

## Medical Education

# Midwives' perceptions of communication during videotaped counseling for prenatal anomaly tests: How do they relate to clients' perceptions and independent observations?



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## ABSTRACT

**Objective:** This study aimed to provide insight into Dutch midwives' self-evaluation of prenatal counseling for anomaly screening in real life practice and, the degree of congruence of midwives' self-assessments with clients' perceptions and with observed performance.

**Methods:** Counseling sessions were videotaped. We used the QUOTE<sup>pregnancy</sup> questionnaire to have each midwife ( $N = 20$ ) and her client ( $N = 240$ ) rate the prenatal counseling that they had together. We used an adapted version of the RIAS video-coding system to assess actual counseling during videotaped prenatal counseling ( $N = 240$ ).

**Results:** Midwives perceived the following functions of counseling performed well: 100% of Client-Counselor relation (CCR); 80% of Health Education (HE); and 17% Decision-Making Support (DMS). Congruence on HE of midwives with observers and with clients was  $\geq 75\%$ ; congruence on DMS was higher between midwives and observers (80%) compared to midwives and clients (62%).

**Conclusion:** Midwives perceive that during prenatal counseling the CCR and HE functions of counseling were performed well, whereas DMS was not. Furthermore, this study shows incongruence between midwives and clients about the discussion during DMS, indicating DMS is more difficult to assess than HE.

**Practice implications:** The best way to measure prenatal counseling practice might be by using assessments of different sources within one study.

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## Contents

1. Introduction	589
2. Methods	589
2.1. Design	589
2.2. Subjects	589
2.3. Procedure	589
2.4. Measurements	590
2.4.1. Background characteristics	590
2.4.2. Assessment of counseling by midwives	590
2.4.3. Assessment of counseling by clients and observers	590
2.5. Data analysis	590

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3. Results	590
3.1. Response	590
3.2. Background characteristics midwives	590
3.2.1. Midwives' self-assessments	591
3.2.2. Congruence between midwives' assessments versus those of observers and clients	591
4. Discussion and conclusion	594
4.1. Discussion	594
4.2. Conclusion	595
4.3. Practice implications	596
Acknowledgements	596
References	597

## 1. Introduction

The overall aim of prenatal counseling is to support clients in making an informed, autonomous decision about health care issues that are preference sensitive [1]. Often the best strategy for an individual may be unclear and very personal [2,3]. In theory, 'good' counseling can be recognized first by the 'outcome', i.e. an informed, autonomous decision made by the client (and her partner), and secondly by the 'process'. In the process, counselors facilitate the informed decision through the provision of *Health Education (HE)* and *Decision-Making Support (DMS)* while building a good *Client–Counselor Relation (CCR)*. The latter refers to being conscious about values regarding the subject of choice and its eventual consequences [4–7]. Addressing moral considerations towards testing and the resulting decisions is a recommended part of decision-making support during counseling [8–10]. However, counseling has been shown to focus on *HE* with less attention for providing *DMS* [6,11–15].

The counseling process has been primarily considered from the perspective of clients and the perspective of an independent observer. We identified an inconsistency between the theoretical model of counseling and the experiences of clients, when looking at clients' perceptions of the prenatal counseling process; clients consider the *HE* purpose and building a good *CCR* to be fulfilled in line with their preference, but they felt that preferences regarding *DMS* were less frequently met [6]. Research on counseling in various settings in which videotaped counseling was observed by independent observers draw similar conclusions [13,15,16]. Furthermore, we know that care providers do not fully comply with all functions of the theoretical counseling model [15,17]. However, we do not know if counselors also experience an inconsistency between theory and daily counseling practice. Insights derived from counselors' self-assessment of prenatal counseling may inform optimization of the counseling practices, since self-assessment contributes to continuing professional development in daily practice [18–20]. Therefore, such activities are a core component in medical education as part of becoming and being a medical expert [21].

Studies that identified a discrepancy between the theoretical prenatal counseling model and daily practice were, to our knowledge, studies in which evaluation of counseling was undertaken from one perspective at the time e.g. the observer OR the client. Comparing assessments of the same counseling sessions from the vantage point of different assessors within one study might lead to additional insights. Comparing counselors' self-assessments with observed communication will evaluate the accuracy of these self-assessments while comparisons with the client assessments will compare the client experience of counseling with that of the provider. Eventual incongruence between experiences of counselors and counselees potentially provides important eye-openers for health care providers, such as clients struggling with the inclusion of medical information [22–24].

In the Netherlands, midwives are the designated counselors in 80% of pregnancies [3,25]. They are trained to provide non-directive prenatal counseling for anomaly screening. Dutch midwifery led care is the current study context (Appendix A). We aimed to provide insight into: (1) midwives' self-assessments on three prenatal counseling functions *Client–Counselor Relation (CCR)*, *HE* and *DMS*; (2) the degree of congruence between midwives' self-assessments with clients' perceptions and observed performance. We expected high levels of congruence between midwives' self-assessments and observed communication, since we expected midwives to have at least some experience with self-evaluation as part of their education as medical expert [21].

## 2. Methods

### 2.1. Design

This study is part of the DELIVER study, a multi-center national research program to evaluate the quality and provision of primary midwifery care in the Netherlands [26].

The video-observational design, including additional questionnaires, of the current cross-sectional cohort study was approved by the Institutional Review Board and the Medical Ethical Committee of the VU University Medical Centre, Amsterdam, the Netherlands, supplemented by local feasibility statements from all participating midwifery practices.

### 2.2. Subjects

Midwives of six midwifery practices in the Netherlands were asked to participate in this study. To offset additional costs of participation, each midwife was offered an 80-euro credit note.

Clients were recruited from all consecutive new clients of the six midwifery practices between June 2010 and May 2011. Clients (nulliparous and multiparous women) were eligible if they were: (1) new to prenatal screening for the current pregnancy, (2) aged 18 years or older, (3) able to read Dutch or English.

### 2.3. Procedure

First, the midwives and practice assistants of the six participating midwifery practices received detailed oral and written information about the video-recording protocol. Each midwife was asked to videotape 10–20 consultations in order to deliver a reliable research sample [27] and to complete a questionnaire regarding their background. Second, clients were asked to participate in the study by the practice assistant. If they refused to participate, the practice assistant asked for the reason to decline and background information. If clients agreed to participate, clients received additional written information about the study. They were asked to sign for informed consent to videotape the consultation with an unmanned camera and to complete a pre-visit questionnaire about their background. Third, after each

videotaped counseling session both midwives and clients completed a post-visit questionnaire to assess the counseling process. More details of the procedure are described elsewhere [13,28].

## 2.4. Measurements

### 2.4.1. Background characteristics

The self-administered pre-visit questionnaires for midwives and clients contained background items such as age, gender, country of origin, education, and religion. The questionnaires were used in our earlier studies [6,17].

### 2.4.2. Assessment of counseling by midwives

Midwives' self-assessments of prenatal counseling were measured by the midwifery version of the QUOTE<sup>prenatal</sup> – Performance (Quality of care through the patients' eyes), which mirrored the questionnaire of clients. The QUOTE<sup>prenatal</sup> aims at investigating preferences (pre-visit QUOTE<sup>prenatal</sup> – Importance questionnaire) and actual prenatal counseling experiences (post-visit QUOTE<sup>prenatal</sup> – Performance questionnaire) of clients, respectively [6,17]. Fifteen items of the QUOTE<sup>prenatal</sup> appeared to cover the *client–counselor relation*, 24 items the *health education function*, and sixteen items the *decision-making support function*. The midwifery version of the post-visit QUOTE<sup>prenatal</sup> – Performance questionnaire asks midwives to self-assess the extent to which they addressed specific aspects of information and communication directly after each videotaped counseling session, indicating their perceptions of their own counseling performance.

### 2.4.3. Assessment of counseling by clients and observers

Clients' perceptions of counseling were measured using the QUOTE<sup>prenatal</sup> – Performance. To answer the second research question, we used a selection of the items of the QUOTE<sup>prenatal</sup> – Performance to observe the counseling performance of midwives. We selected items, that (1) were eligible to be coded objectively during observation of the videotaped counseling and (2) the selected items per function had to reach a substantial internal reliability, e.g.  $\geq 0.70$  [29,30]. Thirty-five items met the first eligibility criterion. Based on our previous study, two-items refer to the *client–counselor relation (CCR)* function (e.g. Q4: Tell the client that she can always contact me with any questions she may have), 21 items refer to providing *health education (HE)* (e.g. Q28: providing information about the medical condition that the fetus is screened on) and 12 items refer to *decision-making support (DMS)* (e.g. Q50: discussing personal reasons to opt or decline for prenatal screening) [6]. The reliability of functions HE and DMS was good: Cronbach's alpha's were 0.89 and 0.92, respectively. Spearman–Brown test for CCR was 0.41, which was below the threshold of 0.70; therefore, this function was excluded from further analyses. Thirty-three items remained (Appendix B).

Three trained observers rated the extent to which counselors applied the 33 communication aspects of the QUOTE<sup>prenatal</sup> during the consultation, using an adapted version of the Roter Interaction Analysis System, RIAS [31]. The 33 items of the QUOTE<sup>prenatal</sup> – Performance were incorporated into the existing RIAS protocol and were rated as point events. Rated point events signify that an item was addressed during counseling and by whom; the midwife or client. Since the direct entry software Observer XT was used for the assessments of independent observers, these assessments were seen as the most objective source of the actual communication during prenatal counseling [32].

Inter-rater reliability was already calculated during our earlier study [13] on a random sample of 26 (9.3%) of the 269 study videotapes. Mean Intraclass correlation (ICC) was 0.67, which can be considered as substantial [29,33].

## 2.5. Data analysis

Within this study, we used subsamples midwives, clients and video-observations from the earlier studies [6,13,17] to reach the research objectives. A non-response analysis between participating clients and non-participants, relevant for the current study, is described in Martin et al., 2014 [13]. The databases of clients', midwives' and observers' assessments were merged to guarantee analyses of full cases only. We assumed this procedure to be non-selective.

We dichotomized the independently QUOTE<sup>prenatal</sup> – Performance Likert scores per item; scores 1–2 were labeled as 'insufficiently performed' and scores 3 and 4 were labeled as 'well performed' during counseling. Data from the video-observations were also dichotomized. Therefore first, we computed new variables; all utterances of midwives and clients which were coded as the same topic (e.g. midwife: Asked the client to explain her decision to take/not to take the prenatal tests (Q50); client: explained why she decided to opt/decline prenatal screening (G50)) and were computed into one new variable (item 50). Second, we dichotomized the resulting new variables; if an item was coded once or more during counseling, it was recoded as 'addressed'. All other cases were coded as 'not addressed'. Third, we computed variables on prenatal counseling function level; e.g. HE and DMS. Since we used dichotomous scores on individual item level to compute the scores on function level, we used 0.50 as a threshold to indicate counseling functions as 'well performed' or 'addressed'.

To answer the first research question: midwives' self-assessment on the three counseling functions, operationalized by the components of the midwife version of the QUOTE<sup>prenatal</sup> – Performance, we ran the independent frequencies on counseling function level (CCR, HE and DMS) as well as on item level. In line with our earlier research the criterion for 'well performed' was defined as having performance scores of 3–4 at least in 75% of the cases [6,17]. Note that the qualifications 'insufficiently performed' and visa-versa do not necessarily indicate inappropriate versus appropriate counseling.

To answer the second research question, we first ran independent frequencies for clients and observers. Again the criterion for 'well performed' (clients) or 'addressed' items (observation) was defined as having performance scores of 3–4 at least in 75% of the cases. Second, we ran dependently, descriptive analyses on item level to provide insight into the amount of congruence between midwives' self-assessments with clients' perceptions and with observed performance of counseling. We re-ran the analyses for the total score of each counseling function, e.g. HE and DSM. We considered  $\geq 75\%$  congruency between assessors to be adequate and  $< 75\%$  to be inadequate. We did not correct for clustering because of the exploratory nature of the research questions.

## 3. Results

### 3.1. Response

Midwives invited 460 eligible clients to take part in the study; 324 agreed to participate (response rate 70%). In total, 240 videotaped counseling sessions were taken into the analyses, for which we also had the completed QUOTE<sup>prenatal</sup> – Performance questionnaires of clients and midwives (74%).

### 3.2. Background characteristics midwives

Table 1 shows the background characteristics of the 20 female midwives working in 6 practices and their clients who participated in this study. The number of participating midwives per practice

**Table 1**  
Characteristics of midwives and participating pregnant women.

Characteristics	Pregnant women N=240 <sup>a</sup> (%)	Midwives N=20 (%)	Dutch midwifery population N=2264 <sup>c</sup> (%)
Gender	–	–	–
Male	–	–	43 (2)
Female	–	20 (100)	2569 (98)
Work experience	–	–	–
≤2 years	–	4 (20)	No information available
3–11 years	–	12 (60)	
≥12 years	–	4 (20)	
Age (years)	–	–	–
Mean (SD)	29.2 (4.07)		
Range	20–40		
≥36 years (N (%))	13 (5.5)		
≤40 years			
≥41 years			
Ethnicity <sup>b</sup>	–	–	–
Native	187 (77.9)	14 (70)	No information available
Non native	53 (22.1)	6 (30)	
Highest level of education <sup>a</sup>	–	–	–
Up to high school	114 (47.7)		
Higher vocational education/university	125 (52.3)		
Religious background	–	–	–
None religious	110 (46.4)	–	
Religious	127 (53.6)		
Pregnancy duration	–	–	–
≤11 weeks	202 (91.9)	–	
≥12 weeks	18 (8.1)		
Parity	–	–	–
Nulliparous	97 (40.9)	–	
Multipara	140 (59.1)		

<sup>a</sup> Due to missing and inapplicable answers the N can vary from variable to variable. Valid percentages are shown.

<sup>a</sup> Up to high school ranges from only primary school up to the Dutch MBO.

<sup>b</sup> In the Netherlands, ethnic origin is defined by country of birth of a person's parents. If one of the parents (or both of them) of a person is born outside the Netherlands, this person is non-Native (Dutch National Office of Statistics; Statistics Netherlands).

<sup>c</sup> Hingstman, L, Kenens, R.J., 2011. NIVEL, Figures from the registration of midwives, poll 2011. NIVEL: dec 2011 [In Dutch].

ranged from one to five midwives. Recordings per practice ranged from 5 to 68 and per midwife from 5 to 20.

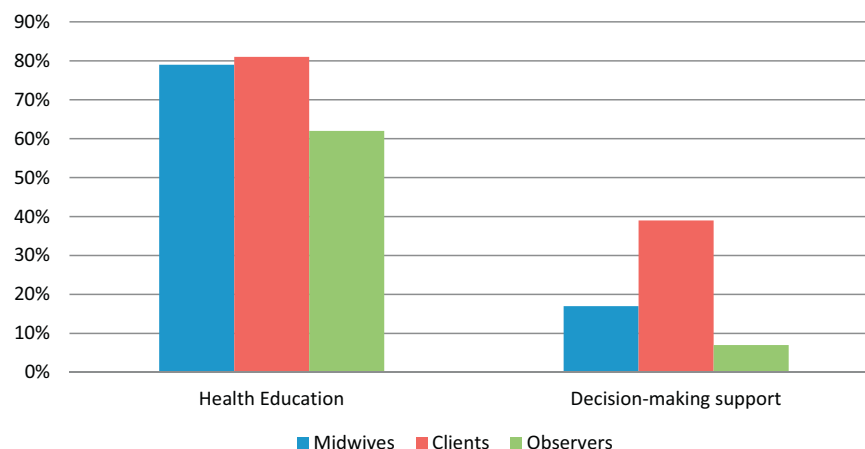
### 3.2.1. Midwives' self-assessments

On counseling function level, participating midwives perceived the *client-counselor relation (CCR)* was 'performed' or 'performed well' in all, analyzed cases (230; 100%); *health education (HE)* was perceived as 'performed' or 'performed well' in 172 cases (81%) and *decision-making support (DMS)* in 38 cases (17%). Fig. 1 shows a summary of counseling performance perceived by midwives and clients and observed counseling performance. On item level, midwives perceived that they addressed all items of the CCR well or very well (range 85–100%). Furthermore, Table 2a shows that

8 items of the 21 HE items of counseling were perceived as 'performed' or 'performed well' (range of scores: 36–95%). Scores of 'performed' or 'performed well' for the DMS function of counseling ranged from 3% to 94%; 4 out of 16 items were perceived as 'performed' or 'performed well' (Table 2b). Tables 2a and 2b show also the independent ratings of clients and observers.

### 3.2.2. Congruence between midwives' assessments versus those of observers and clients

Table 3a and Fig. 2 show that regarding the HE function of counseling congruence between midwives and observers was ≥75%: 62%<sup>HE addressed</sup> + 19%<sup>HE not addressed</sup> = 81%. Congruence between midwives' and clients' assessments was found in 85% of



**Fig. 1.** Frequencies of counseling performance for HE and DMS.

**Table 2a**Consultations in which the *health education* function was addressed according to midwives, clients and observers (N=240).

QUOTE Item number	Item description: The midwife ...	Midwives N (%) <sup>*</sup>	Clients N (%) <sup>*</sup>	Observers (N%) <sup>*</sup>
<i>Health education</i>				
Q26 <sup>Ⓢ</sup>	Explained which anomalies can be identified using prenatal screening	220 (92.4)	212 (91.0)	208 (86.7)
Q27	Explained which anomalies <u>cannot</u> be identified using prenatal tests	118 (49.6)	146 (63.2)	100 (41.7)
Q28	Provided medical information about the anomalies that are being tested for	129 (55.6)	164 (71.6)	148 (61.7)
Q29 <sup>Ⓢ</sup>	Discussed possible negative implications of prenatal screening for the unborn child	162 (68.4)	173 (75.5)	156 (65.0)
Q31 <sup>Ⓢ</sup>	Explained the usefulness of prenatal screening (what the client can decide to do eventually)	206 (86.6)	204 (88.3)	217 (90.4)
Q32 <sup>Ⓢ</sup>	Told the client about all the different types of prenatal tests	224 (94.9)	214 (92.2)	224 (93.3)
Q33	Told the client how prenatal screening can affect her emotions and mental wellbeing	145 (60.9)	128 (55.9)	112 (46.7)
Q34 <sup>Ⓢ</sup>	Told the client how much prenatal tests cost	151 (63.4)	144 (62.1)	166 (69.2)
Q35	Told the client about the incidence of birth defects in the Netherlands	84 (35.7)	125 (54.1)	66 (27.5)
Q36 <sup>Ⓢ</sup>	Asked about clients family's history of birth defects	216 (90.8)	222 (95.3)	20 (8.3)
Q37 <sup>Ⓢ</sup>	Explained how often congenital anomalies occur in pregnant women of clients age	133 (55.6)	160 (69.6)	149 (62.1)
Q38 <sup>Ⓢ</sup>	Explained how the chances of a birth defect are calculated for our unborn child	174 (72.8)	117 (76.6)	186 (77.5)
Q39	Told the client about HER chances of having a child with a congenital abnormality during this pregnancy	120 (50.4)	134 (58.0)	33 (13.8)
Q40	Talked to the client about how HER risk of having a child with a birth defect will affect her	121 (51.1)	117 (51.3)	9 (3.8)
Q41 <sup>Ⓢ</sup>	Told the client why she is or is not eligible for certain prenatal tests	161 (67.4)	155 (67.4)	182 (75.8)
Q42 <sup>Ⓢ</sup>	Explained what will happen DURING the prenatal tests	190(80.2)	159 (69.4)	181 (75.4)
Q43 <sup>Ⓢ</sup>	Explained which prenatal tests will be done first and which will be done later, if required and/or necessary	195 (82.6)	199 (86.1)	128 (53.3)
Q44	Explain who will give the client the results of the prenatal tests and how (verbally, in writing or by telephone)	88 (37.0)	115 (50.2)	106 (44.2)
Q45 <sup>Ⓢ</sup>	Explained how long the client may take to decide whether or not to have the prenatal tests	168 (71.8)	181 (78.0)	130 (54.2)
Q46 <sup>Ⓢ</sup>	Explained how long the client may take to decide whether or not to terminate the pregnancy, should the test results show an abnormality	101 (42.6)	130 (56.5)	96 (40.0)
Q48 <sup>Ⓢ</sup>	Discussed all clients options with regard to prenatal screening and the implications	164 (68.4)	199 (86.5)	12 (5.0)
Q13 <sup>**</sup>	Imparted information on prenatal testing	Midwife N (%) <sup>*</sup> 229 (96.6)	-	-
Q56 <sup>**</sup>	Only discussed specific information about follow-up tests and possible anomalies with the client if it becomes clear that the client will need them	86 (36.6)		
Q58 <sup>**</sup>	Made sure that the topics the client consider to be important are discussed at length	228 (96.6)		

\* Sample size varies due to missing data, valid percentages are shown.

\*\* Items that were only taken into the analyses of midwives' self-assessments.

Ⓢ Items that are also presented in the table about assessment of congruence (Tables 3a and 3b).

Gray fields indicate that the item was observed or perceived as addressed during  $\geq 75\%$  of the counseling.**Table 2b**Consultations in which the *decision-making support* function was addressed according to midwives, clients and observers (N=240).

QUOTE Item Number	Item description: The midwife ...	Midwives N (%) <sup>*</sup>	Client N (%) <sup>*</sup>	Observer (N%) <sup>*</sup>
<i>Decision-making support</i>				
Q3 <sup>Ⓢ</sup>	Tell which websites the client can use to find information about prenatal screening and diagnostic	38 (17.3)	83 (39.2)	83 (39.2)
Q9 <sup>Ⓢ</sup>	Advised the client about whether or not to take the prenatal tests	98 (41.2)	114 (48.7)	83 (34.6)
Q14	Enquired clients' standards, values and views on prenatal screening and diagnostic	17 (7.1)	102 (44.0)	12 (5.0)
Q22 <sup>Ⓢ</sup>	Responded to what the client already knew about prenatal screening	57 (24.3)	160 (54.8)	11 (4.6)
Q30	Told the client what the Dutch government aims to achieve by providing prenatal tests	224 (94.1)	225 (96.6)	207 (86.3)
Q49	Told the client what the Dutch government aims to achieve by providing prenatal tests	94 (39.8)	86 (37.6)	179 (74.6)
Q50	Talked to the client about how her family and she would react to a child with a birth defect	94 (39.5)	127 (54.5)	74 (30.8)
Q51 <sup>Ⓢ</sup>	Asked the client to explain her decision to take/not to take the prenatal tests	100 (42.6)	126 (54.8)	109 (45.4)
Q52 <sup>Ⓢ</sup>	Asked whether clients family, friends or other people close to her would support her decision about prenatal screening	15 (6.3)	40 (17.5)	3 (1.3)
Q53 <sup>Ⓢ</sup>	Asked the client what for her constitutes a healthy child	21 (8.9)	52 (22.6)	12 (5.0)
Q54 <sup>Ⓢ</sup>	Asked whether test results indicating that clients unborn child has a birth defect would cause problems with her conscience	35 (14.7)	71 (31.1)	1 (0.4)
Q55	Asked whether clients family, friends or other people close to her would support her decision to terminate the pregnancy if the child were to have a congenital abnormality	8 (3.3)	36 (15.7)	0 (0.0)
Q20 <sup>**</sup>	Asked how the client thinks she will react to the results of the prenatal tests	57 (23.7)	92 (39.8)	82 (34.2)
Q11 <sup>**</sup>	Was understanding about clients ideological background or religion	Midwives N (%) <sup>*</sup> 190 (67.3)	-	-
Q21 <sup>**</sup>	Asked the client questions that makes her think	190 (79.5)		
Q25 <sup>**</sup>	Was interested in who the client is	238 (100)		
Q25 <sup>**</sup>	Encouraged the client and her partner to talk together about prenatal screening	190 (80.2)		

\* Sample size varies due to missing data, valid percentages are shown.

\*\* Items that were only taken into the analyses of midwives' self-assessments.

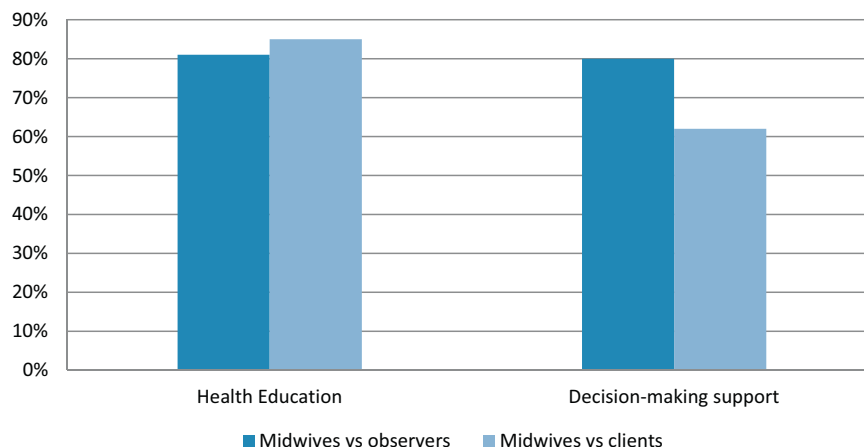
Ⓢ Items that are also presented in the table about assessment of congruence (Tables 3a and 3b).

Gray fields indicate that the item was observed or perceived as addressed during  $\geq 75\%$  of the counseling.

**Table 3a**  
Assessments of the Health Education function: congruence between midwives and observers and midwives and clients (N = 240).

		Nature of congruence	Midwife versus observer N (%) <sup>a</sup>	Midwife versus client N (%) <sup>a</sup>
Health education				
		Congruence function addressed	133 (62.1)	140 (74.9)
		Congruence function <u>not</u> addressed	41 (19.2)	19 (10.2)
<b>QUOTE Item number</b>	<b>Item description: The midwife ...</b>			
26	Explained which anomalies can be identified using prenatal screening	Congruence item addressed	<b>194 (81.5)</b>	<b>200 (86.6)</b>
		Congruence item <u>not</u> addressed	6 (2.5)	7 (3.0)
29	Discussed possible negative implications of prenatal screening for the unborn child	Congruence item addressed	135 (57.0)	135 (59.7)
		Congruence item <u>not</u> addressed	57 (24.1)	35 (15.5)
31	Explained the usefulness of prenatal screening (what the client can decide to do eventually)	Congruence item addressed	<b>193 (81.1)</b>	<b>186 (81.2)</b>
		Congruence item <u>not</u> addressed	10 (4.2)	13 (5.7)
32	Told the client about all the different types of prenatal tests	Congruence item addressed	<b>212 (89.8)</b>	<b>201 (88.2)</b>
		Congruence item <u>not</u> addressed	4 (1.7)	2 (0.9)
34	Told the client how much prenatal tests cost	Congruence item addressed	142 (59.7)	125 (54.3)
		Congruence item <u>not</u> addressed	65 (27.3)	66 (28.7)
36	Asked about clients family's history of birth defects	Congruence item addressed	18 (7.6)	<b>199 (86.1)</b>
		Congruence item <u>not</u> addressed	20 (8.4)	-
37	Explained how often congenital anomalies occur in pregnant women of clients age	Congruence item addressed	123 (51.5)	122 (53.3)
		Congruence item <u>not</u> addressed	81 (33.9)	62 (27.1)
38	Explained how the chances of a birth defect are calculated for our unborn child	Congruence item addressed	168 (70.3)	150 (65.2)
		Congruence item <u>not</u> addressed	48 (20.1)	36 (15.7)
41	Told the client why she is or is not eligible for certain prenatal tests	Congruence item addressed	142 (59.4)	114 (49.8)
		Congruence item <u>not</u> addressed	39 (16.3)	32 (14.0)
42	Explained what will happen DURING the prenatal tests	Congruence item addressed	155 (65.4)	141 (62.7)
		Congruence item <u>not</u> addressed	23 (9.7)	27 (12.0)
43	Explained which prenatal tests will be done first and which will be done later, if required and/or necessary	Congruence item addressed	112 (47.5)	<b>177 (78.0)</b>
		Congruence item <u>not</u> addressed	26 (11.0)	19 (8.4)
45	Explained how long the client may take to decide whether or not to have the prenatal tests	Congruence item addressed	116 (49.6)	148 (65.5)
		Congruence item <u>not</u> addressed	55 (23.5)	34 (15.0)
46	Explained how long the client may take to decide whether or not to terminate the pregnancy, should the test results show an abnormality	Congruence item addressed	79 (33.3)	78 (34.2)
		Congruence item <u>not</u> addressed	121 (51.1)	80 (35.1)
48	Discussed all clients options with regard to prenatal screening and the implications	Congruence item addressed	11 (4.6)	167 (73.2)
		Congruence item <u>not</u> addressed	47 (19.7)	14 (6.1)

<sup>a</sup> Sample size varies due to missing data, valid percentages are shown. Figures do not add up to 100%. Missing % represent incongruence. Bold figures indicate items/functions on which there was a congruence that the item/function was addressed/not addressed of ≥75% between midwives and observers or clients. Italic figures indicate items/functions on which there was a congruence that the item/function was addressed +not addressed of ≥75% between midwives and observers or clients.



**Fig. 2.** Congruence on HE and DMS.

**Table 3b**Assessments of the *Decision-Making Support* function: congruence between midwives and observers and midwives and clients (N=240).

		Nature of congruence	Midwife versus observer N (%) <sup>*</sup>	Midwife versus client N (%) <sup>*</sup>
Decision-making support				
		Congruence function addressed	5 (2.3)	18 (9.3)
		Congruence function <u>not</u> addressed	<b>171 (77.7)</b>	103 (53.1)
<b>QUOTE</b>	<b>Item description: The midwife...</b>			
3	Told which websites the client can use to find information about prenatal screening and diagnostic	Congruence item addressed	74 (31.1)	78 (33.6)
		Congruence item <u>not</u> addressed	131 (55.0)	102 (44.0)
9	Advised the client about whether or not to take the prenatal tests	Congruence item addressed	0 (0.0)	7 (3.0)
		Congruence item <u>not</u> addressed	<b>210 (87.9)</b>	119 (51.5)
22	Responded to what the client already knew about prenatal screening	Congruence item addressed	<b>193 (81.1)</b>	<b>212 (91.8)</b>
		Congruence item <u>not</u> addressed	2 (0.8)	1 (0.4)
51	Asked whether clients family, friends or other people close to her would support her decision about prenatal screening	Congruence item addressed	3 (1.3)	8 (3.5)
		Congruence item <u>not</u> addressed	<b>223 (93.7)</b>	<b>181 (79.7)</b>
52	Asked the client what for her constitutes a healthy child	Congruence item addressed	3 (1.3)	4 (1.8)
		Congruence item <u>not</u> addressed	<b>207 (87.3)</b>	159 (70.0)
53	Asked whether test results indicating that clients unborn child has a birth defect would cause problems with her conscience	Congruence item addressed	0 (0.0)	14 (6.2)
		Congruence item <u>not</u> addressed	<b>202 (84.9)</b>	136 (60.2)
54	Asked whether clients family, friends or other people close to her would support her decision to terminate the pregnancy if the child were to have a congenital abnormality	Congruence item addressed	0 (0.0)	3 (1.3)
		Congruence item <u>not</u> addressed	<b>231 (96.7)</b>	<b>188 (82.1)</b>

<sup>\*</sup> Sample size varies due to missing data, valid percentages are shown. Figures do not add up to 100%. Missing % represent incongruence.

Bold figures indicate items/functions on which there was a congruence that the item/function was addressed/not addressed of  $\geq 75\%$  between midwives and observers or clients.

Italic figures indicate items/functions on which there was a congruence that the item/function was addressed + not addressed of  $\geq 75\%$  between midwives and observers or clients.

the cases (75% <sup>HE</sup> addressed + 10% <sup>HE</sup> not addressed). Looking at item-level of the 21 *HE* items, percentages of  $\geq 75\%$  congruence between midwives and observers that an item was 'addressed' was found for three items: 26, 31 and 32 and percentages of  $\geq 75\%$  congruence that an item was 'addressed' OR 'not addressed' was found for seven items: 29, 34, 37, 38, 41, 42 and 46 ('time to decide on eventual termination pregnancy'). Furthermore, congruence between midwives and clients that an item was 'addressed' was found for five items: 26, 31, 32, 36 ('Asked about clients family's history of birth defects') and 43 ('Explained which prenatal tests will be done first and which will be done later, if required and/or necessary') and percentages of  $\geq 75\%$  congruence that an item was 'addressed' OR 'not addressed' was found for six items: 29, 34, 37, 38, 45 and 48 (Table 3a).

Table 3b and Fig. 2 show that regarding the *DMS* function of counseling congruence between midwives and observers was  $\geq 75\%$ : 2% <sup>DMS</sup> addressed + 78% <sup>DMS</sup> not addressed = 80%. Congruence between midwives' and clients' assessments of counseling was found in 62% of the cases (9% <sup>DMS</sup> addressed + 53% <sup>DMS</sup> not addressed). Looking at item level,  $\geq 75\%$  of congruence between midwives and observers were found for six items: item 22 ( $\geq 75\%$  congruence that the item was 'performed well'/'addressed'), item 3 ( $\geq 75\%$  congruence that the item was 'addressed' OR 'not addressed') and the items 9 ('giving advice'), 51, 52, 53 and 54 ( $\geq 75\%$  congruence these items were 'insufficiently performed'/'not addressed'). Additionally, we found levels of congruence of  $\geq 75\%$  between midwives and clients regarding four items: 22 ('addressed'), items 51 and 54 ('not addressed') and item 3 ('addressed' OR 'not addressed').

## 4. Discussion and conclusion

### 4.1. Discussion

This study aimed first, to provide insight into midwives' perceptions of their own prenatal counseling performance in daily practice. Results of midwives' self-assessments point to the same inconsistency between the theoretical prenatal counseling model and daily practice as was earlier identified [6,13,17]; the *CMR* and *HE* functions of counseling were overall assessed as 'performed' or 'performed well' whereas midwives assessed the *DMS* function as 'insufficiently performed' during most of their counseling sessions. The second study aim was to provide insight into the degree of congruence of midwives' self-assessments with clients' perceptions and with observed performance. On the *HE* counseling function level congruence between midwives and both observers and clients was  $\geq 75\%$ ; congruence on *DMS* was higher between midwives and observers (80%) compared to congruence between midwives and clients (62%), indicating that clients seem to weigh other aspects during their assessment of counseling compared to midwives and observers. On item level congruence between midwives on the one hand and observers and clients on the other hand was relatively poor on about half of the items of both *HE* and *DMS*; remarkable differences between the two dyadic assessments of congruence were found, i.e. midwives and clients agreeing that an item was addressed whereas assessments of midwives and observers showed high levels of incongruence. Finally, midwives both overestimated and underestimated their communication compared to observed communication.

The finding that midwives assessed the CCR function of prenatal counseling as 'performed well' is in line with clients' perceptions and observations in our earlier studies [6,13]. It is also known that midwives perceive that CCR is important for appropriate prenatal counseling [17]. Although midwives assessed that they 'performed well' the HE function of counseling, results on item level indicate room for improvement especially given the importance clients attach to these items and recommendations of professional guidelines [6,34]. An example is the HE-item 'offering medical information about the anomalies that are being tested for'. Last, midwives assessed the DMS function as 'performed well' in only a few cases. This might indicate that they are aware of room for improvement, since we know that half of the midwives in our earlier study consider the DMS counseling function important for appropriate counseling and thus want to close the gap between theory and daily practice [6].

The findings of this study indicate that the nature and size of the gap between prenatal counseling models and counseling in practice may vary with the assessor, which is in line with conclusions of other research [23,24]. Overall, midwives evaluated their counseling with regards to HE more or less equally congruent relative to clients compared to observers (85% versus 81%). However, midwives and observers agreed less that this function was addressed compared to midwives and clients (62% versus 75%, respectively). Regarding the DMS function of counseling, levels of congruence between the two dyadic assessments varied substantially (19%). Furthermore, midwives and observers agreed that this function was 'not addressed' during counseling in >75% of the cases; midwives and clients agreed that this function was 'not addressed' in 53% of the cases.

In case of  $\geq 75\%$  congruence between midwives and observers but not between midwives and clients, it seems to mean that in the eyes of both midwives and observers, clients' were too positive about the topic being addressed. It is possible that clients had problems recalling what was actually discussed during counseling due to information overload, for example [22]. It might also be socially more appropriate for clients to overestimate rather than underestimate midwives counseling, while midwives and clinically removed observers were accurately aware of it. Furthermore, clients might have assessed the counseling from other perspectives than midwives or observers [24]. An explanation for finding high levels of congruence between midwives and observers compared to low levels of congruence between midwives and clients about the topic 'giving advice' might be that midwives experience difficulties to recognize and avoid directive elements. For instance, deciding what information to present and how to present it can itself be directive and therefore perceived as giving advice [35]. Observers did not code directive elements, only literally giving advice was coded as such, whereas clients' experiences might have been actually framed by the directive elements in counseling. We found only  $\geq 75\%$  congruence between midwives and clients but not between midwives and observers regarding items of the HE function of counseling. Although midwives were asked to assess their counseling one by one, their self-assessment might be influenced by their earlier consults whereas clients experienced counseling only once and observers used direct entry software to code the communication and perhaps do not consider the counseling session as a whole. Regarding the topic of 'asking about clients family's history of birth defects', it could be that this issue was addressed at an earlier stage of the intake and not as part of the prenatal counseling. Therefore, it was not coded by observers as 'addressed', while both midwives and clients experienced it as 'performed' during counseling.

Within the current study, our findings suggest that both midwives and clients do not perceive as big a gap between theoretical models of appropriate counseling and daily practice as

observers do; we found that midwives, clients and observers made a different assessment of the videotaped prenatal counseling. So, the question is 'who is to say it was a good counseling visit?' or whose perspective should be preferred in assessing the quality of counseling; the objective, non-involved perspective of the observer or the subjective perspective of the stakeholders, i.e. counselors and clients? Can they all be right? Our results caution against the use of one perspective when assessing the quality of prenatal counseling since this might limit the relevance of research findings [36]. Since, counselors, clients and observers seem to assess different aspects of communication each perspective seems to make its own contribution to understanding the counseling process. Clients' experiences seem to reflect what they take home, not necessarily what was most important from a medical perspective or what was said exactly. Counselors self-assessments should be carefully used in research because of the complex, psychological nature of this concept: e.g. did midwives assess themselves relative to what they could have done, to a golden standard, to their personal capacities or to their personal perceptions of appropriate counseling? [18]. Finally, choosing observers as 'golden' standard seems reasonable to assess the skills of a counselor, but may also have limitations. Within this study, independent results show that the observers were the most restrained assessors as they were trained to code only verbal communication while a good deal of communication in general is non-verbal [37]. Another challenge regarding video-observation is to reach high levels of inter-rater reliability. In conclusion, if optimization of prenatal counseling is the ultimate goal, this goal should be based on research findings and focused on counselors' self-improvement through feedback from reliable and valid external sources (experts, clients, etc.), and making counselors take the resulting feedback seriously rather than discounting it [18].

The study has some limitations. Midwives' and clients' assessments of counseling might be influenced by the study procedure. Although both groups were asked to complete the questionnaires directly after counseling, in practice at least some midwives and some clients delayed the completion. It is known that between medical consultation and coming home most clients can only recall 20–40% of the topics discussed of which half is incorrectly recalled [22]. These memory changes might also be present in midwives. An additional explanation might be that self-assessment is not a stable skill, but rather a situational bounded cognitive process that is context specific and dependent upon expertise [18]. Another limitation of the study might be the way observers, midwives and clients assessed the prenatal counseling. Point events of the RIAS scores indicate if an item is 'addressed' or not, while the results of the QUOTE<sup>prenatal</sup> – Performance scale do include information about how well an item was perceived as addressed. Therefore, RIAS scores could potentially cause an overestimation of performances compared to results of the QUOTE<sup>prenatal</sup> – Performance. However, we did not observe such tendency in our study. Finally, although the inter-rater reliability between observers was substantial, there was (an acceptable amount of) variation between the codes that observers gave to a certain statement. Future research could also take the non-verbal communication into account.

#### 4.2. Conclusion

This study shows that midwives' self-assessments indicate the same inconsistency between the prenatal counseling model and daily practice as was identified earlier by clients' experiences and independent observations; the CCR and HE functions of counseling were overall assessed as 'performed' or 'performed well' whereas midwives assessed the DMS function as 'insufficiently performed' during most counseling sessions. Dyadic congruence between midwives and observers was adequate regarding the counseling



functions *HE* and *DMS*, while congruence between midwives and clients reached only levels of  $\geq 75\%$  for *HE*. Moreover, on item level congruence for both dyadic analyses was poor in about half of the cases. Therefore, this study shows incongruence about the exact nature of the gap between the theoretical prenatal counseling model and counseling in daily practice.

#### 4.3. Practice implications

Midwives should focus more on *DMS* to optimize appropriate counseling for prenatal anomaly screening. The best way to measure counselors' counseling practice might be by using three sources of information: counselors' self-assessment and assessments from both experts and clients.

#### Conflict of interest

The authors declare that there is no conflict of interest.

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#### Appendix A

*Dutch Setting* Since 2007 prenatal anomaly screening is offered to all Dutch pregnant women using an opting in approach [38–40]. Primary care midwives are the designated counselor within this prenatal anomaly test program in 80% of the pregnancies [3,25]. The screening program includes two non-invasive tests: the combined test (CT), a blood test and an ultrasound to measure the nuchal translucency, for determining the possibility of the child having Down Syndrome, (around 12th weeks gestational age), and the Fetal Anomaly Scan (FAS) for detecting physical anomalies (around 20th weeks gestational age). In the case of confirmatory diagnostic testing, two options are available: terminating pregnancy before 24 weeks of gestation, or health-oriented prenatal care for the fetus combined with prenatal and postnatal support. Although both tests are part of a population-screening program, they are not offered on the same basis. The FAS is free for all women, the CT has to be paid for (ca. 150 euro) by women younger than 36 years of age [39,40].

#### Appendix B Items of the QUOTE<sup>prenatal</sup> presented per counseling function: Health Education, Decision-making support and Client–Counselor relation

Health Education	
Q26	Explained which anomalies can be identified using prenatal screening
Q27	Explained which anomalies <u>cannot</u> be identified using prenatal tests
Q28	Provided medical information about the anomalies that are being tested for
Q29	Discussed possible negative implications of prenatal screening for the unborn child
Q31	Explained the usefulness of prenatal screening (what the client can decide to do eventually)
Q32	Told the client about all the different types of prenatal tests
Q33	Told the client how prenatal screening can affect her emotions and mental wellbeing
Q34	Told the client how much prenatal tests cost
Q35	Told the client about the incidence of birth defects in the Netherlands
Q36	Asked about clients family's history of birth defects
Q37	Explained how often congenital anomalies occur in pregnant women of clients age
Q38	Explained how the chances of a birth defect are calculated for our unborn child
Q39	Told the client about HER chances of having a child with a congenital abnormality during this pregnancy
Q40	Talked to the client about how HER risk of having a child with a birth defect will affect her
Q41	Told the client why she is or is not eligible for certain prenatal tests
Q42	Explained what will happen DURING the prenatal tests
Q43	Explained which prenatal tests will be done first and which will be done later, if required and/or necessary
Q44	Explain who will give the client the results of the prenatal tests and how (verbally, in writing or by telephone)
Q45	Explained how long the client may take to decide whether or not to have the prenatal tests
Q46	Explained how long the client may take to decide whether or not to terminate the pregnancy, should the test results show an abnormality
Q48	Discussed all clients options with regard to prenatal screening and the implications
Q13 <sup>**</sup>	Imparted information on prenatal testing
Q56 <sup>**</sup>	Only discussed specific information about follow-up tests and possible anomalies with the client if it becomes clear that the client will need them
Q58 <sup>**</sup>	Made sure that the topics the client consider to be important are discussed at length
Decision-making support	
Q3	Tell which websites the client can use to find information about prenatal screening and diagnostic
Q9	Advised the client about whether or not to take the prenatal tests
Q14	Enquired clients' standards, values and views on prenatal screening and diagnostic
Q22	Responded to what the client already knew about prenatal screening
Q30	Told the client what the Dutch government aims to achieve by providing prenatal tests
Q49	Talked to the client about how her family and she would react to a child with a birth defect
Q50	Asked the client to explain her decision to take/not to take the prenatal tests
Q51	Asked whether clients family, friends or other people close to her would support her decision about prenatal screening
Q52	Asked the client what for her constitutes a healthy child
Q53	Asked whether test results indicating that clients unborn child has a birth defect would cause problems with her conscience
Q54	Asked whether clients family, friends or other people close to her would support her decision to terminate the pregnancy if the child were to have a congenital abnormality
Q55	Asked how the client thinks she will react to the results of the prenatal tests
Q11 <sup>**</sup>	Was understanding about clients ideological background or religion
Q20 <sup>**</sup>	Asked the client questions that makes her think
Q21 <sup>**</sup>	Was interested in who the client is
Q25 <sup>**</sup>	Encouraged the client and her partner to talk together about prenatal screening
Client-counselor relation	

## Appendix B (Continued)

Health Education	
Q1*	Took plenty of time to answer clients questions
Q4*	Putted the client at ease
Q5*	Took clients concerns seriously
Q6*	Listened to what my client is trying to ask
Q7*	Was open and honest about every aspect of the pregnancy
Q8*	Gave the client enough time to explain herself properly
Q10*	Showed empathy
Q12*	Knew what the client is talking about
Q15*	Made clear that my client can ask anything she wants to know
Q16*	Used clear and comprehensible language
Q17*	Gave the client (additional) written information
Q18*	Told the client that she can always contact me with any questions she may have (including when the practice is closed)
Q19*	Accepted clients' decisions on whether or not to agree to prenatal screening
Q23*	Painted a realistic picture (not just through 'rose-tinted spectacles')
Q24*	Gave the client the feeling that she is tuning in to her as a person

\* Items of the QUOTE<sup>prenatal</sup> we did not use in the current study.

\*\* Items that were only taken into the analyses of midwives' self-assessments.

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