Attitudes to the use of health outcome questionnaires in the routine care of patients with diabetes: a survey of general practitioners and practice nurses

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SUMMARY

Background. *Despite the increasing availability of multidimensional health status and outcome measures of the patient's physical and emotional functioning, and a number of national initiatives to promote their use, little is known about the attitudes and behaviour of general practitioners (GPs) and practice nurses (PNs) regarding their use in evaluating the effectiveness of health care. What evidence there is remains largely anecdotal but supports the view that health outcome data is currently not used in the routine management of the patient.*
Aim. *To investigate the attitudes and behaviour of GPs and PNs regarding the use of health outcome data in the routine care of patients with diabetes.*
Method. *A questionnaire comprising 20 attitudinal and behavioural statements covering the use and benefits of health outcome data in the routine care of patients with diabetes were sent to 156 GPs and 114 PNs in the Doncaster area together with a covering letter and two examples of multidimensional health outcome measures.*
Results. *Completed questionnaires were received from 90 (58%) GPs and 49 (50% corrected for out of scope) nurses. Median response scores showed that both GPs and nurses expressed a positive overall attitude towards health outcome measurement giving responses favourable to it in 15 (75%) and 18 (90%) of the statements respectively. A key finding was that 48% and 46% of GPs and PNs were unclear as to how they would use health outcome data.*
Conclusion. *While our findings reflect a favourable view towards the use of health outcome data for the routine management of the patient with diabetes in a general practice setting, a number of important barriers to their implementation have been identified. These include insufficient knowledge on their use, the need for easily interpretable data, and a lack of resources.*

Keywords: quality of life; health outcome data; outcome measures; questionnaires; general practitioners; practice nurses.

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Introduction

EVALUATING the effectiveness of health care in clinical practice has received increasing attention in the United Kingdom[1] together with the recognition of the need to measure health care outcome in addition to the evaluation process.[2] Measures of health status and *outcome* form an important part of assessing the quality of routine care in general practice, representing a shift from traditional clinical criteria towards a focus of the needs and outcome in terms of the patients' experiences in defining appropriate goals for treatment, determining best treatment and assessing the effectiveness of treatment.[3] Little is known, however, about the attitudes and intention of GPs and PNs to the use of health outcome data in the routine care of the patient. What evidence there is remains largely anecdotal, but generally supports the view that health outcome questionnaire data are currently not being incorporated into the routine care of the patients.

There is evidence to suggest that diabetes is one of a number of clinical conditions viewed by GPs as appropriate for the development and use of health outcome measures.[2] Diabetes accounts for a significant part of the workload of GPs and has been described as one of the most behaviourally and psychologically demanding of the chronic diseases, affecting almost all aspects of its treatment and management.[4] In this paper, using diabetes as a model, we report on an exploratory study of the understanding, attitudes, and behaviour of GPs and PNs regarding the use of health outcome information in the routine care of patients as the basis for developing effective implementation strategies in general practice.

Method

All 156 GPs registered on the Doncaster Family Health Services Authority (FHSA) Local Directory of Family Doctors, together with 114 PNs, were invited to participate in a postal survey on attitudes to, and behaviour concerning, the use of health outcome questionnaires in routine diabetic patient care. Questionnaires were sent to non-responders three weeks after initial mail out. On the front page of the questionnaire, health outcome measures were defined as measures of the social, physical, and mental status of the patient. Two multidimensional health outcome measures[5,6] were also enclosed as examples.

The survey comprised 20 (nine positive, 11 negative) attitudinal behavioural statements concerning first, acquiring and using health outcome data (16 items), and secondly, the benefits of using health outcome data (four items), in the routine care of patients with diabetes. Sixteen of the statements were taken from an existing questionnaire developed to evaluate clinicians' attitudes to the use of health-related quality-of-life measures[7] and where necessary were adapted for the purposes of the study. A further four statements were constructed following informal discussions with members of Doncaster Medical Audit Advisory

Group and the Yorkshire Diabetes Audit Unit, University of Hull. Each statement was provided with a 5-point Likert-type scale response, ranging from 'strongly agree' (one point) to 'strongly disagree' (five points). All statements were randomly ordered to minimize response bias. Each statement was scored with positive statements being reverse scored so that a statement score of less than three represented a negative score, a score greater than three represented a positive score, and three represented equivocation.

The validity of the direction of scoring of all 20 statements was assessed and supported by establishing that the discrimination coefficients (upper quartile group mean statement score minus lower quartile group mean statement score) were positive (a negative coefficient would indicate that low scores for the questions as a whole were scoring highly for a particular question). The internal consistency of the combined 20 statements was evaluated using standardized Cronbach's alpha.[8] Information regarding funding status, size of practice list, number of practice partners, age, and sex was obtained from the Doncaster FHSA Local Directory of Family Doctors. Information on age of the nurses was not available.

Questionnaire data were analysed using SPSS for Windows (version 6). Nominal data were analysed using the chi-squared test; a two-tailed Mann–Whitney U test was used to compare statement median scores between GPs and PNs, with Bonferroni correction to allow for multiple testing. All confidence intervals calculated for medians were 95%.

Results

Response rates and GP/PN characteristics

Completed questionnaires were received from 90 (58%) GPs, of which 10 (11%) were made anonymous by the responder. Mean age of responding practitioners was 43.7 years. Sixty-two questionnaires were received from the nurses, of which 13 were uncompleted owing to self-reported non-involvement in diabetes care, resulting in a final response rate of 50%. Responder characteristics are shown in Table 1. Non-responding practitioners did not differ significantly from responders in terms of number of practice partners, size of practice list, age, and sex ($P \geq 0.05$). Fundholding GPs were more likely to respond than non-fundholding GPs (63% versus 37%; $\chi^2 = 10.4$; df = 2; $P<0.001$), whereas nurses from non-fundholding practices were significantly more likely to respond (51% versus 34%; $\chi^2 = 7.9$; df = 2; $P<0.005$).

Cronbach's alpha for the 20 statements exceeded the minimum requirement of ≥ 0.70[9] for practitioners ($\alpha = 0.86$) and nurses ($\alpha = 0.80$).

Overall attitudes to health outcome measures: GPs and PNs

Nearly 5% confidence intervals for median response scores of the GPs and PNs to the 20 statements are shown in Table 2. The entire confidence interval for GPs' median response scores was above three for four questions and entirely below three for just one question. The other 16 questions all had confidence intervals for median response scores that included three, although with a strong skew towards more positive attitudes. Nurses were even more positive with confidence intervals for median response scores entirely above three for twelve questions, entirely below for one, and with a similarly positive skew for confidence intervals including the equivocal score of three. The only statement that either group scored entirely below three was one item, with 76% of GPs and PNs agreeing that their knowledge of the health outcome literature was limited. Nurses' median response scores were significantly higher than GPs for five of the 20 statements ($P<0.05$, Mann–Whitney U statistic with Bonferroni correction for 20 significant tests).

Acquiring and using health outcome data

Table 3 shows a detailed breakdown of the percentages of GPs' and PNs' responses to the 20 statements. Positive attitudes held by more than half of the GPs and PNs were that they would use health outcome questionnaire data if it helped in the treatment of the individual patients (72% GPs versus 89% PNs) (item 5), be more likely to use health outcome data if it were presented in a way that is easier to understand (60% GPs versus 80% PNs) (item 6), and if collected and analysed by someone else (58% GPs versus 59% PNs) (item 2).

Compared with 48% of the GPs, 71% of PNs 'agreed/strongly agreed' to being willing to use health outcome data in the management of their patients if they had the resources (item 5), while 40% of GPs and 58% of PNs 'agreed/strongly agreed' to the likelihood of using health outcome data in the future care of their patients (item 4). However, 48% and 46% of GPs and PNs 'agreed/strongly agreed' to being unclear as to how they would use health outcome data in the management of their patients with diabetes (item 12), while 20% of GPs and 14% of nurses would only use health outcome data for audit purposes (item 11). Nearly 39% of GPs and 28% of nurses reported that they would not have the time to discuss health outcome data with their patients (item 8), and over half the GPs and 47% of PNs expressed a preference to rely on their own clinical judgement in the management of their patients (item 3). Collecting health outcome data was considered as requiring more effort than its worth (item 13) by 31% of GPs and 41% were undecided, whereas over 73% of PNs disagreed. Over 40% of GPs were undecided as to whether the emphasis on the use of outcome measures was a passing fad (item 10), with over 36% and 70% of GPs and nurses disagreeing respectively.

Benefits of using health outcome data

Compared to GPs, nurses had higher median statement scores on

Table 1. Characteristics of responding general practitioners and practice nurses.

	90 GP responders		51 PN responders	
	number	per cent	number	per cent
Sex				
Male	60	67	0	0
Female	20	22	49	96
Missing data	10	11	2	4
Age				
25–34	9	10		
35–44	39	43		
45–54	17	19		
≥55	14	16		
Missing data	11	12	51	100
Fundholding status				
Fundholding	51	57	21	41
Non-fundholding	29	32	30	59
Missing data	10	11	0	0

Table 2. Number of question response scores by 95% confidence interval range for median score.

95% CI for median score	1	2	2–3	3	3–4	4	5
GPs	0	2	3	2	10	4	0
PNs	0	1	0	1[a]	6	12	0
Combined responses	0	1	3	0	9	7	0

[a]95% CI was 2 to 4 for this median response score.

Table 3. Responses of 90 GPs and 51 PNs to statements on attitudes to health outcome measures and response scores.

Statement		Percentage					Positive statement[a] Yes/no	Median score	
		Strongly agree	Agree	Don't know	Disagree	Strongly disagree		Score	95% CI
Acquiring and using									
1. My knowledge of health outcome literature is limited	GP	12.2	64.4	15.6	6.7	1.1	N	2	2,2
	PN	10.0	66.0	4.0	16.9	4.0		2	2,2
2. I would be willing to use health outcome questionnaire data if collected and analysed by someone else[b,d]	GP	3.4	55.1	23.6	18.0	0	Y	4	3,4
	PN	2.0	57.1	16.3	22.4	2.0		4	3,4
3. I prefer to rely on my own clinical judgement in the management of my diabetic patients[d]	GP	7.8	44.4	17.8	28.9	1.1	N	2	2,3
	PN	0	28.6	16.3	53.1	2.0		4	3,4
4. I would use health outcome questionnaires in the management of my diabetic patients if I had the resources[c]	GP	4.4	44.4	35.6	15.7	0	Y	3	3,4
	PN	4.1	67.3	20.4	8.2	0		4	4,4
5. I would use health outcome questionnaire data if it helped me treat individual patients with diabetes[c]	GP	6.7	65.6	22.2	5.6	0	Y	4	4,4
	PN	10.2	79.6	6.1	4.1	0		4	4,4
6. Even if health outcome questionnaires were valid and reliable, I would be reluctant to use the results on my patients with diabetes[c]	GP	1.1	18.9	17.8	44.4	17.8	N	4	4,4
	PN	4.0	4.0	12.0	62.0	18.0		4	4,4
7. Even if published health outcome questionnaire data are shown to be clinically relevant, I'm not likely to use them[c]	GP	1.1	11.1	15.6	45.6	26.7	N	4	4,4
	PN	2.0	4.0	8.0	62.0	24.0		4	4,4
8. I would not have the time to discuss health outcome questionnaire data with my diabetic patients[c]	GP	6.7	32.2	15.6	38.9	6.7	N	3	3,4
	PN	8.0	20.0	8.0	48.0	16.0		4	3,4
9. Even if I were given more resources I would not collect health outcome questionnaire data on patients with diabetes[b,c]	GP	0	15.6	20.2	50.6	13.5	N	4	4,4
	PN	0	6.0	8.0	64.0	22.0		4	4,4
10. The emphasis on health outcome questionnaires is a passing fad and will diminish with time[b,c]	GP	3.4	20.2	40.4	31.5	4.5	N	3	3,3
	PN	0	2.0	26.0	62.0	10.0		4	4,4
11. I would only use health outcome questionnaire data for audit purposes[c]	GP	0	20.0	28.9	47.8	3.3	N	4	4,4
	PN	2.0	12.0	12.0	72.0	2.0		4	4,4
12. I'm unclear as to how I would use health outcome questionnaire data in the management of my patients with diabetes[d]	GP	4.4	44.4	21.1	27.8	2.2	N	3	2,3
	PN	2.0	44.9	12.2	40.8	0		3	2,4
13. Collecting health outcome questionnaire data requires more effort that it is worth[c]	GP	3.3	27.8	41.1	24.4	3.3	N	3	3,3
	PN	0	12.2	14.3	71.4	2.0		4	4,4
14. It is likely that I will use health outcome questionnaire data in the future care of patients with diabetes[c]	GP	0	40.0	34.4	21.1	4.4	Y	3	3,4
	PN	2.0	56.0	26.0	14.0	2.0		4	3,4
15. I often read studies reporting health outcome results[b,c]	GP	0	24.7	14.6	48.3	12.4	Y	2	2,3
	PN	2.0	68.0	2.0	24.0	4.0		4	4,4
16. If health outcome questionnaire data were presented to clinicians in a way that is easier to understand, I would be more likely to use them[c]	GP	4.4	55.6	24.4	15.6	0	Y	4	3,4
	PN	8.0	72.0	6.0	14.0	0		4	4,4
Benefits of use									
17. Health outcome questionnaire data provides an holistic view of the patient and is therefore clinically important to me[c]	GP	1.1	46.6	26.1	23.9	2.3	Y	3	3,4
	PN	6.0	82.0	6.0	4.0	2.0		4	4,4
18. Health outcome questionnaire data is too soft to use in the treatment of patients with diabetes[e]	GP	1.1	23.3	34.4	37.8	3.3	N	3	3,4
	PN	0	6.4	29.8	55.3	8.5		4	3,4
19. Using published health outcome questionnaire data is essential to good diabetic care[c]	GP	5.6	37.8	26.7	23.3	6.7	Y	3	3,4
	PN	8.0	54.0	16.0	22.0	0		4	3,4
20. Health outcome questionnaire data would help me in making treatment decisions[c]	GP	1.1	44.4	33.3	17.8	3.3	Y	3	3,4
	PN	2.0	68.0	18.0	12.0	0		4	4,4

[a]positive statement, scoring reversed; [b]data missing for one GP responder; [c]data missing for one PN responder; [d]data missing for two PN responders; [e]data missing for four PN responders.

three out of four statements with regard to the benefits of using health outcome data. The most widely held positive attitude by the nurses was that health outcome data provide an holistic view of the patient and is therefore clinically important to them (88% of nurses versus 45% of GPs) (item 17). Seventy per cent of the nurses considered that health outcome data would be helpful in making treatment decisions (item 20), compared with 45% of GPs, while 24% of GPs and 6% of nurses considered that health outcome data were too soft for use in the treatment of patients (item 18).

Fundholding status and attitudes to health outcome data

Median response scores were calculated for both fundholding and non-fundholding GPs and nurses. Overall, nurses from non-fundholding practices were the most positive, with 18 items having median scores of four and only one item score of two; nurses from fundholding practices were only slightly less positive, with responses to 16 items having a median score of four and just one item a median score of two. Fundholding GPs were also more positive than fundholding ones, with 11 items having a median response score of four as against seven items for fundholders. Fundholding GPs had a median score of two for four questions, whereas non-fundholders scored two on just two questions.

Discussion

Although the use of subjective measures in the assessment of health outcome has been met with scepticism,[10] the identified areas in a primary care setting that benefit from their use include the planning of treatment, the longitudinal monitoring of quality of care, and identifying problems often overlooked by physicians, particularly with respect to function and psychosocial problems. [11-23] Other uses include audit and routine screening.

The findings from our study showed that in seven of the statements the GPs had a significantly positive median score and a significantly negative median score in only one question, indicating an overall positive attitude towards the use and benefits of health outcome data in the routine care of patients with diabetes. However, less than half the GPs and 58% of nurses reported that they were likely to use health outcome data in the future care of their patients.

Of particular significance were our findings that nearly half of the GPs and nurses were unclear as to how they would use health outcome data for the management of their patients with diabetes, and that over half the GPs indicated a preference to rely on their clinical judgement in the management of the patient. Lack of interpretable outcome data was also perceived as a constraint to their use by a large proportion of GPs and PNs. The need for more resources to enable the collection of health outcome data was reported as a barrier by just under half the GPs and 71% of nurses, concurring with other studies.[14-16]

Owing to the overall low response rates of 58% for GPs and 50% for PNs, this may have resulted in selection bias. Although fundholding GPs had a higher response rate, responding GPs and nurses did not however differ significantly from non-responders in terms of age, sex, number of practice partners, and size of practice list. However, we cannot assume that non-responders did not differ in other aspects not measured in this survey and that may be associated with particular attitudes towards health outcome assessment. External factors including local initiatives may also influence attitudes towards health outcome assessment. For example, in Doncaster a number of local district-wide projects have incorporated health outcome measures as well as more routine audit criteria, and Doncaster Health has the highest number (53% of total in the district) of practice nurses in the country

who have attained accreditation for asthma care (The National Asthma Diploma).

A critical issue in a survey of this nature is establishing the content validity of the questionnaire to ensure that the most relevant issues are addressed. Together with the minimal number of comments received from the responders, the independent review of the questionnaire's content, and the low rate of non-responses to the individual statements would suggest that the main issues were addressed. However, it is recognised that other methodologies, such as an in-depth qualitative approach, may have been a more appropriate and less biased method of identifying and exploring a wider range of attitudes. This was, however, not possible within the financial and time constraints of the project.

Overall, while our findings do not reflect an overly pessimistic view towards the use of health outcome data in general practice, they nevertheless have identified a number of perceived barriers to their use, which we believe need to be overcome before the use of health outcome data can form part of the routine management of patients with diabetes. These include first the need to develop overtly educational strategies to enable practitioners, nurses, and practice managers to recognize the value of using standardized ways of obtaining insights into a broad set of health outcomes, beyond that of the traditional physician interview.[17] Secondly, how to collect, interpret, and use health outcome data. Thirdly, arguments for the implementation of health outcome assessment should be made on practical rather than theoretical grounds.[18] Fourthly, researchers must provide better data and improve the responsiveness of existing health outcome measures to enable clinically meaningful changes in the patient's condition to be identified.

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