How health service structure and process explain differences in outcomes in type 2 diabetes provider networks: investigation in six European countries

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Context

The aim of this research is to explain differences in health and service outcomes between provider networks for the treatment of type 2 diabetes patients in primary care in six regions in Finland, Germany, Greece, Netherlands, Spain, and UK. We explain differences in quality of life measured by EuroQol (EQ-5D), glycated haemoglobin (A1c), and service satisfaction between networks by structure and process parameters.

Methods

Research methods encompassed two parts: a) modelling structure and process of care and b) the cross-sectional survey of patient perception of health outcomes and services. Service structure and process were modelled at the regional level using standard templates i.e. operational models, based on data from information systems. In surveys 1459 type 2 diabetes patients were studied in six regions during 2011-2012. The instrument of survey included background information, EQ-5D, perceived service quality and patient satisfaction of care. Stepwise linear regression models with fixed effects of regions were used to explain differences in quality of life, A1c levels and patient satisfaction by annual hours of care, frequency of service use, costs of care, types of human resource, and access to services.

Results

Presented models explained only 20% of variance in quality of life between the networks versus 45% of variance in patient satisfaction. by the attributes of service quality, types of human resources, and access to services. It was found that greater involvement of nurses is positively associated with quality of life and satisfaction (p-value=.000). Moreover, a higher percentage of patients with well-controlled A1c appears to translate to less service use (p-value=.000) and lower yearly costs.

Discussion

A large proportion of differences in outcomes between the studied provider networks remained unexplained. Our findings support the view that the relationships between structures and processes on the one hand and outcomes on the other hand are complex and require not only unidirectional relations from services to outcomes, but also bidirectional relations to explain differences in structure and process of services, e.g. use and costs of services. The findings furthermore confirm the relevance of some, but not all, of the earlier established service quality dimensions from the ServQual model for service satisfaction.