment. The situation without treatment leads to a decrease of the health related quality of life, leading to death (Death A). However, in the second situation, when treatment is received, the health related quality of life decreases slower over the years and the individual lives longer (Death B). Thus, the area between the two curves reflects the number of QALYs gained by the treatment.

In order to assess correctly a QALY, Weinstein et al. (2009) established a set of assumptions as follows:

- Health is defined as value-weighted time (QALYs) over the relevant time horizon.
- Value is measured in terms of preference (desirability).

- Preferences measured across individuals can be aggregated and used for the group.
- QALYs can be aggregated across individuals.

The utility of QALY is found when elaborating economic evaluations of healthcare interventions. In this sense, we consider relevant to identify the indicator's applicability in different methods of healthcare economic evaluations.

2. METHODOLOGY

In order to determine the appropriate economic evaluation method for health interventions it is necessary to start from the expression of the expected results (Drummond et al., 1987):

• Effects - represented by physical changes, social and emotional needs of individuals (effects / therapeutic results). These can be measured in natural or physical units.

• Benefits - represented by changes in resource allocation for the organization and functioning of health services and measured in monetary units.

• Utilities - express the change in quality of life of individuals based on their subjective perception.

In this respect, depending on how outcomes are classified, economic evaluation can be achieved by following the methods discussed by Donaldson (1990) and Robinson (1993), summarized in the table below.

Table 1. Different forms of economic evaluation

Nr.crt.	Economic evaluation method	Particularities
1	**Cost - minimization analysis (CMA)**	Economic assessment that analyzes the costs and consequences of two or more alternative that causes identical results. The economic evaluation in this case aims to find the alternative with the lowest cost.
2	**Cost - effectiveness analysis (CEA)**	Economic evaluation that compares the costs and consequences of two or more alternatives where one result is expressed in natural units (eg years of life saved) and costs are measured in monetary units.
3	**Cost – utility analysis (CUA)**	Economic evaluation that compares the costs and consequences of two or more alternatives, where the consequences are measured by unit value / utility scores. It is similar to CEA to the extent that costs are

Nr.crt.	Economic evaluation method	Particularities
		measured in monetary units, and result in natural units but in this case, the result must reflect a unit of utility (QALY). Cost-utility analysis takes into account quality of life when comparing costs and consequences.
4	**Cost – benefit analysis (CBA)**	Economic evaluation that compares the costs and consequences of two or more alternatives, in which both costs and consequences are converted into monetary value. In this case, the benefit is measured as associated-economic benefit of an intervention.

If the quality of life is to serve as an outcome variable, it must be ensured that the variable measured is also an appropriate measure for comparing the chosen treatment alternatives. Outcomes of this kind, in other words utilities, can be determined in the following way:

- specific scales (rank scales),
- game theory procedures (e.g. standard gamble, time-trade off, etc),
- psychometric scale procedures which include generic and disease specific procedures as well as one-dimensional and multidimensional instruments.

These individual measures are suitable for combining with quantitative objective measurements such as survival time in the form of quality adjusted life years (QALYs).

CONCLUSIONS AND DISCUSSIONS

The results of economic evaluation cannot be generalized because of cultural differences and circumstances. In an economic assessment it is difficult to analyze the distribution of costs and consequences of a program / service among different socio-economic populations, making it difficult to analyze the social desirability of a program or service. The use of economic evaluation techniques involves the saving of resources and their reallocation to other programs or services. This requires a thorough analysis of alternatives, otherwise, not only resources can be wasted, but higher costs may incur for the health system.

By including QALYs in the existing economic evaluation methodology, supplementary data would be gained concerning the social

effects in terms of health improvement of a specific population. This will ultimately affect economic growth which in turn will boost sustainable development. Since the literature on economic evaluation of healthcare is rapidly increasing due to the need of information when resource allocation is considered, further discussions involve elaborating a specific assessment methodology for QALYs adapted to the Romanian context of sustainable development.

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