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Do consultants do what they say they do? An analysis of patient involvement in video-taped encounters between consultants and patients.

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Title page

Title (Include study design)

Do consultants do what they say they do? An analysis of patient involvement in video-taped encounters between consultants and patients.

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1
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3 editing of the manuscript. PLPB designed the study, supervised data analysis and
4
5 interpretation, and edited the manuscript. The corresponding author attests that all listed
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7 authors meet authorship criteria and that no others meeting the criteria have been omitted.
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35 36 **Conflict of interest**

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38 All authors have completed the ICMJE uniform disclosure form and declare no conflict of
39
40 interest; the grant from Isala Hospital Innovation and Research Fund covers the salary of the
41
42 main researcher (EMD) through her PhD trajectory; no financial relationships with any
43
44 organisations that might have an interest in the submitted work in the previous three years; no
45
46 other relationships or activities that could appear to have influenced the submitted work.
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51 52 **Data sharing statement**

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54 The data used and/or analysed during the current study are available from the corresponding
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56 author on reasonable request.
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Abstract

Objectives

To assess consultants' ability to reliably judge their behaviour in reaching treatment decisions with their patients.

Design

Cross-sectional analysis of hospital outpatient encounters, comparing consultants' self-reported usual decision-making style to their actual observed decision-making behaviour in video-recorded encounters.

Setting

Large secondary care teaching hospital in the Netherlands.

Participants

41 consultants from 18 disciplines and 781 patients.

Primary and secondary outcome measure

With the control preference scale, the self-reported usual decision-making style was assessed (paternalistic, informative, or shared decisions making). Two independent raters assessed decision-making behaviour for each decision using the Observing Patient Involvement (OPTION)-5 instrument ranging from 0 (no SDM) to 100 (optimal SDM).

Results

Consultants reported their usual decision-making style as informative (n=11), shared (n=16) and paternalistic (n=14). Overall, patient involvement was low, with mean (SD) OPTION⁵

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3 scores of 16.8 (17.1). In an unadjusted multilevel analysis, the reported usual decision-
4 making style was not related to the OPTION5 score ($p>0.156$). After adjusting for patient,
5 consultant and consultation characteristics, higher OPTION5 scores were only significantly
6 related to the category of decisions (treatment versus the other categories) and to longer
7 consultation duration ($p<0.001$).
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17 Conclusions

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19 The limited patient involvement that we observed was not associated with the consultants'
20 self-reported usual decision-making style. Consultants appear to be unconsciously
21 incompetent in shared decision making. This can hinder the transfer of this crucial
22 communication skill to students and junior doctors.
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31 **Strengths and limitations of this study**

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33 • The main strength of our study was that we combined direct observations of consultants'
34 SDM behaviour with their self-reported usual decision-making style in a large sample of
35 routine clinical decisions across 18 different disciplines.
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- 38 • The results of this study can be used to optimise health care professionals' SDM training
39 and support further implementation of this crucial skill.
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- 42 • The consultants were aware of being recorded, which may have affected their SDM
43 behaviour.
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- 46 • The cross-sectional design of this study precludes causal inference of the associations we
47 observed.
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- 50 • The study was performed in a single, large hospital in the Netherlands, which may have
51 limited the generalizability of our results to other settings and countries.
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Introduction

In Western societies, shared decision making (SDM) is increasingly championed by patients, clinician organizations and policy makers as the preferred model for making patient-centred healthcare decisions¹⁻⁵ and achieving value based health care.⁶ The implementation of SDM in clinical practice, however, remains suboptimal.⁷⁻⁹ Clinician-reported barriers to applying SDM include time constraints and the perceived incapability of patients to participate in decision making.¹⁰ Advancing the implementation of SDM is also hindered by clinicians' perception that they already practise SDM.^{10, 11} Several qualitative and quantitative studies in which clinicians were asked to report their usual decision-making style showed that clinicians feel that they already involve patients in decision making about their care.¹⁰⁻¹² This finding contradicts the results of a systematic review of 33 studies, which showed that the degree of patient involvement in actual medical decision making is low.⁷ This raises the question of how reliable clinicians' judgments of their own decision-making behaviour are. This is important for several reasons. First, clinicians are role models for medical students and residents. They need to be aware of their role in the decision-making process and be competent in SDM to be able to demonstrate and teach this crucial communication skill to students and residents. Second, unreliable clinician self-reports of decision-making behaviours may undermine the accuracy and reliability of SDM research that is based on self-reported data. Third, the design of SDM training programs partly depends on participants' awareness of their SDM competency. Skills training may be particularly effective if participants are aware of their incompetence, become motivated to change their behaviour and are willing to repeatedly reflect on their behaviour when applying the newly acquired skill to become better at it.¹³ To help advance the implementation of SDM and create awareness around personal biases, we sought to uncover/investigate a potential gap between clinicians' perceived and actual decision-making behaviour. Therefore, we studied how

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3 reliable clinicians judge their behaviour in reaching treatment decisions with their patients.

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5 We compared their self-reported usual decision-making style with their actual decision-
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7 making behaviour in hospital-based consultations.
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10 11 12 **Methods**

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15 We analysed video-recorded outpatient encounters between medical consultants and their
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17 patients in Isala Hospital, a large general teaching hospital serving a population of
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19 approximately 600 000 people in a mixed urban-rural area in the Netherlands. We used a
20
21 single camera with a fixed focus on the consultant only. The consultations were recorded
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23 between November 2018 and April 2019.
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26 27 28 **Participants and recruitment procedure**

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30 All participating medical consultants were recruited among participants of our previous
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32 cross-sectional survey.¹¹ We aimed to include a minimum of 30 consultants and 10
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34 encounters per consultant, which is a requirement for multilevel analysis of nested
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36 observations at the level of the healthcare professional.¹⁴ We enrolled consecutive outpatients
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38 of the participating consultants. To protect the patients' anonymity, we only captured them on
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40 audio. All participants, consultants and patients, provided written informed consent.
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47 48 **Coding**

49 Usual style of decision making

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51 We obtained the participating consultants' perceptions of their usual style of decision making
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53 in medical consultations from a cross-sectional survey among all clinicians of our hospital.
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55 Their responses to a question assessing their usual decision-making role style were classified
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57 as paternalistic (clinician decides), informative (patient decides) or shared decision making.¹¹
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Decision types

We distinguished the main decision – that related directly to the patient’s chief complaint – from all other decisions in each consultation. Then we categorised the main decisions into three decision types: diagnostic (gathering additional information), treatment and follow-up. We chose the consultants’ main decisions for our analyses because we assumed that they had taken their major decisions in mind when they reported their usual decision-making behaviour.

Observed patient involvement

We used the validated Observing Patient Involvement (OPTION⁵) instrument to assess the extent to which consultants involved patients in the decision-making process (for the items see supplementary material, Table A).¹⁵ Each OPTION⁵ item is scored on a 5-point Likert scale ranging from 0 (not observed) to 4 (executed to a high standard). The sum of these items is the total score (range 0-20), which is rescaled to a range of 0-100.¹⁶ Two trained researchers (EMD and RH) independently scored the first 29 videotaped encounters using the OPTION⁵. Then they compared and discussed scoring differences until consensus was reached. In the next step, they independently scored 179 subsequent encounters to assess inter-observer reliability. After we found good interrater agreement (intraclass correlation coefficient = 0.938), the remaining consultations were scored by one researcher.

Statistical analysis

The OPTION⁵ instrument is ordinal by design, which implies that nonparametric statistical analyses are required. In most studies, however, OPTION⁵ scores have been analysed as a continuous variable using parametric statistical techniques.¹⁴ Therefore, we assessed the

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3 differences in OPTION⁵ scores between groups using both nonparametric and parametric
4 analyses. Since these analyses showed comparable results and to facilitate comparison with
5 other studies, further data analysis was carried out using parametric tests only. Given the
6 nested nature of the data, with multiple observations for each participating consultant, we
7 selected multilevel modelling as the most appropriate method for analysis. We built random
8 intercept models, with the self-reported usual decision-making style as the predictor and the
9 OPTION⁵ scores of the main decisions as outcomes. We adjusted for potential confounding
10 variables such as decision type, consultants' and patients' age and gender, consultation
11 duration, consultation type (new patient, or follow-up consultation) and discipline (medical,
12 surgical or supportive, as described earlier.¹⁷ For all analyses, the alpha level was set at 0.05.
13 Univariate analyses were performed using SPSS (version 26). Multilevel analyses were
14 performed using MLWIN (version 3.04).
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33 **Patient and public involvement**

34 Neither study participants nor the public were involved in the study design or data analysis.
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Results

Forty-one consultants (28 males, 68%) participated in our study with a mean age (SD) of 47.9 (8.0) years, from 18 specialties (22 from medical and 19 from surgical disciplines). 14 participants had reported paternalistic decision making, 16 SDM, and 11 informative decision making as their usual decision-making style in our previous study.¹¹ In total, 781 patients (15-24 per consultant) participated in our study. After excluding 36 consultations for analysis because of insufficient audio quality and 18 preoperative anaesthesiology consultations in which no decisions were made, we analysed 1564 decisions from 727 consultations. The median (range) number of decisions per consultation was two (1-6). Of the 727 patients, 347 were male (48%), and the mean (SD) age was 48.6 (24.6) years. There were 239 consultations with new patients (33%) and 488 follow-up consultations (67%). The mean (SD) duration of the consultations was 15 (9) minutes, with a minimum of 1 and maximum of 50 minutes.

OPTION⁵ scores

Scores on the 5 items of the OPTION⁵ (see supplementary material, Table A) were expressed on a scale ranging from 0 (no SDM) to 20 (optimal SDM) per item. The highest scores were found for item 1 (the consultant draws attention to, or confirms, that alternate management options exist, recognizing the need for a decision; mean (SD) score 5.1 (4.0)) and item 3 (the consultant gives information, or checks understanding, about the reasonable options that are available for the patient, including the choice of 'no action'; mean (SD) score 4.7 (5.0)).

Intermediate scores were found for item 4 (the consultant elicits the patient's preferred option(s); mean (SD) scores 3.3 (4.4)) and item 5 (the consultant makes an effort to integrate the patient's elicited preferences in the decision-making process; mean (SD) score 2.9 (4.1)).

The lowest scores were found for item 2 (the consultant supports the patient to become informed or deliberate about the options), mean (SD) score of 0.9 (2.4).

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3 We found comparable results for nonparametric and parametric tests comparing OPTION⁵
4 scores with consultants' self-reported usual decision-making style and with patient,
5 consultant and consultation characteristics. Therefore, we only present parametric test results.
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8 The mean (SD) OPTION⁵ score for the main decision was 16.8 (17.1). The OPTION⁵ scores
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10 varied both within and between consultants, see Figures 1 and 2. Univariate analysis showed
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12 that the mean (SD) OPTION⁵ scores on consultations of consultants who reported SDM (18.9
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14 (17.3)) as their usual decision-making style were slightly higher than the mean scores on
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16 consultations of consultants who reported an informative (15.6(17.9)) or paternalistic style of
17
18 decision making (15.0 (15.8), $p = 0.016$). In an unadjusted multilevel analysis, the reported
19
20 usual decision-making style was not related to the OPTION⁵ score ($p > 0.156$). After adjusting
21
22 for patient, consultant and consultation characteristics, higher OPTION⁵ scores were only
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24 significantly related to the category of decisions (treatment versus the other categories) and
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26 longer consultation duration. Table 1 presents the model that best fitted the data. The full
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28 model including all patient and consultant characteristics is presented in the supplementary
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30 material, Table B. This full model showed similar results but provided a poorer overall fit to
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32 the data compared to the model presented in Table 1.
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43 Discussion

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45 Using self-reported statements of usual decision-making style and an independent assessment
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47 of consultants' actual decision-making behaviour in video-recorded consultations we sought
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49 to investigate a potential gap between consultants' perceived and actual decision-making
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51 behaviours in consultations. In a multilevel analysis of our data, the observed degree of
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53 patient involvement in video-recorded consultations was not associated with the consultants'
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55 self-reported usual decision-making style. Our results suggest that consultants are
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57 unconsciously incompetent in SDM, which is important because they are the role models for
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3 medical students and junior doctors. To be able to demonstrate and teach this crucial
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5 communication skill, consultants need to be aware of their role in the decision-making
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7 process and be competent in SDM. To be receptive to SDM training, consultants need to be
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9 consciously aware of their limited skills in involving patients in treatment decisions.
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12 However, that only seemed to be the case for consultants who had reported paternalistic
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14 decision making as their usual style. Furthermore, the discrepancy between consultants' self-
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16 reported usual decision-making style and the observed patient involvement in their
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18 consultations undermines the validity of SDM research using self-reported measures.
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24 Comparison with other studies

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26 Patient involvement was limited, with mean OPTION⁵ scores below the proposed cut-off
27
28 value of 25,⁷ which is comparable to several other studies.^{9, 18} We found considerable
29
30 differences in OPTION⁵ scores between consultations of each individual consultant (Figure
31
32 2), suggesting that individual consultants' patient involvement behaviour is variable. Further
33
34 research is needed to explore the reasons for this variation, which could be related to
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36 physician, patient or organizational factors. Limited patient involvement was associated with
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38 decision type (treatment versus diagnostic or follow-up decisions) and longer consultation
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40 duration (Table 1). The cross-sectional nature of our study did not allow us to identify what
41
42 the cause is and what the effect. (Lack of) time is often reported as a key barrier to the
43
44 application of SDM in clinical practice.^{10, 19-21} The literature on the actual impact of applying
45
46 SDM on consultation duration is too scant to allow a clear estimation of the effects.^{21, 22}
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49 Patient and consultant characteristics such as age and gender were not related to the
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51 OPTION⁵ scores in the multilevel model (Table 1 and Table B in the supplementary
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53 material). This is in accordance with a systematic review of 33 studies on OPTION⁵ scores.⁷
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3 The previous literature comparing clinicians' self-reported and actual decision-making style
4 in medical consultations also showed that clinicians tend to overestimate the extent to which
5 they apply SDM.^{18, 23} These studies analysed simple decisions in primary care such as refills
6 and routine testing¹⁸ or were performed in specific breast cancer or renal failure clinics in
7 which the staff had been extensively trained in the application of SDM.²³
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17 Strengths and limitations

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19 The main strength of our study was that we combined direct observations of consultants'
20 SDM behaviour in a large sample of routine clinical decisions across 18 different disciplines
21 with their self-reported usual decision-making style. We acknowledge the following
22 limitations of our study. Firstly, the consultants were aware of being recorded, which may
23 have prompted them to show more SDM behaviour than they otherwise would. However, so
24 far, there is no indication that videotaping consultations has an effect on clinicians'
25 behaviour.^{24, 25} Secondly, the cross-sectional design of this study precludes causal inference
26 of the associations we observed. Thirdly, our study was performed in a single, large hospital
27 in the Netherlands, which may have limited the generalizability of our results to other settings
28 and countries.
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45 Conclusion and practical implications

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47 Our study shows that medical consultants are unable to reliably assess their own decision
48 making-behaviour in medical encounters. This undermines the validity of SDM research
49 using self-reported measures. Even more importantly, the consultants' unconscious
50 incompetence in SDM hampers transfer of this crucial communication skill to students and
51 junior doctors. In addition, consultants' motivation to participate in effective SDM training
52 programs²⁶⁻²⁸ is likely to increase when they are consciously aware of their incompetence in
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3 practising SDM. Our results therefore support the use of video-recorded patient consultations
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5 to help consultants regularly review, reflect on, and increase their awareness of their own
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7 decision-making behaviours. This, in turn, may promote consultants' willingness to
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9 participate in SDM training programs, which is necessary for further implementation of SDM
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11 in clinical practice.
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Ethics statement

The study was carried out in accordance with the Declaration of Helsinki and was approved by Isala Hospital's Ethical Review Board (file number 180706). All participants, consultants and patients, provided written informed consent.

Transparency statement

The lead author (the manuscript's guarantor) affirms that the manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as originally planned (and, if relevant, registered) have been explained.

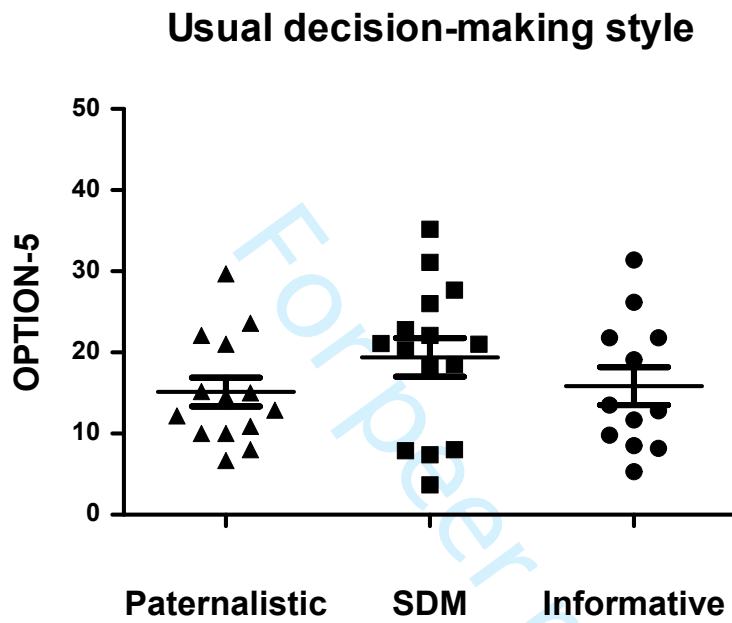
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We thank the consultants and the patients who participated in this study, and we thank T. Bouwkamp-Timmer for editorial help.

Figure 1. Mean patient involvement (OPTION⁵) of 41 medical consultants (with 727 patients) by self-reported usual decision-making style: paternalistic, shared and informative decision making.



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Figure 2. Mean and standard error of the mean of patient involvement (OPTION⁵) scores in consultation of 49 medical consultants (with 727 patients) by self-reported usual decision-making role: paternalistic, shared or informative decision making.

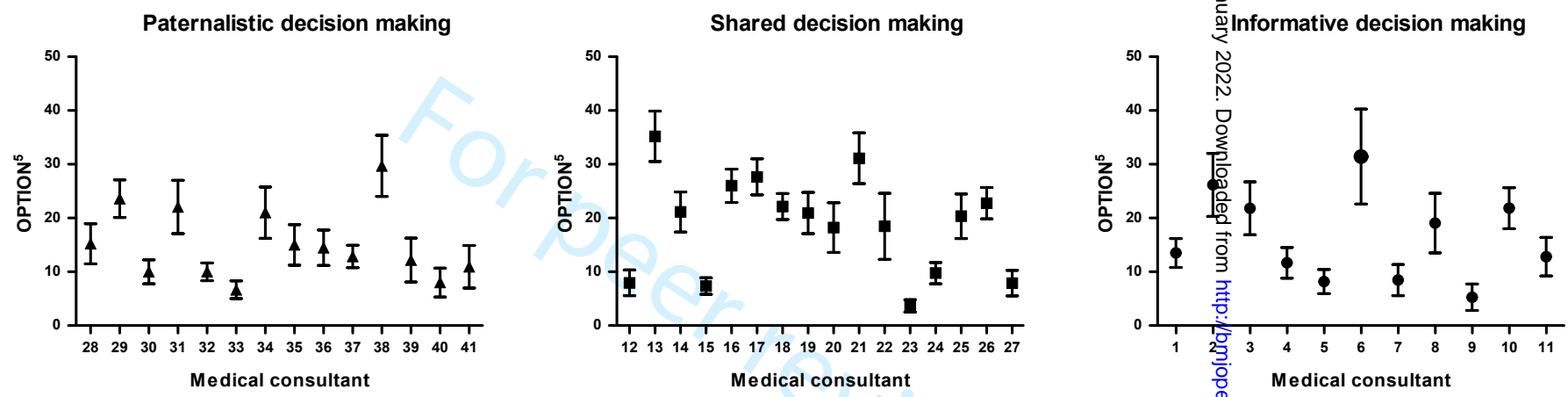


Table 1. Random-intercept regression models for the presence of patient involvement (OPTION-5) in 727 main decisions in encounters of 41 consultants with 727 patients.

Variable		Final model *		p-value
		Coefficient (SE)		
Intercept †		19.17 (0.80)		<0.001
Consultant-level predictors				
	Self-reported usual role	SDM	Reference	
	**	Paternalistic	-1.60 (2.84)	0.573
		Informative	-1.13 (3.05)	0.712
Patient-level predictors				
	Decision category	Treatment	Reference	
		Diagnostic	-5.59 (1.50)	<0.001
		Follow-up	-10.34 (1.75)	<0.001
	Consultation duration	Minutes	0.73 (0.07)	<0.001

* This final model fitted the data best. The model including all patient and consultant characteristics is presented in the supplementary material Table B. This full model showed similar results to the model presented in Table 1, but with lower overall fit.

† Intercept = The intercept can be interpreted as the average patient involvement of a (hypothetical) subject scoring 0 for each predictor in the model.

** Self-reported usual decision-making role in previous study.¹¹

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Supplementary material

Table A. Observing Patient Involvement (OPTION)-5 scale to assess the extent to which physicians involve patients in decision making.¹⁶

Item	Content
1	For the health issue being discussed, the clinician draws attention to or confirms that alternate treatment or management options exist or that the need for a decision exists. If the patient rather than the clinician draws attention to the availability of options, the clinician responds by agreeing that the options need deliberation.
2	The clinician reassures the patient or re-affirms that the clinician will support the patient to become informed or deliberate about the options. If the patient states that they have sought or obtained information prior to the encounter, the clinician supports such a deliberation process.
3	The clinician gives information or checks understanding about the options that are considered reasonable (this can include taking no action), to support the patient in comparing alternatives. If the patient requests clarification, the clinician supports the process.
4	The clinician makes an effort to elicit the patient's preferences in response to the options that have been described. If the patient declares their preference(s), the clinician is supportive.
5	The clinician makes an effort to integrate the patient's elicited preferences as decisions are made. If the patient indicates how best to integrate their preferences as decisions are made, the clinician makes an effort to do so.

Table B. Random-intercept regression models for the presence of patient involvement (OPTION⁵) in 727 main decisions in encounters of 41 consultants with 727 patients.

Variable		Full model* (N=1564) Coefficient (SE)	p-value
Intercept†		19.17 (2.41)	<0.001
Consultant-level predictors			
Reported usual role**	SDM	Reference	
	Paternalistic	-1.37 (2.87)	0.634
	Informative	-1.48 (3.11)	0.633
Age	Years	-0.14 (0.16)	0.383
Gender	Male	Reference	
	Women	-3.11 (2.67)	0.243
Discipline	Medical	Reference	
	Surgical	1.89 (2.55)	0.457
Patient-level predictors			
Age	Years	-0.03 (0.03)	0.270
Gender	Male	Reference	
	Women	0.62 (1.09)	0.569
Type of consultation	New patient	Reference	
	Follow-up	0.05 (1.30)	0.969
Time of consultation	Minutes	0.74 (0.08)	<0.001
Decision category decision	Treatment	Reference	
	Diagnostic	-5.61 (1.52)	<0.001
	Follow-up	-10.18 (1.75)	<0.001

* This full model, with patients' and consultants' characteristics showed similar results to the final model presented in Table 1, but with lower overall fit.

† Intercept = The intercept can be interpreted as the average patient involvement of a (hypothetical) subject scoring 0 for each predictor in the model.

** Self-reported usual decision-making role in previous study.¹¹

STROBE Statement—Checklist of items that should be included in reports of *cross-sectional studies*

	Item No	Recommendation	Page No
Title and abstract	1	(a) Indicate the study's design with a commonly used term in the title or the abstract	1
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found	3-4
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	5
Objectives	3	State specific objectives, including any prespecified hypotheses	5-6
Methods			
Study design	4	Present key elements of study design early in the paper	6
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	6
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants	6
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	6-7
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	7-8
Bias	9	Describe any efforts to address potential sources of bias	8
Study size	10	Explain how the study size was arrived at	6
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	8
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding	8
		(b) Describe any methods used to examine subgroups and interactions	8
		(c) Explain how missing data were addressed	8
		(d) If applicable, describe analytical methods taking account of sampling strategy	8
		(e) Describe any sensitivity analyses	8
Results			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	9
		(b) Give reasons for non-participation at each stage	-
		(c) Consider use of a flow diagram	-
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	9
		(b) Indicate number of participants with missing data for each variable of interest	-
Outcome data	15*	Report numbers of outcome events or summary measures	9
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	9-10

		(b) Report category boundaries when continuous variables were categorized	-
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	-
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	10
Discussion			
Key results	18	Summarise key results with reference to study objectives	10-11
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	12
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	12-13
Generalisability	21	Discuss the generalisability (external validity) of the study results	12
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	14

*Give information separately for exposed and unexposed groups.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at <http://www.plosmedicine.org/>, Annals of Internal Medicine at <http://www.annals.org/>, and Epidemiology at <http://www.epidem.com/>). Information on the STROBE Initiative is available at www.strobe-statement.org.

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Do consultants do what they say they do? Observational study of the extent to which clinicians involve their patients in the decision-making process.

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Title page

Title

Do consultants do what they say they do? Observational study of the extent to which clinicians involve their patients in the decision-making process.

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EMD designed the study, collected data, analysed data, and was the principal author of the manuscript. AMS assisted in the design of the study, the interpretation of the data, and the editing of the manuscript. PLPB designed the study, supervised data analysis and

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3 interpretation, and edited the manuscript. The corresponding author attests that all listed
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5 authors meet authorship criteria and that no others meeting the criteria have been omitted.
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33 **Conflict of interest**

34
35 All authors have completed the ICMJE uniform disclosure form and declare no conflict of
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37 interest; the grant from Isala Hospital Innovation and Research Fund covers the salary of the
38
39 main researcher (EMD) through her PhD trajectory; no financial relationships with any
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41 organisations that might have an interest in the submitted work in the previous three years; no
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43 other relationships or activities that could appear to have influenced the submitted work.
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49 **Data sharing statement**

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51 The data used and/or analysed during the current study are available from the corresponding
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53 author on reasonable request.
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58 **Abstract**

Objectives

To assess whether consultants do what they say they do in reaching decisions with their patients.

Design

Cross-sectional analysis of hospital outpatient encounters, comparing consultants' self-reported usual decision-making style to their actual observed decision-making behaviour in video-recorded encounters.

Setting

Large secondary care teaching hospital in the Netherlands.

Participants

41 consultants from 18 disciplines and 781 patients.

Primary and secondary outcome measure

With the control preference scale, the self-reported usual decision-making style was assessed (paternalistic, informative, or shared decision making). Two independent raters assessed decision-making behaviour for each decision using the Observing Patient Involvement (OPTION)⁵ instrument ranging from 0 (no SDM) to 100 (optimal SDM).

Results

Consultants reported their usual decision-making style as informative (n=11), shared (n=16) and paternalistic (n=14). Overall, patient involvement was low, with mean (SD) OPTION⁵ scores of 16.8 (17.1). In an unadjusted multilevel analysis, the reported usual decision-

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3 making style was not related to the OPTION⁵ score ($p>0.156$). After adjusting for patient,
4 consultant and consultation characteristics, higher OPTION⁵ scores were only significantly
5 related to the category of decisions (treatment versus the other categories) and to longer
6 consultation duration ($p<0.001$).
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14 Conclusions

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16 The limited patient involvement that we observed was not associated with the consultants'
17 self-reported usual decision-making style. Consultants appear to be unconsciously
18 incompetent in shared decision making. This can hinder the transfer of this crucial
19 communication skill to students and junior doctors.
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28 **Strengths and limitations of this study**

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- 31 • The main strength of our study was that we combined direct observations of consultants'
32 SDM behaviour with their self-reported usual decision-making style in a large sample of
33 clinical decisions across 18 different disciplines.
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 - 36 • The results of this study can be used to optimise health care professionals' SDM training
37 and support further implementation of this crucial skill.
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 - 40 • The consultants were aware of being recorded, which may have affected their SDM
41 behaviour.
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 - 44 • The cross-sectional design of this study precludes causal inference of the associations we
45 observed.
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 - 48 • The study was performed in a single, large hospital in the Netherlands, which may have
49 limited the generalizability of our results to other settings and countries.
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Introduction

In Western societies, shared decision making (SDM) is increasingly championed by patients, clinician organizations and policy makers as the preferred model for making patient-centred healthcare decisions¹⁻⁵ and achieving value based health care.⁶ The implementation of SDM in clinical practice, however, remains suboptimal.⁷⁻⁹ Clinician-reported barriers to applying SDM include time constraints and the perceived incapability of patients to participate in decision making.¹⁰ Advancing the implementation of SDM is also hindered by clinicians' perception that they already practise SDM.^{10, 11} Several qualitative and quantitative studies in which clinicians were asked to report their usual decision-making style showed that clinicians feel that they already involve patients in decision making about their care.¹⁰⁻¹² This finding contradicts the results of a systematic review of 33 studies, which showed that the degree of patient involvement in actual medical decision making is low.⁷ This raises the question of how accurate clinicians' judgments of their own decision-making behaviour are. This is important for several reasons. First, clinicians are role models for medical students and residents. They need to be aware of their role in the decision-making process and be competent in SDM to be able to demonstrate and teach this crucial communication skill to students and residents. Second, unreliable clinician self-reports of decision-making behaviours may undermine the accuracy and reliability of SDM research that is based on self-reported data. Third, the design of SDM training programs partly depends on participants' awareness of their SDM competency. Skills training may be particularly effective if participants are aware of their incompetence, become motivated to change their behaviour and are willing to repeatedly reflect on their behaviour when applying the newly acquired skill to become better at it.¹³ To help advance the implementation of SDM and create awareness around personal biases, we sought to uncover/investigate a potential gap between clinicians' perceived and actual decision-making behaviour. Therefore, we studied whether

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3 consultants do what they say they do in reaching decisions with their patients. We compared
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5 their self-reported usual decision-making style with their actual decision-making behaviour in
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7 hospital-based consultations.
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10 11 12 **Methods**

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15 We analysed video-recorded outpatient encounters between medical consultants and their
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17 patients in Isala Hospital, a large general teaching hospital serving a population of
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19 approximately 600 000 people in a mixed urban-rural area in the Netherlands. We used a
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21 single camera with a fixed focus on the consultant only. The consultations were recorded
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23 between November 2018 and April 2019.
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29 **Participants and recruitment procedure**

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31 All participating medical consultants were recruited among participants of our previous
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33 cross-sectional survey.¹¹ The consultants were invited via e-mail by the main researcher
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35 (EMD) to participate in this observational study of video-taped encounters. There was no
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37 working relationship or power relation between the researchers and the consultants who were
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39 invited and we made it clear in the information for participants that participation was
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41 voluntary. Participants were not recruited based on specific characteristics.
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47 We aimed to include a minimum of 30 consultants and 10 encounters per consultant, which is
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49 a requirement for multilevel analysis of nested observations at the level of the healthcare
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51 professional.¹⁴ We enrolled consecutive outpatients of the participating consultants. To
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53 protect the patients' anonymity, we only captured them on audio. All participants, consultants
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55 and patients, provided written informed consent.
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Coding

Usual style of decision making

In our previous study, we obtained the participating consultants' perceptions of their usual style of medical decision making with the modified Control Preference Scale (CPS). Their responses to the CPS questions, were classified as paternalistic (clinician decides), informative (patient decides) or shared decision making.¹¹

Decision types

Two researchers (EMD and RH) distinguished the main decision from all other decisions in a consultation (decision type). The main decision was defined as the decision that was directly related to the patient's chief complaint as expressed during the consultation. Differences in decision type classification between researchers were resolved by discussion with an independent third researcher (PLPB) and consensus. Then we categorised the main decisions into three decision types: diagnostic (gathering additional information), treatment and follow-up. We chose the consultants' main decisions for our analyses because we assumed that they had the major decisions in mind when they reported their usual decision-making behaviour.

Observed patient involvement

Several instruments are available to assess SDM in medical consultations. The OPTION scale, developed by Elwyn and colleagues assesses the extent to which consultants involve patients in the decision-making process (for the items see supplementary material, Table A).¹⁵ This instrument has been used frequently in SDM research. Because it focuses on clinician behavior, it appeared suitable for our research question. The OPTION⁵ is the validated concise version of the OPTION instrument¹⁵ and is considered to be more efficient with lower cognitive burden for raters than the original 12-item instrument¹⁶ Following the

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3 OPTION5 manual, each item was scored on a Likert-scale ranging from 0 (no effort) to 4
4 (exemplary effort). Following recommendation of the OPTION5 scoring manual, these items
5 were rescaled by a factor 5 (resulting in items scores ranging from 0 to 20, and total scores
6 ranging from 0 to 100.¹⁷ Two trained researchers (EMD, a medical doctor and RH, a
7 linguistics master student) independently scored the first 29 videotaped encounters using the
8 OPTION⁵. Then they compared and discussed scoring differences until consensus was
9 reached. In the next step, they independently scored 179 subsequent encounters to assess
10 inter-observer reliability. After we found good interrater agreement (intraclass correlation
11 coefficient = 0.938), the remaining consultations were scored by one researcher.
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26 **Statistical analysis**

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28 The OPTION⁵ instrument is ordinal by design, which implies that nonparametric statistical
29 analyses are required. In most studies, however, OPTION⁵ scores have been analysed as a
30 continuous variable using parametric statistical techniques.¹⁴ Therefore, we assessed the
31 differences in OPTION⁵ scores between groups using both nonparametric and parametric
32 analyses. Since these analyses showed comparable results and to facilitate comparison with
33 other studies, further data analysis was carried out using parametric tests only. Given the
34 nested nature of the data, with multiple observations for each participating consultant, we
35 selected multilevel modelling as the most appropriate method for analysis. We built random
36 intercept models, with the self-reported usual decision-making style as the predictor and the
37 OPTION⁵ scores of the main decisions as outcomes. We adjusted for potential confounding
38 variables such as decision type, consultants' and patients' age and gender, consultation
39 duration, consultation type (new patient, or follow-up consultation) and discipline (medical,
40 or surgical, as described earlier.¹⁸ For all analyses, the alpha level was set at 0.05. Univariate
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3 analyses were performed using SPSS (version 26). Multilevel analyses were performed using
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5 MLWIN (version 3.04).
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10 **Patient and public involvement**

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12 Neither study participants nor the public were involved in the study design or data analysis.
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For peer review only

Results

Forty-one consultants (28 males, 68%) participated in our study with a mean age (SD) of 47.9 (8.0) years, from 18 specialties (23 from medical and 18 from surgical discipline, see supplementary Table B). 14 participants had reported paternalistic decision making, 16 SDM, and 11 informative decision making as their usual decision-making style in our previous study.¹¹ In total, 781 patients (15-24 per consultant) participated in our study. After excluding 36 consultations from the analysis because of insufficient audio quality and 18 preoperative anaesthesiology consultations in which no decisions were made, we analysed 1564 decisions from 727 consultations. The median (range) number of decisions per consultation was two (1-6). Of the 727 patients, 347 were male (48%), and the mean (SD) age was 48.6 (24.6) years. There were 239 consultations with new patients (33%) and 488 follow-up consultations (67%). The mean (SD) duration of the consultations was 15 (9) minutes, with a minimum of 1 and maximum of 50 minutes.

OPTION⁵ scores

Scores on the 5 items of the OPTION⁵ (see supplementary material, Table A) were expressed on a scale ranging from 0 (no SDM) to 20 (optimal SDM) per item. The highest scores were found for item 1 (the consultant draws attention to, or confirms, that alternate management options exist, recognizing the need for a decision; mean (SD) score 5.1 (4.0) (on a 0 to 20 scale) and item 3 (the consultant gives information, or checks understanding, about the reasonable options that are available for the patient, including the choice of 'no action'; mean (SD) score 4.7 (5.0) on a 0 to 20 scale. Intermediate scores were found for item 4 (the consultant elicits the patient's preferred option(s); mean (SD) scores 3.3 (4.4)) and item 5 (the consultant makes an effort to integrate the patient's elicited preferences in the decision-making process; mean (SD) score 2.9 (4.1), each on a 0 to 20 scale. The lowest scores were

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3 found for item 2 (the consultant supports the patient to become informed or deliberate about
4 the options; mean (SD) score of 0.9 (2.4) on a 0 to 20 scale.
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9 The mean (SD) total OPTION⁵ score for the main decision was 16.8 (17.1) on a scale ranging
10 from 0 (no SDM) to 100 (optimal SDM). The OPTION⁵ scores varied both within and
11 between consultants, see Figures 1 and 2. Univariate analysis showed that the mean (SD)
12 OPTION⁵ scores on consultations of consultants who reported SDM (18.9 (17.3) on a 0 to
13 100 scale). as their usual decision-making style were slightly higher than the mean scores on
14 consultations of consultants who reported an informative (15.6(17.9)) or paternalistic style of
15 decision making (15.0 (15.8), $p = 0.017$). In an unadjusted multilevel analysis, the reported
16 usual decision-making style was not related to the OPTION⁵ score ($p > 0.156$). After adjusting
17 for patient, consultant and consultation characteristics, higher OPTION⁵ scores were only
18 significantly related to the category of decisions (treatment versus the other categories) and
19 longer consultation duration. Table 1 presents the model that best fitted the data. The full
20 model including all patient and consultant characteristics is presented in the supplementary
21 material, Table C. This full model showed similar results but provided a poorer overall fit to
22 the data compared to the model presented in Table 1.
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44 Discussion

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46 Using self-reported statements of usual decision-making style and an independent assessment
47 of consultants' actual decision-making behaviour in video-recorded consultations we sought
48 to investigate a potential gap between consultants' perceived and actual decision-making
49 behaviours in consultations. In a multilevel analysis of our data, the observed degree of
50 patient involvement in video-recorded consultations was not associated with the consultants'
51 self-reported usual decision-making style. In other words, the medical consultants in this
52 study did not do what they said they did in reaching decisions with their patients. Following
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3 Broadwell and Maslow's four stages of competence model that is commonly used in the
4 training of clinical skills,¹⁹ these consultants can be described as "unconsciously
5 incompetent" in SDM. This is important because they are the role models for medical
6 students and junior doctors. To be able to demonstrate and teach this crucial communication
7 skill to medical learners, consultants need to be aware of their role in the decision-making
8 process and be competent in SDM. To be receptive to SDM training, consultants first need to
9 be consciously aware of their limited skills in involving patients in treatment decisions
10 ("conscious incompetence" in Broadwell's and Maslow's model). In our study, only the
11 consultants who had reported paternalistic decision making as their usual style appeared to be
12 "consciously incompetent" in the terminology of this model. In addition, the discrepancy
13 between consultants' self-reported usual decision-making style and the observed patient
14 involvement in their consultations undermines the validity of SDM research using self-
15 reported measures.

35 Comparison with other studies

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37 Patient involvement was limited, with mean OPTION⁵ scores below the proposed cut-off
38 value of 25,⁷ which is comparable to several other studies.^{9, 20} We found considerable
39 differences in OPTION⁵ scores between consultations of each individual consultant (Figure
40 2), suggesting that individual consultants' patient involvement behaviour is variable. Further
41 research is needed to explore the reasons for this variation, which could be related to
42 physician, patient or organizational factors. Limited patient involvement was associated with
43 decision type (treatment versus diagnostic or follow-up decisions) and longer consultation
44 duration (Table 1). The cross-sectional nature of our study did not allow us to identify what
45 the cause is and what the effect. (Lack of) time is often reported as a key barrier to the
46 application of SDM in clinical practice.^{10, 21-23} The literature on the actual impact of applying
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3 SDM on consultation duration is too scant to allow a clear estimation of the effects.^{23, 24}

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5 Patient and consultant characteristics such as age and gender were not related to the
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8 OPTION⁵ scores in the multilevel model (Table 1 and Table C in the supplementary
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10 material). This is in accordance with a systematic review of 33 studies on OPTION⁵ scores.⁷

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15 The previous literature comparing clinicians' self-reported and actual decision-making style
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17 in medical consultations also showed that clinicians tend to overestimate the extent to which
18
19 they apply SDM.^{20, 25} These studies analysed simple decisions in primary care such as refills
20
21 and routine testing²⁰ or were performed in specific breast cancer or renal failure clinics in
22
23 which the staff had been extensively trained in the application of SDM.²⁵

24 25 26 27 28 Strengths and limitations

29
30 The main strength of our study was that we combined direct observations of consultants'
31
32 SDM behaviour in a large sample of clinical decisions across 18 different disciplines with
33
34 their self-reported usual decision-making style. We acknowledge the following limitations of
35
36 our study. Firstly, the consultants were aware that their behaviour in the decision-making
37
38 process was recorded and assessed, which may have prompted them to show more SDM
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40 behaviour than they otherwise would. However, so far, there is no indication that videotaping
41
42 consultations has an effect on clinicians' behaviour.^{26, 27} Secondly, the cross-sectional design
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44 of this study precludes causal inference of the associations we observed. Thirdly, it is
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46 possible that we only scored part of the decision-making process if decisions were distributed
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48 over more than one consultation. Our approach to analysis is comparable to that in earlier
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50 studies⁷, so this does not affect comparison of our results to those found in the literature.
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56 Fourthly, our study was performed in a single, large hospital in the Netherlands, which may
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58 have limited the generalizability of our results to other settings and countries. Finally, like in
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3 earlier studies using the OPTION5 instrument, our study focused on clinician behaviour and
4 not on not on patients' experiences. Given the scant literature on the topic,^{20, 28, 29} more
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6 studies are needed to assess how patients experience the decision-making process in medical
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8 consultations
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11 12 13 14 15 Conclusion and practical implications

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17 Our study shows that medical consultants are unable to assess their own decision making-
18
19 behaviour in medical encounters. This undermines the validity of SDM research using self-
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21 reported measures. Even more importantly, the consultants' unconscious incompetence in
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23 SDM hampers transfer of this crucial communication skill to students and junior doctors. In
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25 addition, consultants' motivation to participate in effective SDM training programs³⁰⁻³² is
26
27 likely to increase when they are consciously aware of their incompetence in practising SDM.
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29 Our results therefore support the use of video-recorded patient consultations to help
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31 consultants regularly review, reflect on, and increase their awareness of their own decision-
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33 making behaviours. This, in turn, may promote consultants' willingness to participate in
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35 SDM training programs, which is necessary for further implementation of SDM in clinical
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40 practice.
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Ethics statement

The study was carried out in accordance with the Declaration of Helsinki and was approved by Isala Hospital's Ethical Review Board (file number 180706). All participants, consultants and patients, provided written informed consent.

Transparency statement

The lead author (the manuscript's guarantor) affirms that the manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as originally planned (and, if relevant, registered) have been explained.

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Acknowledgement

We thank the consultants and the patients who participated in this study, and we thank T. Bouwkamp-Timmer for editorial help.

Table 1. Random-intercept regression models for the presence of patient involvement (OPTION⁵) in 727 main decisions in encounters of 41 consultants with 727 patients.

Variable		Final model *		p-value
		Coefficient (SE)		
Intercept †		19.17 (0.80)		<0.001
Consultant-level predictors				
**	Self-reported usual role	SDM	Reference	
		Paternalistic	-1.60 (2.84)	0.573
		Informative	-1.13 (3.05)	0.712
Patient-level predictors				
	Decision category	Treatment	Reference	
		Diagnostic	-5.59 (1.50)	<0.001
		Follow-up	-10.34 (1.75)	<0.001
	Consultation duration	Minutes	0.73 (0.07)	<0.001

* This final model fitted the data best. The model including all patient and consultant characteristics is presented in the supplementary material Table C. This full model showed similar results to the model presented in Table 1, but with lower overall fit.

† Intercept = The intercept can be interpreted as the average patient involvement of a (hypothetical) subject scoring 0 for each predictor in the model.

** Self-reported usual decision-making role in previous study.¹¹

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2
3 Figure 1. Mean patient involvement (OPTION⁵) (on a scale 0-100) of 41 medical consultants
4 (with 727 patients) by self-reported usual decision-making style assessed with modified
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6 Control Preference Scale (CPS): paternalistic, shared and informative decision making.
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24 Figure 2. Mean and standard error of the mean of patient involvement (OPTION⁵) scores
25 (scale 0-100) in consultation of 41 medical consultants (with 727 patients) by self-reported
26 usual decision-making role: paternalistic, shared or informative decision making.
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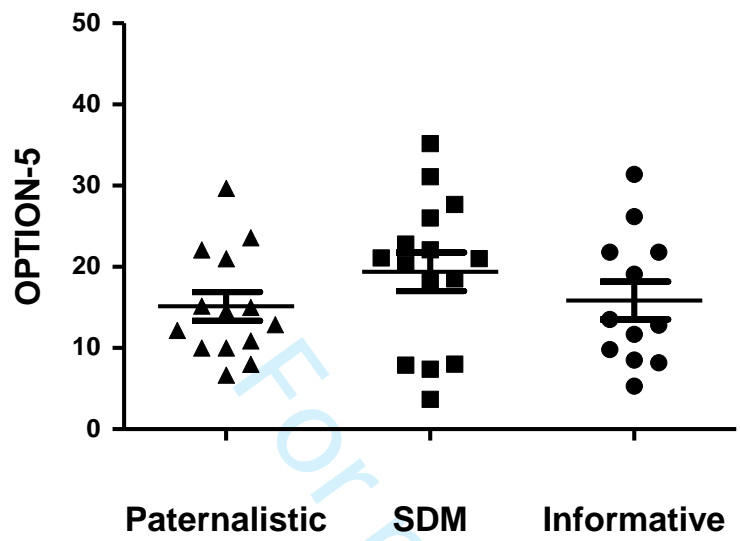
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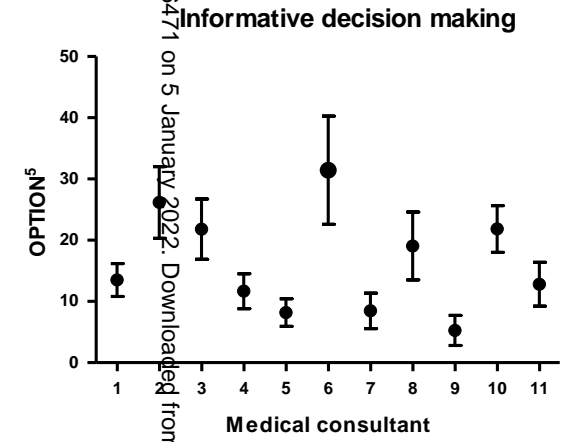
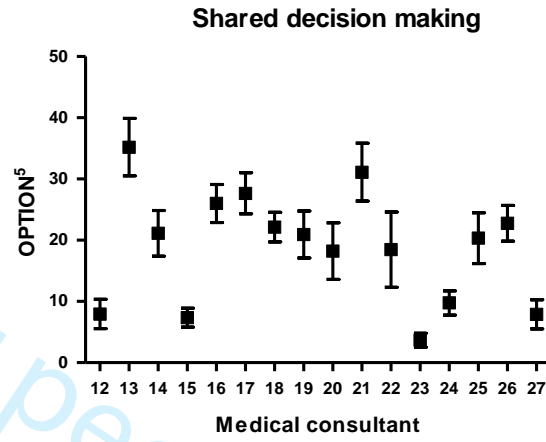
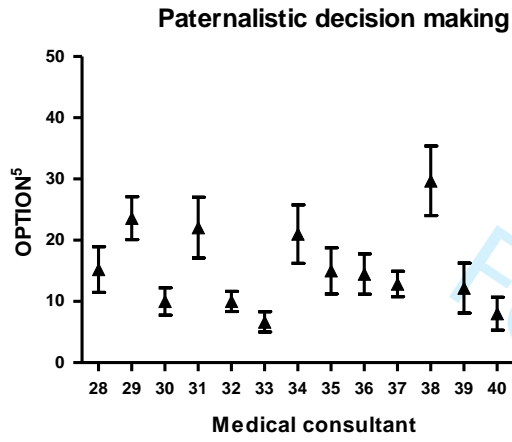
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Usual decision-making style





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Table A. Observing Patient Involvement (OPTION)⁵ scale to assess the extent to which physicians involve patients in decision making.¹⁷

Item	Content
1	For the health issue being discussed, the clinician draws attention to or confirms that alternate treatment or management options exist or that the need for a decision exists. If the patient rather than the clinician draws attention to the availability of options, the clinician responds by agreeing that the options need deliberation.
2	The clinician reassures the patient or re-affirms that the clinician will support the patient to become informed or deliberate about the options. If the patient states that they have sought or obtained information prior to the encounter, the clinician supports such a deliberation process.
3	The clinician gives information or checks understanding about the options that are considered reasonable (this can include taking no action), to support the patient in comparing alternatives. If the patient requests clarification, the clinician supports the process.
4	The clinician makes an effort to elicit the patient's preferences in response to the options that have been described. If the patient declares their preference(s), the clinician is supportive.
5	The clinician makes an effort to integrate the patient's elicited preferences as decisions are made. If the patient indicates how best to integrate their preferences as decisions are made, the clinician makes an effort to do so.

Table B. Participating consultants (n=41) from several specialties (n=18).

Medical (n=23)	Internal medicine	1
	Cardiology	1
	Paediatric	6
	Pulmonology	2
	Gastroenterology	2
	Neurology	3
	Radiotherapy	2
	Rheumatology	2
	Sport medicine	2
	Anaesthesiology	2
Surgical (n=18)	Surgery	1
	Gynaecology	3
	Otolaryngology	3
	Neurosurgery	3
	Orthopaedic surgery	2
	Plastic surgery	2
	Urology	2
	Ophthalmology	2

Table C. Random-intercept regression models for the presence of patient involvement (OPTION⁵) in 727 main decisions in encounters of 41 consultants with 727 patients.

Variable		Full model* (N=1564) Coefficient (SE)	p-value
Intercept†		19.17 (2.41)	<0.001
Consultant-level predictors			
Reported usual role**	SDM	Reference	
	Paternalistic	-1.37 (2.87)	0.634
	Informative	-1.48 (3.11)	0.633
Age	Years	-0.14 (0.16)	0.383
Gender	Male	Reference	
	Women	-3.11 (2.67)	0.243
Discipline	Medical	Reference	
	Surgical	1.89 (2.55)	0.457
Patient-level predictors			
Age	Years	-0.03 (0.03)	0.270
Gender	Male	Reference	
	Women	0.62 (1.09)	0.569
Type of consultation	New patient	Reference	
	Follow-up	0.05 (1.30)	0.969
Time of consultation	Minutes	0.74 (0.08)	<0.001
Decision category decision	Treatment	Reference	
	Diagnostic	-5.61 (1.52)	<0.001
	Follow-up	-10.18 (1.75)	<0.001

* This full model, with patients' and consultants' characteristics showed similar results to the final model presented in Table 1, but with lower overall fit.

† Intercept = The intercept can be interpreted as the average patient involvement of a (hypothetical) subject scoring 0 for each predictor in the model.

** Self-reported usual decision-making role in previous study.¹¹

STROBE Statement—Checklist of items that should be included in reports of *cross-sectional studies*

	Item No	Recommendation	Page No
Title and abstract	1	(a) Indicate the study's design with a commonly used term in the title or the abstract	1
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found	3-4
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	5
Objectives	3	State specific objectives, including any prespecified hypotheses	5-6
Methods			
Study design	4	Present key elements of study design early in the paper	6
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	6
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants	6
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	6-7
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	7-8
Bias	9	Describe any efforts to address potential sources of bias	8
Study size	10	Explain how the study size was arrived at	6
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	8
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding	8
		(b) Describe any methods used to examine subgroups and interactions	8
		(c) Explain how missing data were addressed	8
		(d) If applicable, describe analytical methods taking account of sampling strategy	8
		(e) Describe any sensitivity analyses	8
Results			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	9
		(b) Give reasons for non-participation at each stage	-
		(c) Consider use of a flow diagram	-
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	9
		(b) Indicate number of participants with missing data for each variable of interest	-
Outcome data	15*	Report numbers of outcome events or summary measures	9
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	9-10

		(b) Report category boundaries when continuous variables were categorized	-
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	-
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	10
Discussion			
Key results	18	Summarise key results with reference to study objectives	10-11
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	12
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	12-13
Generalisability	21	Discuss the generalisability (external validity) of the study results	12
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	14

*Give information separately for exposed and unexposed groups.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at <http://www.plosmedicine.org/>, Annals of Internal Medicine at <http://www.annals.org/>, and Epidemiology at <http://www.epidem.com/>). Information on the STROBE Initiative is available at www.strobe-statement.org.