

Editorial

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Quality of life assessment in cardiac populations

As a feature of modern times, many people now live with cardiovascular disease over extended periods of their lives. In this context, health-related quality of life (HRQoL) has become an important end-point in evaluations of health interventions. Its use reflects an increasingly biopsychosocial perspective in considering medicine. A widely accepted definition of HRQoL is: “*the value assigned to the duration of life as modified by the impairments, functional states, perceptions and social opportunities that are influenced by disease, injury, treatment or policy.*” [1]

There are four main uses of HRQoL assessments in cardiac settings:

- To enable treatment comparisons in clinical trials;
- To guide the treatment focus in individual patient care;
- To assess the gap between the HRQoL of patients and age- and gender-matched samples of the general population; and
- To enable clinical and economic evaluations to determine the best use of healthcare resources involving cardiac and other patient populations.

Reflecting the importance of the concept of quality of life, the mission statement of the European Society of Cardiology sets it as its primary goal: “*To improve the quality of life of the European population by reducing the impact of cardiovascular disease.*”

There has however, been little attention to developing consensus on assessment in Cardiology, with the result that many differing instruments are used across studies and it is not easy to identify and summarise findings in the area. The two papers in this issue by Hoefer et al. [2] and Benzer et al. [3] are useful additions that use instruments that are increasingly accepted in both the English and German languages. Both authors have previously published valuable psychometric evidence on the German language use of the instruments.

QoL instruments can be divided into five main categories: generic, disease specific, dimension specific, individualised and utility [4]. These types of measures are outlined in the table with illustrations focusing on cardiac-related QoL research. This illustrates the wide variety of instrument types and instruments that can be used in a specific setting such as the cardiac patient population. Excellent summaries of many of the available instruments are available [5, 6]. The two papers published in this issue

use one example from three of the categories outlined in the table – SF-36, MacNew QLI and EuroQoL-5D (Table 1).

HRQoL research has been recently summarised for myocardial infarction [23] and heart failure [24] with useful contributions also on cardiomyopathy, congenital heart disease, heart transplantation and ICD implantation [25–28]. A number of studies have compared stent-assisted PCI with CABG surgery for multi-vessel disease, e.g the ‘Stent or Surgery’ trial [29]. Using the SAQ, CABG patients showed greater improvements and better HRQoL at six months and a year later (although differences decreased somewhat between six and twelve months). The advantage in HRQoL outcomes for CABG patients mirrored that found on clinical variables. A recent randomised trial reflects current developments in relation to PCI. It compared PCI with conservative strategies for management of acute coronary syndromes. It showed greater benefits for PCI at four months and one year [30]. These were evident on both disease-specific (SAQ) and generic (EQ-5D) measures. An example of the use of a HRQoL instrument to ‘anchor’ the severity of heart failure against other serious medical conditions is the use of the EQ-5D in the CARDiac RESynchronisation in Heart Failure (CARE-HF) clinical trial [31]. This study included patients with advanced heart failure (NYHA class III or IV) on optimal medical therapy. Baseline scores on the EQ-5D showed the major negative impact on HRQoL of this condition – patients were found to be equivalent to patients with moderate motor neurone disease, Parkinson’s disease, those with non-small cell lung cancer or patients three months after ischemic stroke. This type of information is important in educating both professionals and policy makers of the adverse impact of heart failure.

The paper by Benzer and colleagues contributes three useful points about a relatively little studied cardiac intervention – pacemaker implantation. They found that HRQoL improved following pacemaker implantation, that HRQoL improvement happened early (within the first month following intervention) and that the improvement was detected by the 26-item MacNew QLI but not the 36-item SF-36. The significant increase in HRQoL is all the more notable given the relative old age (mean 75 years) of the sample.

The explicit goals of cardiac rehabilitation are to promote secondary prevention and to improve quality of life. Many, but not all, cardiac rehabilitation intervention stud-

Table 1. Typology of quality of life instruments illustrated with examples that can be used in research with cardiac patients

Type of instrument	Examples of instruments used in cardiac research
Generic: can be used across patient and general population groups	<ul style="list-style-type: none"> • Short-Form 36 (SF-36) [7] • Nottingham Health Profile (NHP) [8]
Disease specific: focus on aspects of QoL relevant to particular health problems	<ul style="list-style-type: none"> • Seattle Angina Questionnaire (SAQ) [9] • MacNew Heart Disease HRQOL Questionnaire (MacNew) [10, 11] • Minnesota Living with Heart Failure (MLHF) [12]
Dimension specific: focus on a particular component of QoL	<ul style="list-style-type: none"> • Cardiac Depression Scale [13] • Global Mood Scale [14] • Heart Patients Psychological Questionnaire [15] • Hospital Anxiety and Depression Scale [16, 17]
Individualised: focus on aspects of life selected by the individual being assessed	<ul style="list-style-type: none"> • Schedule for the Evaluation of Individual Quality of Life (SEIQoL) [18, 19] • Quality of Life Index (QLI-cardiac) [20]
Utility: focus on hierarchy of preferences assigned by general population or patients for particular health states	<ul style="list-style-type: none"> • EuroQoL (EQ-5D) [21] • Quality of Well-being Scale (QWB) [22]

ies have found HRQoL to be improved in the intervention group compared with controls (e.g. 73–76). Choice of instrument may be important here since HRQoL instruments which are less responsive in the cardiac setting may not pick up existing differences across groups. Despite the many studies available, HRQoL has not been routinely measured in most clinical or research settings. The Cochrane review of trials of exercise rehabilitation found HRQoL measures used in only 11 studies [32]. Eighteen instruments were used so there was little opportunity to build an overall profile of HRQoL effects. In parallel work, a systematic review of HRQoL assessment in cardiac rehabilitation from 1986–1995 reported a wide variety of instruments in use with few instruments used in more than 2 or 3 studies [33]. The review also identified the low responsiveness of instruments in many studies. A follow-on study to address this issue selected the nine most promising instruments in terms of responsiveness from the systematic review and compared their performance within a single cardiac rehabilitation programme format in over 700 patients [34]. Major variation in HRQoL benefit was evident across instruments with some recording minimal change and others significant benefit. Lack of consensus on instrument use limits comparability across studies, conditions and interventions. This slows the development of a cumulative evidence base on HRQoL in cardiac conditions. This is problematic both within cardiology but also in resource-related discussions across medical specialties with policy makers and health planners. The paper by Hoefler and colleagues contributes to our knowledge base on the effects of cardiac rehabilitation on the HRQoL of a mixed population of clinic attenders. As with the Benzer et al. paper, they use the MacNew QLI. A number of previous studies by this group have shown the MacNew QLMI predicts later adverse health events [35–37]. In this paper, the substantial effect sizes, and the fact that all sub-groups of patients benefited, confirm the benefits of routine cardiac rehabilitation as delivered across centres. The findings, on a large sample, allow for the possibility to compare these data with those from

the out-patient programmes more evident in other European countries.

Greater comparison will be possible in the coming years. A project is currently underway to develop a single core coronary heart disease specific HRQoL questionnaire, to be called the HeartQoL, and to be available in at least 13 European languages [38]. This will allow comparison of outcomes with the same, or different, treatments among pure or mixed populations of patients such as myocardial infarction, angina pectoris, and heart failure. The major advantage of having a single core heart disease HRQoL instrument is to optimise efficiency of inter- and intra-study comparisons by being able to make both across-diagnosis, within-treatment comparisons, and also across-treatment, within-diagnosis comparisons with the same instrument. It thus will create a common HRQoL ‘language’ across cardiac conditions which will enable information to be combined and expertise pooled much more efficiently and effectively in the future. The MacNew QLI and the authors in this journal issue are part of that project which should report in late 2007.

The challenge for the European cardiology community is to synthesise and build on the research to date in order to be able to use HRQoL information in a more routine and informed manner to guide policy and practice in the future.

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