Quality of life assessment using the short form 12 questionnaire is as reliable and sensitive as the short form 36 in distinguishing symptom severity in myocardial infarction survivors

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From the patient's perspective, disease severity is gauged by its impact on health related quality of life (HRQL), whereas medical practitioners tend to focus on clinical parameters such as symptoms, signs, and investigations. HRQL assessment can complement clinical evaluation but has not been widely incorporated into routine clinical practice, perhaps because of an association with research, lack of familiarity, difficulties with data interpretation, or concern that outpatients is busy enough.

The short form 36 questionnaire (SF-36)[1] is an established HRQL tool that has been evaluated in a range of medical conditions[2] and for which normative data are available.[3] Survivors of myocardial infarction have notably impaired HRQL compared with a normal population, detected more readily by the SF-36 than the Nottingham health profile (NHP).[4][5] Despite being relatively user friendly, the SF-36 can be time consuming, especially when combined with essential demographic and other questionnaires, leading to reduced response rates, incompleteness, and unreliability.

We investigated whether a shorter questionnaire, the short form 12 (SF-12), which derives summary scores from specific items from the eight domains of the SF-36, might provide equally reliable and sensitive information in a post-infarction population.

METHOD

The patient population has been described before.[4] Briefly, we mailed a detailed questionnaire comprising demographic questions, Rose angina and dyspnoea scales, SF-36, and NHP to all patients who had: (1) been admitted in a single year to Nottingham's two hospitals; (2) sustained an acute myocardial infarction, based on World Health Organization criteria; and (3) survived at least four years. HRQL scores for the SF-12 were calculated.

RESULTS

Two hundred and five of 960 confirmed infarctions died in hospital; a further 210 died over the next four years. Those with recurrent infarctions or resident outside our health district were excluded, leaving 476 study patients.

Response rates

A total of 424 (89%) patients responded; 421 (99%) answered some or all of the SF-36, making it possible to calculate physical and mental summary scores for 304 (72%). Based on mandated questions within the SF-36, equivalent SF-12 summary scores were calculated for 286 (68%); 278 (66%) had physical and mental summary scale scores for both the SF-36 and the SF-12.

Patient characteristics

There were no significant differences in the demographic characteristics of responders and non-responders. The mean (SD) age of those for whom SF-36 and SF-12 summary scores

were available was 64 (9.97) years. One hundred and ninety eight (71%) were male, 231 (83%) had a Q wave infarction, and 108 (39%) an anterior infarction; 192 (69%) were Killip class 0 on admission, and 29 (10%) had had a previous myocardial infarction. When the questionnaire was dispatched, 63 (23%) were working, 167 (60%) retired, and 29 (10%) unable to work.

Patient symptoms

Two hundred and seventy two (98%) of 278 who completed all of the SF-36 completed the Rose angina questionnaire. Thirty four (13%) reported grade 1 angina (chest pain produced on walking uphill or hurrying) and 28 (10%) grade 2 (chest pain on walking at ordinary pace on level ground). Thirty eight (14%) had "possible angina" (chest pain on exertion failing to satisfy criteria for "definite angina"), 51 (18%) had non-exertional chest pain, and 121 (45%) reported no problems with chest pain. Of those with exertional pain, 32 (32%) reported pain less than once a week, 37 (37%) once or twice, and 30 (30%) more than twice a week.

Two hundred and seventy three (99%) responders completed the dyspnoea scale, of which 108 (40%) patients were breathless on simple exertion, 54 (20%) on more strenuous exertion, and 111 (41%) were not breathless even on strenuous activities.

Quality of life scores

Table 1 shows mean and median summary scores for the SF-36 and SF-12. There was no significant difference between physical summary scores generated from the SF-36 and from the SF-12, whether analysed individually or as a group (paired Wilcoxon sign rank test Z = 1.83, p = 0.067). Individual mental scores did differ, but group scores did not.

The SF-12 detected differences in quality of life for patients with differing degrees of breathlessness and severity and frequency of angina similar to those reported previously.[4]

DISCUSSION

The SF-36 provides important quantitative information about the impact of disease on HRQL and is sensitive enough to identify differences in severity of post-infarction chest pain and breathlessness, readily identifying those with impaired physical or mental health who warrant physician review.[4]

Nevertheless, faced with increasing clinic referrals, National Service Framework targets and audits, rising patient expectations, and protocol-driven care plans, clinicians may feel disinclined to ascertain what bothers patients most, namely impaired quality of life as a result of illness. This is

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Abbreviations: HRQL, health related quality of life; NHP, Nottingham health profile; SF-12, short form 12 questionnaire; SF-36, short form 36 questionnaire

Table 1 Comparison of SF-36 and SF-12 physical and mental component summary scores in a cohort of survivors of a myocardial infarction (n = 278)

	Physical component summary		Mental component summary	
	SF-36	SF-12	SF-36	SF-12
Mean	40.42	40.90	50.52	49.14
SD	12.56	11.66	10.50	10.58
Median	41.64	42.28	53.57	51.68
IQR	(30.05–51.58)	(30.77–52.03)	(44.02–58.31)	(40.68–57.95)
Maximum value	63.30	62.37	71.36	67.41
Minimum value	14.37	14.68	19.96	20.65

IQR, interquartile range; SD, standard deviation; SF, short form.

not helped by extremely detailed questionnaires that are time consuming and administratively difficult, so any technique that achieves the same objective but in a more user and physician friendly way should make HRQL assessment more practical for routine use.

Utilising specific items from the SF-36 battery produces an abbreviated questionnaire, the SF-12, which has several benefits. Its brevity should increase its attractiveness to clinicians as well as patient response rates. It appears to perform well, retaining the power of the complete SF-36 to discriminate severity and frequency of exertional and non-exertional chest pain and breathlessness, despite capturing limited information. It appears to be an adequate substitute for the SF-36, retaining similar clinical discriminatory power while removing redundant questions. It remains to be established whether the SF-12 is able to detect trends over time.

There are advantages in using the SF-36 in full as we have previously shown.[4] The eight domains provide more important quantitative information about the impact of disease on health related quality of life than the abbreviated form, particularly an individual's mental problems that the SF-12 might miss.

HRQL questionnaires provide a valuable and complementary insight into patients' perspective of the impact of disease on daily life. Our findings suggest that the SF-12 appears to be a robust and adequate substitute for the SF-36, capturing sufficient data to generate information equivalent to the SF-36, at least when applied to a cohort of myocardial infarction survivors. If large scale epidemiological and intervention studies require some generic measure of HRQL, the simple design of the SF-12 has distinct advantages over the more complex SF-36.

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