A national survey of the public's views on quality in dental care

M. Tickle,*[1] L. O' Malley,[2] P. Brocklehurst,[3,4] A.-M. Glenny,[5] T. Walsh[6] and S. Campbell[7]

IN BRIEF

- Reports that about a fifth of the adult population in England are dissatisfied with the quality of dental care they receive.
- Highlights the large variation in the quality of dental care experienced by the public, and large differences between population sub-groups.
- Suggests that dentistry is many years behind general medical practice in our understanding of quality.

RESEARCH

Background There is a lack of evidence and poor understanding of quality measurement and improvement in dentistry. The aim of this study was to undertake a nationally representative survey of the public in England to explore their views on the meaning of quality in dentistry. **Methods** A cross sectional survey of the adult population (18 years and over) of England was undertaken. A sample size of 500 was set to provide a precision to plus or minus 5% after allowing for item non-response. A quota sampling approach was used, with predetermined quotas set for sex, age, working status and tenure to ensure the sample was nationally representative. Question selection and design were informed by the literature and a series of interviews with the public. Simple content analysis was used to identify themes in the responses to open questions. Dental service use, gender, age, ethnicity and social class were recorded. Frequency distributions were computed and outputs were cross-tabulated with various population sub-group categories. **Results** Five hundred and thirteen people were interviewed. Approximately 20% of patients reported that their care was suboptimal; a third thought it was poor value for money and 20% did not trust their dentist. Good interpersonal communication, politeness and being put at ease were the most important factors that elicited positive responses. Negative factors were cost of care and waiting times. In making an assessment of quality, access (40% of all responses), technical quality of care (35%), professionalism (30%), hygiene/cleanliness (30%), staff attitude (27%), pain-free treatment (23%), value for money (22%), and staff putting patients at ease (21%) all emerged as important factors. **Conclusions** Quality in dentistry is multi-dimensional in nature, and includes different elements and emphases to other areas of healthcare. The results will inform the development of a measure of quality in dentistry.

INTRODUCTION

In the UK, the National Health Service (NHS) dental service costs about £4 billion a year. Over 90% of activity takes place in general dental practice, provided by independent contractors with national contracts that are centrally managed. A significant amount of care is also provided on a private basis and most practices operate a mixed economy of private and NHS care. NHS dental care services have been criticised because of significant concerns about access and the quality of care provided.[1] More generally the NHS in England seeks to provide a patient-focused, clinically-led, outcomes-driven service[2] and the NHS constitution[3] includes quality of care as one of its seven guiding principles: 'The NHS aspires to the highest standards of excellence and professionalism – in the provision of high-quality care that is safe, effective and focused on patient experience'. There is a mature body of academic literature on quality in primary medical care which has influenced definition, measurement of and payment for quality in general medical practice. The General Practitioner's Quality Outcome Framework (GPQOF) has evolved since its first appearance in 2004[4] with strong academic input and support from National Institute for Health and Care Excellence (NICE).[5] This is in stark contrast to the situation in primary dental care, where the academic base is sparse.[6,7] There are also significant and fundamental differences between primary medical care and primary dental care and it would be dangerous to assume that quality measures developed for primary medical care can simply be applied to dentistry.[8]

There have been early attempts to produce a national Dental Quality Outcomes Framework (DQOF) for NHS dentistry.[9] The need to be able to measure quality in order to improve it, has also been recognised internationally and suites of quality indicators have being drawn up in different countries.[10,11] However, these efforts have been hampered by the lack of a strong academic base to draw on and the resultant lack of understanding on the meaning of quality in dentistry. Quality is a multi-faceted concept[12,13] and different stakeholder groups will have different views on the constituent elements of quality and on the relevant importance on different aspects of quality.[5] One could argue that the most important arbiters of quality are patients and the public, as they are the recipients of care and also the funders of care, whether they receive their care via a state funded system paid out of general taxation such as the NHS, or through a third party payer, or subscribe to an insurance-based scheme or via private fee for item systems. The growing emphasis on quality measurement and improvement in healthcare and the lack of evidence and understanding of

[1]Professor of Dental Public Health & Primary Care, Institute of Population Health, University of Manchester, [2]Lecturer in Oral Health Research, School of Dentistry, University of Manchester, [3]Senior Clinical Lecturer, School of Dentistry, University of Manchester, [4]Professor of Health Service Research, NWORTH Trials Unit, Bangor University, Holyhead Road, Gwynedd, LL57 2PZ [5]Professor of Health Sciences, School of Dentistry, University of Manchester, [6]Senior Lecturer in Biostatistics, School of Dentistry, University of Manchester, [7]Professor of Primary Care Research, Institute of Population Health, University of Manchester, Oxford Road, Manchester, M13 9PL;
*Correspondence to: Professor Martin Tickle
Email: martin.tickle@manchester.ac.uk

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Table 1 Participant characteristics, N = 513

		N	%
Region	North	38	7.4
	North West	74	14.4
	Yorks & Humberside	48	9.4
	West Mids	43	8.4
	East Mids	38	7.4
	East Anglia	6	1.2
	South West	51	9.9
	South East	130	25.3
	Greater London	85	16.6
Gender	Female	292	56.9
	Male	221	43.1
Age	18–24	86	16.8
	25–34	81	15.8
	35–44	74	14.4
	45–54	110	21.4
	55–59	35	6.8
	60–64	45	8.8
	65+	82	16.0
Ethnicity	White	419	81.6
	Mixed/multiple ethnic groups	12	2.3
	Asian/Asian British	52	10.1
	Black/African/Caribbean/Black British	27	5.3
	Other ethnic group	1	.02
	Refused	2	.04
Social grade	A	18	3.5
	B	93	18.1
	C1	160	31.2
	C2	118	23.0
	D	66	12.9
	E	58	11.3

what quality means for dentistry needs to be addressed systemically. To make a contribution to this process, the aim of this study was to undertake a nationally representative survey of the public in England to explore their views on the meaning of quality in dentistry.

METHOD

A cross sectional survey of the adult population (18 years and over) of England was undertaken in the summer of 2014. The University of Manchester ethics committee reviewed the study protocol and confirmed that ethical approval was not required.

Sample size

The sample size was determined by a requirement that the prevalence of responses to any of the variables included in the questionnaire survey should be accurate to a minimum of plus or minus 5% (95% confidence interval). To calculate the standard error, we divided the confidence interval by 1.96 (approximate value of the 97.5 percentile point of the normal distribution). In this case the standard error is 5/1.96 = 2.55. With an estimated proportion of responders to each question to be 50% (providing a worst case scenario in terms of minimum sample size required) and a standard error of 2.55, a minimum sample size of 385 participants was required to provide a population prevalence with a precision of plus or minus 5%. To allow for item non-response a final sample size was set at 500.

Sampling methods and data collection

Following a tendering process we commissioned IPSOS MORI, a leading political, social and business research company with national reach to undertake the fieldwork of the survey.

Table 2 What are the most common positive aspects of people's visits to the dentist? (Survey question: 'Thinking about your recent visits to the dentist, what, if any, were the positive aspects of your experience?')

Answers	N	%
Being put at ease/treated sensitively/the friendliness and politeness of dentist or dental staff	76	14.8%
The quality of care or the treatment/work carried out	64	12.5%
Good/positive experience/happy/ no problems	48	9.4%
The efficiency and quality of the service	31	6.0%
None/no positive experience	30	5.8%
No dental work or treatment needed	26	5.1%
The competency/skill/efficiency of the dentist	26	5.1%
Timeliness of being seen/not having to wait long	20	3.9%
Received professional care	19	3.7%
Good reception/friendly and welcoming receptionist	17	3.3%
Other positive	16	3.1%
It was ok/fine	15	2.9%
Availability of appointments (easy to get/at short notice/at the weekend)	12	2.3%
I have not been for years/a long time	11	2.1%
Received painless treatment	10	1.9%
I have not/never been to the dentist	9	1.8%
Cost effective/reasonable price	8	1.6%
Dentist explained what he was doing/and why/gave me good advice	8	1.6%
I received treatment on the NHS	7	1.4%
Relationship with dentist	7	1.4%
Dental staff were helpful	7	1.4%
The information and advice provided	7	1.4%
Clean/hygienic environment	6	1.2%
Having trust and confidence in the service	6	1.2%
Dislike experience of going to the dentist in general	6	1.2%
Good facilities	5	1.0%
Other miscellaneous	5	1.0%
Other negative	3	0.6%
Don't know	52	10.0%
No answer/null	97	18.9%
TOTAL	654	

NB. Total is greater than the number of respondents due to multiple responses

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Table 3 What are the most common negative aspects of people's visits to the dentist? (Survey question: 'Thinking about your recent visits to the dentist, what, if anything, do you think could have been better?')

Answers	N	%
No improvements needed	156	30.4%
It could have been cheaper/less expensive	44	8.6%
Waiting times	15	2.9%
The quality of dental care and treatment received	9	1.8%
The service should be free of charge	9	1.8%
Greater availability of appointments/more flexible or longer opening hours	8	1.6%
The clarity of information provided regarding treatment	6	1.2%
Waiting room facilities	6	1.2%
Receptionist/attitude of receptionist	5	1.0%
The dentist wasn't very good/ didn't know what they were doing	5	1.0%
The overall service	5	1.0%
Better record keeping of previous appointments	4	0.8%
Dislike experience of going to the dentist in general	4	0.8%
More local dentists or walk-in clinics are needed	4	0.8%
The attitude of staff	4	0.8%
Should be on the NHS/more NHS dentists	3	0.6%
Have not been for years/a long time	7	1.4%
Other	7	1.4%
No answer	176	34.3%
Don't know	57	11.1%
TOTAL	534	

NB. Total is greater than the number of respondents due to multiple responses

The survey utilised face-to-face interviewing by experienced, trained interviewers. A random location sampling approach over a robust number (170–190) of sample points in England was used to ensure there was a good geographical spread. Interviewer quotas were set for sex, age, working status and tenure to ensure the sample was nationally representative. The CACI ACORN geo-demographic system (http://acorn.caci.co.uk) was also used in the sample point selection process, to ensure all types of geo-demographic areas in England were fully represented. Therefore, selection of respondents was taken out of the hands of the interviewers, helping to eliminate any possible bias in the sample caused by interviewing people with the same socio-economic background.

Questionnaire design

The development of the survey questions was informed by the output of a systematic review on quality assessment in dentistry,[6] plus advice from a patient and public involvement group, and from analyses of the contents of 84 video interviews carried out with members of the public to discuss the various elements of quality in dentistry (http://www.dentalqualityresearch.org). The wording of the questionnaire and question sequence was finalised through discussions with the commercial partner who undertook the fieldwork. Three open questions were initially asked; these were:

- Q.1 Thinking about your recent visit to the dentist, what, if any, were the positive aspects of your experience?
- Q.2 Thinking about your recent visit to the dentist, what, if anything, do you think could have been better?
- Q.3 What matters most to you in judging the quality of your dental service?

These were followed by four closed questions to compare perceptions of quality against perceptions of access, value for money and trust, which were identified as key components of quality by our patient and public involvement group and the video interviews. The questions were in the form of a statement with responses collected on a 1–5 scale (1 – strongly disagree, 2 – disagree, 3 – neither agree nor disagree, 4 – agree, 5 – strongly agree). For the purposes of analysis, scores 1–3 were collapsed to form a single 'no' category and scores 4–5 collapsed to form a single 'yes' category.

The statements were:

- Q.4 The care I receive is of good quality
- Q.5 I can get a dental appointment if I need one
- Q.6 The service I get from my dentist provides good value for my money
- Q.7 I trust my dentist.

Participants were also asked if they received their care from a NHS or private dentist, and socio-demographic information such as, gender, age, location (by region), ethnicity, and social grade (a six category socio-economic classification produced by the UK Office for National Statistics) were also collected.

Analysis

Multiple responses were received from the three open questions and simple content analysis was undertaken to identify themes in the responses. Frequency distributions were computed for the identified themes of the open questions and for the responses to the closed questions. Cross-tabulations were performed to compare responses to the single item measure of quality (Q.4 'The care I receive is of good quality') by gender, age, location (region), ethnicity, and social grouping. Cross tabulations and chi-squared tests were also performed between question 4 'The care I receive is of good quality' and questions 5, 6 and 7.

Table 4 What are the aspects of quality that people judge their dental service on? (Survey question: 'What matters most to you in judging the quality of your dental service?')

Answers	N	%
Availability of appointments	205	40.0%
The quality of treatment received	177	34.5%
The professionalism of staff	157	30.6%
Hygiene/cleanliness	153	29.8%
The attitude of staff	140	27.3%
Painless treatment	117	22.8%
Cost effectiveness or value for money	114	22.2%
Staff putting patients at ease	107	20.9%
Quality of advice given	99	19.3%
Ease/speed of access/convenience	93	18.1%
Knowledge of a patient's dental history	85	16.6%
The communication skills of dental staff	80	15.6%
The explanations received about dental treatment	73	14.2%
Receiving clear information about the cost of treatment	70	13.6%
The quality of follow up treatment	68	13.3%
Speciality/expertise/facilities	53	10.3%
Patient choice regarding treatment plan	50	9.7%
The service looking attractive/ smart	37	7.2%
That the service is available on the NHS	6	1.2%
Only essential treatment/work carried out	3	0.6%
Timeliness/not having to wait	3	0.6%
Availability of dentists/women dentists	2	0.4%
Reputation	2	0.4%
Efficiency	1	0.2%
Trustworthiness/reliability	3	0.6%
Other	7	1.4%
No answer	27	5.3%
Don't know	40	7.8%
TOTAL	1972	

NB. Total is greater than the number of respondents due to multiple responses

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RESULTS

Population characteristics

A total of 513 people were interviewed. Table 1 presents the number and percentages of respondents by region, gender, age, ethnicity and social class. The population profile broadly matched the distribution of socio-demographics of the English reference population (http://www.nomisweb.co.uk/census/2011/quick_statistics).

Table 2 presents the responses to Q.1: Thinking about your recent visit to the dentist, what, if any, were the positive aspects of your experience?' A total of 654 responses were received from the 513 interviewees, 10% of respondents 'did not know' and just over 18% did not provide a response. The responses identified the importance of interpersonal communication, politeness and being put at ease as the most important factors which elicited positive feelings, followed by the technical quality of the treatment provided. Responses to Q.2: 'Thinking about your recent visit to the dentist, what, if anything, do you think could have been better?' are presented in Table 3. Thirty percent of responses said that no improvements were needed and over 34% and 11% of responses either didn't know or could not provide an opinion. The main issues eliciting a negative response to question 2 were cost of care and waiting times. There was a great diversity of responses to Q.3: 'What matters most to you in judging the quality of your dental service?'; the results are set out in Table 4. Access and availability of care was the most frequent issue raised (40% of all responses), followed by technical quality of care (35%), professionalism (30%), hygiene/cleanliness (30%), staff attitude (27%), pain-free treatment (23%), value for money (22%), and staff putting patients at ease (21%). In all, 1,972 responses were provided to question 3 by the 513 participants and 28 themes were identified, many themes overlapped. However, there were nuanced differences between similar themes.

Table 5 summarises the responses to the single item measure of perceptions of quality of care by different population subgroups. A lower proportion of participants (52.6%) from an Asian/Asian British background felt that they didn't receive good quality care when compared to other ethnic groups (for example, 85.3% white).

There were also regional differences; more people living in Greater London (34.8%) reported that they received a sub-optimal service compared to other regions (for example, 9.9% in the North West). Higher proportions of people in social grade C2 (23.1%) felt they weren't receiving a good quality service compared to social grade A (5.3%) and social grade E (14%). There was little difference in the perception of quality by age; however, a higher proportion of males (21.9%) than females (31.1%) reported that they didn't receive high quality care.

Analysis of the closed questions is presented in Table 6; approximately 20% of patients reported that their care was sub-optimal, but a third thought it was poor value for money and, worryingly, 20 % did not trust their dentist. Some 63% of patients who didn't think their care was good quality couldn't get a dental

Table 5 Perceptions of quality using a single item measure by ethnic group, location (region), social grade, age and gender

	The care I receive from my dentist is of good quality		
	Yes n (%)	No n (%)	Total n
ETHNIC GROUP			
White	342 (85.3)	59 (14.7)	401 (85.5)
Mixed/ Multiple ethnic groups	7 (70)	3 (30)	10 (2.1)
Asian/ Asian British	20 (52.6)	18 (47.4)	38 (8.1)
Black/ African/ Caribbean/ Black British	16 (80)	4 (40)	20 (4.3)
TOTAL N	**385 (82.1)**	**84 (17.9)**	**469**
REGION			
North	20 (76.9)	6 (23.1)	26 (5.5)
North West	64 (90.1)	7 (9.9)	71 (14.9)
Yorks & Humberside	34 (79.1)	9 (20.9)	43 (9.1)
West Midlands	28 (75.7)	9 (24.3)	37 (7.8)
East Midlands	40 (95.2)	2 (4.8)	42 (8.9)
East Anglia	10 (100)	0	10 (2.1)
South West	39 (79.6)	10 (20.4)	49 (10.4)
South East	111 (86)	18 (14)	129 (27.3)
Greater London	43 (65.2)	23 (34.8)	66 (14.0)
TOTAL N	**389 (82.2)**	**84 (17.8)**	**473**
SOCIAL GRADE			
A	18 (94.7)	1 (5.3)	19 (4.0)
B	83 (81.4)	19 (18.6)	102 (21.6)
C1	122 (83.6)	24 (16.4)	146 (30.9)
C2	80 (76.9)	24 (23.1)	104 (22.0)
D	49 (84.5)	9 (15.5)	58 (12.3)
E	37 (86)	6 (14)	43 (9.1)
TOTAL N	**389 (82.4)**	**83 (17.6)**	**472**
AGE			
1824	66 (83.5)	13 (16.5)	79 (16.5)
2534	69 (85.2)	12 (14.8)	81 (17.1)
3544	61 (75.3)	20 (24.7)	81 (17.1)
4554	79 (79)	21 (21)	100 (21.1)
5559	28 (93.3)	2 (6.7)	30 (6.3)
6064	30 (75)	10 (25)	40 (8.4)
65+	57 (89.1)	7 (10.9)	64 (13.5)
Total N	**390 (82.1)**	**85 (17.9)**	**475**
GENDER			
Male	203 (78.1)	57 (21.9)	260 (54.9)
Female	186 (86.9)	28 (13.1)	214 (45.1)
Total N	**389 (82.1)**	**85 (17.9)**	**474**

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Table 6 Single item perception of quality cross-tabulated with perceptions of access, value for money and trust

Quality *vs* access		I can get a dental appointment if I need one		
Yes (column%)		No (column%)	Total (row%)	
The care I receive is of good quality	Yes	345 (89.8)	39 (10.2)	384 (82.6)
	No	30 (37.0)	51 (63.0)	81 (17.4)
Total χ^2 = 119.5 (df = 1), p <0.000		375 (80.6)	90 (19.4)	465
Quality *vs* value for money		The service I get from my dentist provides good value for my money		
Yes (column%)		No (column%)	Total (row%)	
The care I receive is of good quality	Yes	278 (73.2)	102 (26.8)	380 (82.3)
	No	15 (18.3)	67 (81.7)	82 (17.7)
Total χ^2 = 87.5 (df = 1), p <0.000		293 (63.4)	169 (36.6)	462
Quality *vs* trust		I trust my dentist		
Yes (column%)		**No (column%)**	**Total (row%)**	
The care I receive is of good quality	Yes	366 (94.6)	21 (5.4)	387 (82.3)
	No	19 (22.9)	64 (77.1)	83 (17.7)
Total χ^2 = 237.1 (df = 1), p <0.000		385 (81.9)	85 (18.1)	470

Table 7 Respondents categorised according to use of NHS or private dental services

Service use	N	%
NHS only	293	57.1
Private only	100	19.5
Mixed NHS and private	65	12.7
Do not attend	39	7.6
Don't know	16	3.1
Total	**513**	**100**

Table 8 Perceptions of quality, access, value for money and trust by NHS or private dental service use. NB. For the purposes of the following analysis, only the respondents who were 'NHS only' or 'Private only' (N = 493) were included in the analyses

NHS or private *vs* quality χ^2 = 3.7 (df = 1), p = 0.055	The care I receive at my dental practice is of a good quality		
	Yes n (%)	**No n (%)**	**Total n**
NHS patient	219 (81.1)	51 (18.9)	270 (71.1)
Private patient	97 (88.2)	13 (11.8)	110 (28.9)
Total	316 (83.2)	64 (16.8)	380
NHS or private *vs* access χ^2 = 0.4 (df = 1), p = 0.548	I can get a dental appointment if I need one		
	Yes n (%)	**No n (%)**	**Total n**
NHS patient	218 (80.4)	53 (19.6)	271 (71.3)
Private patient	92 (84.4)	17 (15.6)	109 (28.7)
Total	310 (81.6)	70 (18.4)	380
NHS or private *vs* value for money χ^2 = 8.1 (df = 1), p = 0.004	The service I get from my dentist provides good value for my money		
	Yes n (%)	**No n (%)**	**Total n**
NHS patient	181 (68.6)	83 (31.4)	264 (70.0)
Private patient	62 (54.9)	51 (45.1)	113 (30.0)
Total	243 (64.5)	134 (35.5)	377
NHS or private *vs* trust χ^2 = 1.2 (df = 1), p = 0.270	I trust my dentist		
	Yes n (%)	**No n (%)**	**Total n**
NHS patient	222 (81.9)	49 (18.1)	271 (70.9)
Private patient	97 (87.4)	14 (12.6)	111 (29.1)
Total	319 (83.5)	63 (16.5)	382

appointment if they needed one, and 82% who didn't think their care was good quality thought the service was poor value for my money. Only 5% of patients who didn't trust their dentist thought their care was of good quality.

Table 7 categorises the survey population according to their use of dental services, 57% used NHS services only and approximately 20% used private sector care exclusively. Table 8 compared the difference in perceptions of quality between the NHS and private service users. There was no significant difference in perceived quality between patients who received their care in the NHS or privately; however, a significantly greater proportion of private rather than NHS patients felt that the service they received was poor value for money.

DISCUSSION

This is the first nationally representative survey to specifically gather responses from the public on their views of quality in dentistry. The survey, particularly the open questions, gives an indication of what elements of care are important for patients and identifies some of the potential domains of quality. The majority of respondents (approximately 80%) agreed or strongly agreed that the care they receive is of good quality, which on face value should provide some reassurance to commissioners and providers of care. This finding does not indicate that quality in dentistry is an insignificant problem; 20% of the population felt they were not receiving good quality care and there was wide variation evident among groups within the population. Also this crude, single item measure of quality cannot capture all of the different elements of quality and only accounts for the patients' perspective.[12] The three elements identified in our patient and public involvement work as being important aspects of quality, namely, access, value and trust, were all significantly associated with the single item of quality and are clearly important components of quality in dentistry. However, the responses to the open questions demonstrated that quality in dentistry is made up from other components, including patient safety, and is different in nature to primary medical care. Based on the responses to the survey, one could argue that this distinction is primarily due to differences in how members of the public access the two services and the fact that dentistry, unlike NHS primary medical care, is not free at point of delivery.

The study provides a nationally representative (based on demographic profile) view from the public on quality in dentistry. The study could be criticised for using quota sampling, with its attendant risk of selection

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bias, rather than a random probability sampling approach. However, the costs of probabilistic sampling are significantly greater and for this preliminary study the risk of some (generally low level[14,15]) bias was considered acceptable. The study only reports the views of the public, and the views of important stakeholder groups such as clinicians, service providers and commissioners have not been included. However, one can argue that the public as the consumers, purchasers and ultimately paymasters of care should be the most important stakeholder group. In developing a measure for quality in dentistry the views of these important stakeholder groups also need to be accounted for and included.[8] The sample size of the survey was not sufficient to support multivariate analysis and factor analysis to identify the key domains of quality in dentistry and this wasn't planned *a priori*. Nevertheless, the survey provides a very useful initial platform to help understand quality and its component parts.

Recently completed systematic reviews of quality[6] and patient safety[7] demonstrate the scarcity of the literature on quality in dentistry confirming the views of Campbell and Tickle, who called for a systematic and comprehensive programme of research to understand the nature of quality, how to measure it and how to improve it.[8,16,17] This study demonstrates that quality in dentistry is complex in nature and has significant differences compared to primary medical care. Some of the elements identified in the study have been explored in the 2009 UK Adult Oral Health Survey.[18] That survey included a single item assessment of quality of care and 90% of respondents felt that the 'standard and quality of care' was either good or very good; a higher prevalence than is reported here. However, the question was slightly different, there were differences in the sampling methods and it only used a single measure. Some 65% of English respondents included in the Adult Oral Health Survey reported that they thought dental care was very good or good value for money compared to 63% of respondents to our survey reporting that they agreed or strongly agreed with the statement 'The service I get from my dentist provides good value for my money', suggesting that by this measure around 35% of the population think dental services could improve in this area. The comparison between NHS and private care suggests that this is a bigger problem for the users of private sector care.

The range of responses to the open-ended questions also highlights how some of the early measures of quality in dentistry are incomplete and missed important dimensions. For example the English Department of Health's Dental Quality Outcome Framework[10] does not include comprehensive measures of access to care or addresses the issue of value for money. The DQOF and the Nordic measure[11] both use population measures as part of the assessment of quality (for example, the DQOF includes DMFT, which has problems when applied to individual patients as the M and F components can only remain the same or increase in value) and population measures run into problems of changing denominators when applied to practices. Our findings and the content of these early measures strongly suggest that the aims of measuring quality need to be tightly defined before measurement starts. In particular, quality measurement and improvement at patient, practice and population levels need to be considered separately and measures cannot be simply aggregated up from individual level to practice and population levels without careful thought.[8] Other measures of quality have largely focused on professionally judged, technical aspects of care[10] but this misses out the interpersonal aspects of care, which, as this study and the wider literature[20] show, make up a significant part of patient care experience and patient perceptions of quality.

Dentistry is a long way behind primary medical care in its understanding of the meaning of quality and a huge amount of work is needed to develop a definition[17] and a valid measuring system[8] before we can start to implement tested interventions to improve quality of care. Campbell and Tickle[18] identified dimensions of quality primary dental care according to Donabedian's structure-process-outcome model.[12] The survey suggested that the following domains: access, value, health, trust, safety, technical, environment and patient-centred care could make up a model for understanding and measuring the quality of primary dental care. This model needs refining; the domains need to be separated out, indicators within the domains need to be identified and thresholds to determine when and where quality is a problem need to be agreed. Our findings, plus the contents and outcomes of systematic reviews[6,7] have informed the development of a working definition of quality as: 'Access to effective care (clinical and interpersonal) to meet patient need from a learning organisation that leads to desired health outcomes'. The survey highlights the need for a larger (in terms of both participants and questionnaire items) survey to support population subgroup analyses and enable factor analysis to help delineate domains of quality. The relative importance of different domains of quality and associated indicators at patient, practice and population levels of measurement also need to be understood and agreed. These developments will lead to the production of a definition and a systematic means of measuring quality. The systematic reviews[6,7] demonstrate that such a model cannot be build up from the sparse literature, and qualitative and quantitative primary research is required to develop our knowledge and understanding. Developing and validating a definition and measuring instrument would be a significant step forward. This would form a basis for a dental quality improvement toolkit to help clinicians, service providers and patients improve the quality of dental care. For this to happen we need a concerted, international approach researching quality in dentistry to understand how it differs and how to improve it in different contexts: cultural, financial and organisational.

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