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Psychometric properties of a new health needs analysis tool designed for cardiac patients

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Summary *Background and objectives*. Assessing health needs is pivotal in healthcare systems, ensuring that services are appropriate for a population's genuine needs. In the absence of an appropriate investigational tool, a comprehensive process of questionnaire development was undertaken to evaluate and validate a specific health needs assessment tool for cardiac patients (Nottingham Health Needs Assessment; NHNA). Its psychometric properties were investigated in a survey of patients admitted with acute coronary syndromes.

Method. Two hundred and forty-two consecutive patients admitted to an acute cardiac unit with symptoms suggestive of acute myocardial infarction completed a postal questionnaire about health needs and quality-of-life, using generic (Short Form 12 and EuroQol-5D) and specific (Seattle Angina Questionnaire) health-related quality-of-life instruments.

Results. Forty-six items were assigned to five domains of health-related needs according to principal component analysis, with high internal consistency (0.83–0.89). Each domain in the NHNA questionnaire correlated highly with its quality-of-life counterpart, indicating relatively high concurrent validity.

Conclusion. The NHNA questionnaire has acceptable psychometric features, with satisfactory construct validity as determined by quality-of-life analysis. This health needs assessment instrument appears to be a reliable means of identifying patients' needs, which is an important landmark for directing health services.

Introduction

In recent years, needs assessment has attracted the attention of UK health professionals as the National Health Service charged all health authorities with the task of identifying the healthcare needs of local populations to optimize use of allocated resources.[1] This task required the identification of local demography, epidemiology, the effectiveness of interventions and an assessment of patients' perceptions of their needs.[2]

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Formal assessment is difficult, because '*needs*' has various definitions,[3] '*health*' covers a wide range of issues[4] and '*health needs*' ought to include at least social, personal and health care. Even social facilities such as a bus service to reach health services, road safety regulations, clean air policies and occupational health fall under the *health need* banner. It is not possible to attain a state of full health in every instance, so the goal of healthcare needs is an 'optimal state of health'.

Healthcare needs assessment

Need is a dynamic concept that is open to change over time and is culture-dependent. Consequently, health planners ought to assess healthcare needs continuously. The purpose of healthcare needs assessment is to collate essential information from various sources into a common framework to monitor and improve the health of a population, to ensure successful service development[5] and to deploy healthcare resources appropriately.[6] The assessment should identify the full range of medical and non-medical factors that impact on an individual's—and even carers'[7] —healthcare needs. However, information is rarely collected about genuine needs and any available data may be disorganized and restricted to defined services.[5]

There are several estimates of cardiovascular disease incidence in the UK, with a minimum for angina of 113 per 100,000 for men and 53 for women; and for myocardial infarction of 273 for men and 66 for women.[8] An ageing population, however, will ensure that the absolute number of patients living with cardiovascular disease will continue to increase and remain the leading cause of death world-wide,[9] despite major advances in medical diagnosis and management and even falling coronary heart disease (CHD) rates in middle-aged Britons.[10]

Every individual has needs, some of which are common, regardless of the state of health. Patients with CHD are likely to have general healthcare needs common to those with similar demographic and socio-economic characteristics, and quite specific needs unique to this patient group, attributable to the impact of CHD. Identifying these needs presents a challenge as it requires a specific tool. Based on clinical experience, a literature review[11] and a qualitative study, we developed a detailed questionnaire,[12] the Nottingham Health Needs Assessment (NHNA), consisting of 48 Likert-scale questions. Information on health needs,[13] patients' satisfaction[14] and gender differences[15] have already been reported. This paper discusses the psychometric properties of the NHNA questionnaire.

Method

Review of existing tools

Several instruments are available for selected patient groups, mainly in mental health or disability:[11] the Camberwell Needs Assessment Questionnaire used in mentally ill patients,[16] the Southampton Needs Assessment Questionnaire for patients with multiple sclerosis,[17] and the Cancer Patients Needs Questionnaire,[18] but the literature review failed to identify any available tool to assess healthcare needs in patients with coronary artery disease.

Item generation

Patients with cardiovascular disease are likely to have general healthcare needs common to those with similar demographic and socio-economic characteristics, and specific needs unique to this patient group. We developed a questionnaire that was tested on 10 consecutive, English-speaking patients with CHD who had been admitted to hospital, using an informal semi-structured interview technique. Following analysis of the initial results, we devised and tested a modified questionnaire. Items were subsequently pooled and scrutinized for content validity, ensuring the relevance of items for the study, and noting items that had been missed or required removal. The new version was tested on a further 45 coronary patients to ensure incorporation of as broad a range of viewpoints as possible.

A questionnaire battery comprising the NHNA tool and two generic and specific health-related quality-of-life measures was mailed to the same 45 patients 1 month after hospital discharge for self-completion and return using pre-paid envelopes.[12] After factor analysis and minor amendments to language and layout, the NHNA was finalized.

The NHNA covers demographic data, employment, mobility and transport, access to local healthcare facilities, information needs and concerns, availability of carers, current health care, accommodation, education, leisure and social facilities. Quality-of-life information obtained from the same patients was used for triangulation, and to establish the concurrent validity of the NHNA tool.