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Consistency of Information, Trust, and Perceived Quality of Maternity Care: A Mixed-Methods Study

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Research Article

Keywords: Maternity care, trust, information provision, behavioral science

Posted Date: November 23rd, 2026

DOI: https://doi.org/10.21203/rs.3.rs-11350745/v1

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Additional Declarations: No competing interests reported.

Manuscript for: **Consistency of Information, Trust, and Perceived Quality of Maternity Care: A Mixed-Methods Study**

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Preregistration
https://aspredicted.org/4i6ry8.pdf

This file includes:

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Tables 1, 2, 3

Abstract

Background

Pregnancy and childbirth are characterized by a high need for reliable information. Women receive information from a wide range of professional and informal sources such as apps and social media. This preregistered study examined whether perceived consistency of information, within and between professional and informal sources, is associated with trust in maternity care providers and perceived quality of care.

Methods

A mixed-methods design was used, consisting of a quantitative survey (N = 707) and qualitative semi-structured interviews (N = 13). We included validated measures where possible and used exploratory and confirmatory factor analysis if validated measures were absent. Linear regression analyses were conducted to examine the associations between: (1) consistency of information and perceived quality of care, (2) consistency of information and trust, and (3) trust and perceived quality of care. The interview guide was based on the quantitative phase and addressed trust in healthcare professionals, perceived quality of care, and perceived consistency of information.

Results

Findings show that higher perceived consistency of information from professional sources was associated with greater trust in both primary and hospital maternity care providers and with higher perceived quality of care. These findings remained robust after controlling for relevant covariates such as age, education age, country of birth, pregnancy-related characteristics and perspective on childbirth. Perceived consistency of

information from informal sources showed only a weak association with quality of care and was not associated with trust. Consistency of information between professional and informal sources was unrelated to either outcome. Qualitative findings, analyzed using directed qualitative content analysis, contextualized the quantitative findings by showing how women interpret informational inconsistencies and highlighted the importance of communication, care transitions, and coordination between healthcare professionals.

Conclusion

Consistency of information from professional sources appears important for fostering trust and positive evaluations of maternity care. The findings highlight the importance of a recognizable, trustworthy and accessible network of trustworthy information sources about pregnancy and childbirth. Rather than striving for complete uniformity, healthcare professionals should explain why recommendations may differ and provide opportunities for women to ask questions, which may reduce confusion and uncertainty while maintaining trust.

1. Background

Pregnancy is an exciting yet uncertain period in a woman's life. In most cases, it unfolds well, but a favorable outcome is never guaranteed. This uncertainty coincides with a multitude of factors that can shape both the process and the outcome, as well as an abundance of surrounding information. This makes pregnancy a complex period to navigate, one in which women must rely heavily on the information they receive and the professionals caring for them. In this context, access to accurate, timely, and trustworthy information is essential for women's decision making and well-being (1,2). Reliable information helps women understand what to expect and contributes to greater satisfaction with care (3), whereas information that is false, contradictory or incomplete has been associated with negative experiences, loss of autonomy and limited participation in decision-making (4,5).

Pregnant women are exposed to many different information sources, from both professional sources such as midwives and obstetricians, as well as informal sources such as social media, blogs, family and peers (6)/ The diversity of available information may make it difficult to distinguish reliable from less credible or even contradictory content. Exposure to misinformation may further amplify such contradictory messages. Although much research on health misinformation has focused on vaccines and infectious diseases (7) similar concerns may apply to maternity care (8). One analysis of 1200 online posts about medication use during pregnancy in the Netherlands showed that over 40% of content was inconsistent with national safety guidelines (9). Such inaccuracies may amplify the perceived gap between online content and professional medical advice. This study examines whether perceived consistency of information,

within and between professional and informal sources, is associated with pregnant women's trust in maternity care providers and their perceived quality of care.

Trust as a heuristic and principal agency theory

Under conditions of complexity, uncertainty and asymmetric knowledge, trust often functions as a 'heuristic', a cognitive shortcut that helps guide decisions in situations characterized by complexity, uncertainty, and asymmetric knowledge (10). In healthcare settings, patients frequently rely on trust in professionals when deciding whether to accept advice or recommendations. This matters because trust is consistently linked to how care is experienced. A meta-analysis showed that higher trust in healthcare professionals is associated with more positive evaluations of care quality and improved patient-reported outcomes (11). Within maternity care, trust has been linked to perceptions of respectful treatment and higher quality-of-care ratings (12,13). This perspective aligns with *principal agency theory* (14) which describes relationships in which a principal (the patient), depends on one or more agents (healthcare providers) to act in their best interests under conditions of information asymmetry. In maternity care, women often rely on multiple professionals such as midwives and obstetricians. Since they generally lack the expertise to fully evaluate medical information, they must trust these agents to interpret risks and provide recommendations.

Within this framework, consistency of information across care providers becomes particularly important. When different sources communicate similar information, this may signal a shared understanding of the best available evidence and that care is coordinated and reliable, thereby reinforcing trust and supporting positive evaluations of care quality. When providers give conflicting information, patients may find it

difficult to determine which source is more reliable. Such inconsistencies may be interpreted as a sign of disagreement or poor coordination, which can increase uncertainty, weaken trust and negatively affect how women evaluate the quality of care. Although prior research has examined the information sources women use during pregnancy (6), less is known about how perceived informational inconsistency relates to trust in and perceived quality of maternity care during pregnancy and childbirth. We therefore ask:

- To what extent is perceived informational consistency associated with pregnant women's trust in maternity care providers and their perceived quality of care?

We hypothesize that higher perceived consistency between information sources is associated with higher trust in care providers and higher perceived quality of care.

To explore the underlying mechanisms behind these associations, this study employs a qualitative follow-up within a mixed-methods design. By complementing quantitative findings with in-depth qualitative insights, it examines how women experience and interpret informational (in)consistency.

2. Methods

2.1 Research design

We employed a mixed-methods research design, consisting of (1) a quantitative section involving a survey (N = 707) and (2) a qualitative section (*N = 13*) involving semi-structured interviews with pregnant women or women who had recently given birth.

2.2.1 Quantitative section: participants, sampling, recruitment, and data collection

This study was conducted in the Netherlands within the Dutch maternity care system, in which low-risk pregnancy care is primarily provided by community midwives and women with increased medical risk receive secondary hospital-based care. Eligible participants were women who were currently pregnant or who had given birth within the past six months, and who had had at least one appointment with a midwife from primary care and/or an obstetrician or other professional from secondary or tertiary care (i.e. hospital care). Recruitment took place through a combination of professional networks, patient organizations, direct outreach to maternal care providers (e.g., midwives and obstetricians), and targeted media channels. Several national umbrella and professional organizations in maternity care were approached to support dissemination of the study. These organizations distributed the study invitation through their existing communication channels, including mass emails, newsletters, and/or website announcements. In addition, the study was shared twice with the maternity care client panel of the Dutch Patient Federation. Moreover, WIJ Special Media, a data-oriented media organization with a large database of pregnant women and parents of young children, distributed a research invitation emails. Finally, the study was promoted through social media.

2.2.2 Measures quantitative section

For the background variables, we included demographic variables such as age, country of birth, and highest completed education level. We also collected pregnancy-related characteristics, including stage of pregnancy, gravidity and parity. In addition, pregnant women may hold different perspectives on childbirth, i.e. whether they perceive it as a medical or natural process. We therefore added the Birth Beliefs Scale (6,15) as a

covariate, since this perspective could potentially affect trust in providers and perceived quality of care.

For the main variables, we included validated measures of **(1)** experienced quality of care (16), applied to the context of birth care, and **(2)** trust (17,18), also applied to the context of birth care). To our knowledge, no validated measurement instruments were available to assess **(3)** perceived consistency of information, either in general or specifically within the context of birth care. Therefore, we developed three subscales assessing:

- **(3a)** perceived consistency between professional sources (e.g., midwife, gynecologist, hospital),
- **(3b)** perceived consistency between informal sources (e.g., family/friends, peers, social media, apps)
- **(3c)** perceived consistency between professional and informal sources.

The categorization used to distinguish professional sources from informal sources was based on earlier research (6) and was adapted to the present study. Perceived consistency within professional and informal sources was assessed using parallel sets of items asking respondents to what extent they agreed with statements regarding the consistency of information they received. Example items included: “The information I received from [source] is consistent,”, “I mainly receive the same messages from [source],” and “The information from healthcare providers sometimes contradicts each other”. Perceived consistency between professional and informal sources was assessed by capturing the extent to which information from professional sources aligned with information from informal sources. We used exploratory and confirmatory factor

analyses to assess the dimensional structure and validity of these scales and refined them accordingly (see Additional file 1). The factor analyses shows that scales showed sufficient to good fit indices and internal consistency (Supplementary table SA8 in Additional file 1).

In addition, we conducted subgroup analyses among women who had experience with both primary and hospital care. For this subgroup, we included a measure of **(4)** perceived collaboration between primary care providers and hospital care providers (19), as continuity and collaboration across care levels may influence both trust in providers and perceived quality of care. All scales were measured using between three and five items rated on a five-point Likert scale. Scale scores were computed by averaging the items, resulting in scores ranging from 1 to 5, with higher scores indicating higher levels of the respective construct.

2.2.3 Data analysis quantitative section

Descriptive statistics were used to summarize the characteristics of the study population, presented separately for pregnant women and women who had recently given birth. Within the total study population, linear regression analyses were conducted to examine the associations between: (1) consistency of information and perceived quality of care, (2) consistency of information and trust, and (3) trust and perceived quality of care. Additionally, we tested whether the relationship between perceived consistency was moderated by trust (4) by adding an interaction term to the fully adjusted regression models. That is, whether the strength of this association

differed across levels of trust. For an illustrative overview of the hypotheses tested, see Fig. 1.

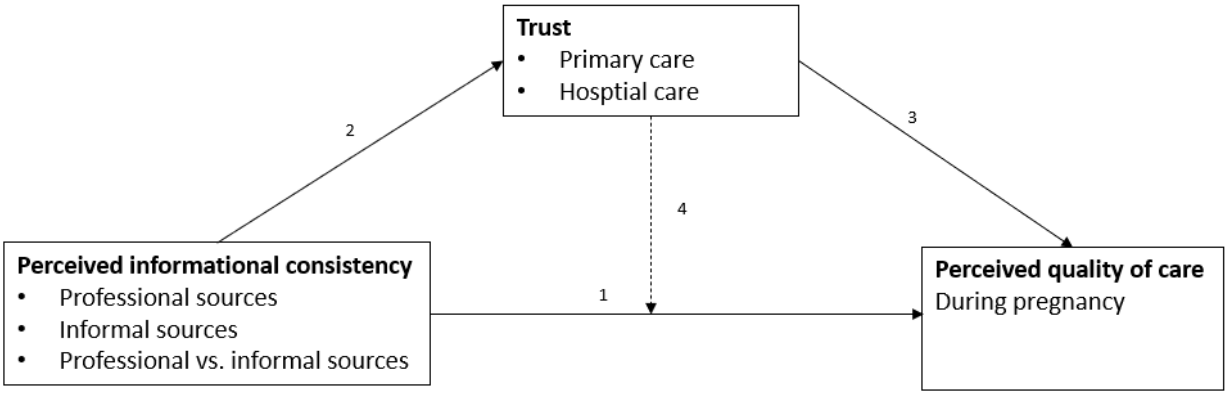


Fig.1 Conceptual model of perceived information consistency, trust, and quality of care.

Among the subgroup of participants who received both primary and hospital care, the same analyses were repeated. Furthermore, additional linear regression analyses were performed to examine the associations between: (4) consistency of information and perceived cooperation between primary and hospital care, and (5) perceived cooperation between primary and hospital care and perceived quality of care.

Each association was controlled for age, educational level, country of birth, parity, maternity phase (pregnant versus postpartum), and perspectives on childbirth (i.e. natural birth beliefs and medical birth beliefs). For the association between (4) consistency of information and perceived quality of care, two additional models were fitted in order to determine the independent effect of consistency of information. Model

2 included adjustment for trust, and Model 3 also included adjustment for perceived cooperation between primary and hospital care.

A two-sided p-value of <0.05 was considered statistically significant. All analyses were performed using IBM SPSS Statistics, version 29 (IBM Corp., Armonk, NY, USA).

2.3.1 Qualitative section: participants, sampling, recruitment, and data collection

Participants for the qualitative interviews were recruited through the questionnaire, in which they were asked whether they were open to participating in a follow-up interview. Those who agreed could leave their contact details. The qualitative researcher contacted potential participants, provided additional information about the interview study, confirm eligibility, and asked whether they were willing to participate. If participants agreed, an appointment was scheduled for an online interview via a videoconference meeting.

Participants were purposively selected to ensure variation in pregnancy and care experiences. Selection was based on pregnancy phase (across all three trimesters and postpartum), contact with primary and/or hospital care, educational level, and parity (first child versus previous childbirth experience). The qualitative interviews aimed to include at least 10 participants to obtain a broad range of experiences and perspectives related to pregnancy-related information and care experiences. In total, 13 participants were interviewed.

To minimize potential distress, participants received an information sheet with the interview invitation. This explained the study and noted that some pregnancy-related topics could feel personal or sensitive, so participants knew what to expect beforehand. Prior to the interview, participants provided informed consent for participation and audio recording. Participants were informed that they could pause or stop the interview at any time, without any consequences. Interviews were conducted online via Microsoft Teams by interviewer RO. The interviews lasted a mean of 48 minutes (range: 33–62 minutes), excluding the research introduction and verbal informed consent procedure.

2.3.2 Interview topics

Semi-structured interviews were conducted using an interview guide. The interview guide was informed by findings from the quantitative phase of the study and focused on concepts and topics that required further exploration or clarification. Specifically, the guide addressed trust in healthcare professionals, perceived quality of care, and perceived consistency of information (see the full interview guide in Additional file 3). Participants were encouraged to discuss additional topics and share experiences they considered important, allowing for the exploration of themes that went beyond the original quantitative constructs and conceptual framework.

2.3.3 Data analysis qualitative section

We used an explanatory mixed methods design, in which the qualitative interviews were conducted to further contextualize, elaborate on, and help interpret the quantitative findings. The interviews were analysed using Directed Qualitative Content analysis, as described in methodological literature (20). Initial coding was guided by the main concepts from the quantitative conceptual model (Fig 1.). At the same time, the analysis

remained open in the sense that new themes that emerged from the interviews were added and explored iteratively throughout the coding process. These themes either further specified the a priori concepts through new subthemes or were added as new subthemes alongside the initial coding framework.

To strengthen the rigor of the analysis, the first three interviews were independently coded by the interviewer (RO) and an additional researcher (TdV) who was not otherwise involved in the project. Any data that could not be categorized within the initial coding framework was assigned a new code and incorporated into the developing coding structure. The coding and interpretations of these interviews were subsequently compared and discussed during peer debriefing sessions, in line with recommendations for rigor in directed qualitative content analysis (21). Through discussions between researchers, codes were further refined, merged, reorganized, or expanded, resulting in a coding tree that formed the basis for coding the remaining ten interviews. Regular discussions with the senior qualitative researcher (SM) took place throughout the analysis process to reflect on coding decisions and interpretations, another strategy described in the literature (21) to enhance rigor in qualitative content analysis.

2.4. Large Language Models

The authors used a closed LLM from the “INSTITUTION MADE ANONYMOUS”. to streamline and improve the language and readability. The authors applied human oversight and control throughout this process.

3. Results

3.1 Descriptive statistics

In total, 1246 women responded to the questionnaire. After removing records without informed consent (n = 149), that did not meet inclusion criteria and missed data on essential variables (n = 390), our sample consisted of a total of N = 707 women (371 pregnant women and 336 postpartum women). Descriptive characteristics of our sample are reported Table 1. The mean age was 32 years. Most women in our sample completed higher vocational education or higher (74%) and were born in the Netherlands (94%).

Table 1. Sample descriptives

Variable	**Category**	**Total (N = 707)**	**Pregnant women (n = 371)**	**Postpartum women (n = 336)**
Age (years)	Mean (SD)	31.9 (4.0)	31.7 (3.8)	32.2 (4.1)
	Median	32	32	32
Education	Secondary education or lower	182 (25.7%)	90 (24.3%)	92 (27.4%)
	Higher vocational education or higher	525 (74.3%)	281 (75.7%)	244 (72.6%)
Country of birth	Netherlands	666 (94.2%)	341 (91.9%)	325 (96.7%)
	Other country	41 (5.8%)	30 (8.1%)	11 (3.3%)
Parity	0 previous births	440 (62.2%)	218 (58.8%)	222 (66.1%)
	1 previous birth	207 (29.3%)	121 (32.6%)	86 (25.6%)
	≥2 previous births	60 (8.5%)	32 (8.6%)	28 (8.3%)
Stage of pregnancy	First trimester	54 (7.6%)	54 (14.6%)	
	Second trimester	141 (19.9%)	141 (38.0%)	
	Third trimester	176 (24.9%)	176 (47.4%)	
	Given birth	336 (47.5%)		336 (100%)
Care provider*	Primary care only	293 (41.4%)	191 (51.5%)	102 (30.4%)
	Hospital care only	32 (4.5%)	19 (5.1%)	13 (3.9%)

Both primary and hospital care	382 (54.0%)	161 (43.4%)	221 (65.8%)

***Note.** Within the Dutch maternity care system, care is organized across primary care and hospital care levels. Midwives provide primary care to women with uncomplicated pregnancies, while obstetricians and hospital-based professionals deliver hospital care when medical risks arise.

Table 2 presents descriptive statistics for the main study variables. Participants in both groups generally reported mostly positive perceptions across all variables. Perceived informational consistency was highest for professional sources (M=3.8, SD=0.7) and lowest for the comparison between professional and informal sources (M=2.9, SD=0.8), indicating that women perceived more consistent information from professional care providers than when comparing professional with informal sources such as peers, blogs and apps. Both pregnant and postpartum women reported high levels of trust in their primary care providers (midwives), with mean scores of 4.4 (SD=0.5) and 4.6 (SD=0.6) respectively. Perceived cooperation between primary and hospital care providers was rated on average positively (M=4.1, SD=0.8) in both groups. Ratings of quality of maternity care were high overall, with mean scores of 4.3 (SD=0.6) during pregnancy and 4.3 (SD=0.8) for care during birth.

We report unstandardized regression coefficients (B), which reflect changes on the original measurement scale: a one-unit increase in the independent variable is associated with a B-unit change in the dependent variable.

Table 2. Descriptive statistics of main variables, stratified for pregnant and postpartum women.

Variable	**Total** (N = 707) Mean (SD) Median	**Pregnant women** (n = 371) Mean (SD) Median	**Postpartum women** (n = 336) Mean (SD) Median
Perceived informational consistency professional	3.8 (0.7) 4.0 n=661	3.9 (0.7) 4.0 n=350	3.8 (0.8) 4.0 n=311
Perceived informational consistency informal	3.3 (0.8) 3.5 n=670	3.3 (0.8) 3.3 n=357	3.3 (0.8) 3.5 n=313
Perceived informational consistency Professional vs. informal	2.9 (0.8) 3.0 n=660	2.9 (0.8) 3.0 n=349	2.8 (0.8) 3.0 n=311
Trust in primary care provider	4.5 (0.6) 4.7 n=675	4.4 (0.5) 4.3 n=351	4.6 (0.6) 5.0 n=324
Trust in hospital care	4.3 (0.7) 4.3 n=414	4.2 (0.7) 4.0 n=175	4.4 (0.7) 4.7 n=239
Perceived cooperation between primary and hospital care	4.1 (0.8) 4.0 n=382	4.1 (0.7) 4.0 n=161	4.0 (0.8) 4.0 n=221
Perceived quality of care during pregnancy	4.3 (0.6) 4.2 n=707	4.3 (0.6) 4.2 n=371	4.4 (0.7) 4.4 n=336
Perceived quality of care during childbirth	4.3 (0.8) 4.4 n=336	—	4.3 (0.8) 4.4 n=336

***Note.** All variable scores ranged from 1 to 5 with higher scores indicating higher levels of the construct (e.g., a score of 5 indicates higher perceived consistency). The n of the variables varies due to some women lacking experience with specific informational sources or having no interaction with either primary or hospital care.

3.2 Quantitative analyses

We summarize our findings in Fig. 2 and Table 3.

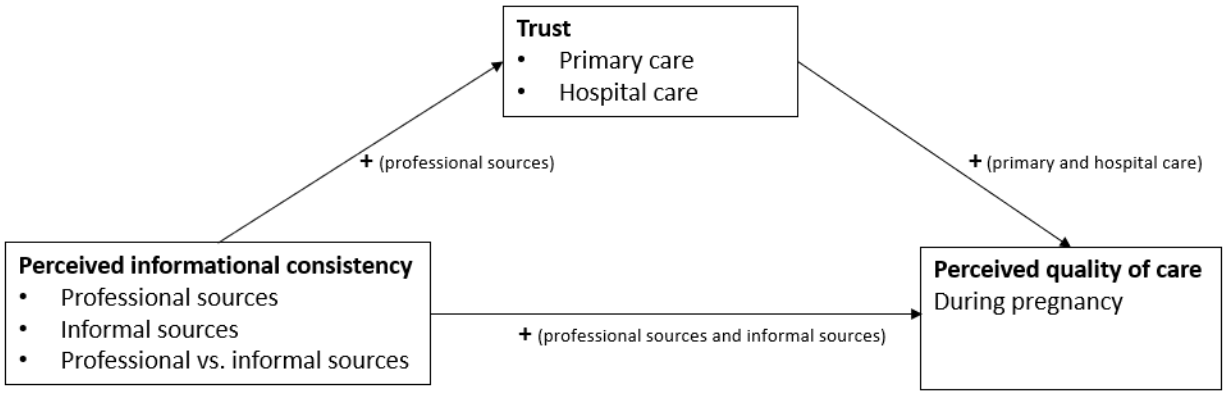


Fig. 2. Model of perceived information consistency, trust, and quality of care. + indicates a positive association.

Perceived quality of care

Higher perceived consistency of information from professional sources was significantly associated with higher experienced quality of maternity care (B = 0.37, 95% CI [0.31, 0.43]). A weaker, but significant, association was found for consistency of information from informal sources (B = 0.07, 95% CI [0.02, 0.13). No significant association with quality of care was observed for perceived consistency between professional and informal sources (B = 0.03, 95% CI [-0.03, 0.08). Trust in both primary (B = 0.68, 95% CI [0.62, 0.74]) and hospital care providers (B = 0.59, 95% CI [0.52, 0.67]) was strongly associated with higher perceived quality of care.

Trust in maternity care providers

Perceived consistency of information from professional sources was associated with higher trust in both primary (B = 0.25, 95% CI [0.19, 0.31]) and hospital care providers (B = 0.33, 95% CI [0.25, 0.41]). No significant associations were found between perceived consistency of information from informal sources or between professional and informal sources and trust in either care provider.

Moderation of trust

To examine whether the associations between perceived informational consistency and quality of care were moderated by trust, interaction terms were added to the fully adjusted regression models (see supplementary table SC2). We find no significant moderation effects for the interaction terms (all $p > .05$) with one exception: a significant interaction effect was observed between perceived consistency of information from informal sources and trust in primary care providers (B = -0.09, 95% CI [-0.17, -0.01]), indicating that the association between perceived consistency of informal sources and quality of care weakened as trust in primary care providers increased.

Women with both primary and hospital care

Within the subgroup of women who had experience with both primary and hospital care, informational consistency from professional sources was positively associated with perceived cooperation between primary and hospital care providers (B = 0.41, 95% CI [0.32–0.51]). Next, we tested whether the association between informational consistency from professional sources and quality of care in this subgroup (B = 0.35, 95% CI [0.27–0.42]), remained robust independent of trust in and perceived cooperation between primary and hospital care (supplementary table SC3). When trust in care providers was added to the model (Model 2), the strength of the association

strongly decreased (B = 0.15, 95% CI [0.08–0.21]), suggesting that trust is associated with a reduction in the observed effect of informational consistency on perceived quality of care. After further adding the perception of cooperation between primary and hospital care (Model 3), the association weakened further (B = 0.10, 95% CI [0.04–0.17]), but remained significant.

Table 3. Regression analyses between perceived informational consistency, trust and quality of care

Outcome variable	Predictor	n	B	95% CI	p
Perceived quality of care (during pregnancy)	**Perceived consistency** Professional sources	661	0.37	[0.31, 0.43]	< .001
	Perceived consistency Informal sources	670	0.07	[0.02, 0.13]	.011
	Perceived consistency Prof. vs. informal	660	0.03	[-0.03, 0.08]	.311
	Trust in primary care provider	675	0.68	[0.62, 0.74]	< .001
	Trust in hospital care	414	0.59	[0.52, 0.67]	< .001
Trust in primary care	**Perceived consistency** Professional sources	629	0.25	[0.19, 0.31]	< .001
	Perceived consistency Informal sources	639	0.01	[-0.04, 0.06]	.768
	Perceived consistency Prof. vs. informal	630	-0.02	[-0.07, 0.04]	.572
Trust in hospital care	**Perceived consistency** Professional sources	410	0.33	[0.25, 0.41]	< .001
	Perceived consistency Informal sources	398	0.04	[-0.04, 0.12]	.307
	Perceived consistency Prof. vs. informal	397	-0.01	[-0.09, 0.07]	.887

Note. B = unstandardized regression coefficient. CI = confidence interval. All models were adjusted for age, education, country of birth, parity, pregnancy phase (pregnant/postpartum), and birth beliefs. The sample size for certain variables may vary due to some women lacking experience with specific informational sources or having no interaction with either primary or hospital care.

3.3 Qualitative findings

Participants

For the qualitative component of this study, 13 women were interviewed from the larger sample of women who participated in the quantitative survey. Participants varied in age,

parity, and experiences with maternity care, including primary care, hospital-based care, or both. Participant characteristics at the time of the interviews are presented in Table 4. Participants were recruited based on the pregnancy trimester they reported in the questionnaire. As some time elapsed between completing the questionnaire and participating in the interview, several women who had completed the questionnaire in the late second or third trimester had given birth by the time they were interviewed. As a result, the interview sample included a relatively large number of postpartum women. This was intentional, as transitions between primary and secondary maternity care frequently occur around labour and birth, enabling these women to reflect on their experiences with these care transitions. All participants had received at least primary midwifery care during their pregnancy.

Participant	**Age**	**Phase of pregnancy**	**Parity**	**Educational level**	**Contact with secondary care**	**Transferred to secondary care**
P01	28	Post-partum	2	3	Yes	Yes
P02	32	Post-partum	1	4	Yes	Yes
P03	32	Second trimester	2	5	No	No
P04	35	Post-partum	2	3	No	No
P05	30	Post-partum	2	3	No	No
P06	32	Post-partum	1	5	Yes	Yes
P07	33	First trimester	2	5	No	No
P08	30	Post-partum	1	3	Yes	Yes
P09	32	Third trimester	0	4	No	No
P10	34	Post-partum	2	4	No	No
P11	33	Second trimester	0	5	No	No
P12	27	Post-partum	1	4	Yes	Yes
P13	34	Second trimester	0	2	Yes	No

Table 4. Participant characteristics at the time of the interviews. Note. Parity refers to the number of previous births a woman has had, excluding the current pregnancy. Educational attainment was coded on a five-level ordinal scale: 1 = primary education; 2 = lower secondary education; 3 = upper secondary education; 4 = bachelor's degree (tertiary education); and 5 = master's degree or doctoral degree (tertiary education).

During the qualitative content analysis, it became clear that participants discussed informational (in)consistency within the broader context of how they obtained, interpreted, and used information during pregnancy. As a result, the initial focus on informational consistency was broadened into a wider theme related to information, including the subthemes information needs and information-seeking, sources and forms of information, information overload, information inconsistency and impact and coping. The qualitative findings were then organized into three overarching domains: experiences with maternity care, trust and information (Fig. 3).

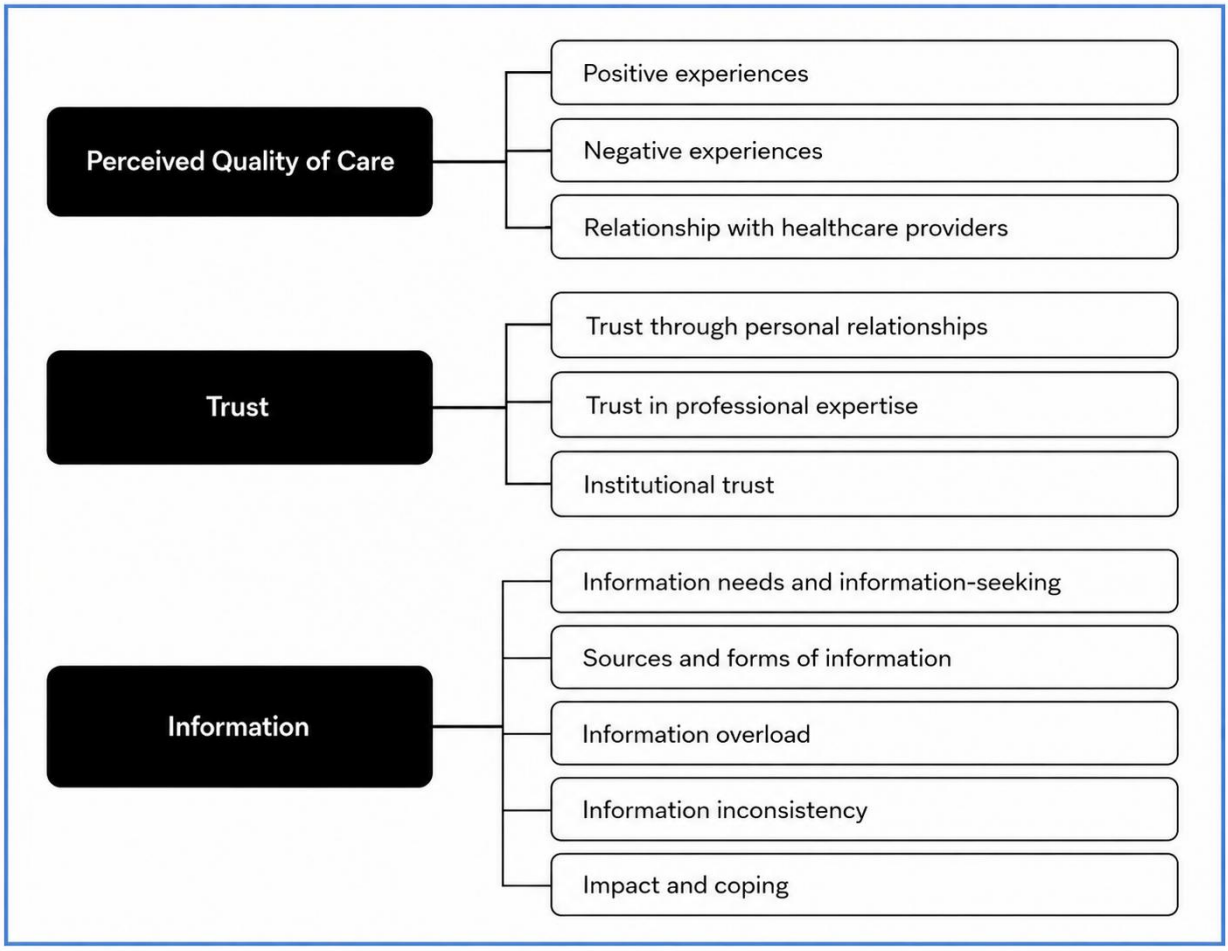


Fig 3. Code tree of the thematic analysis.

Theme 1. Perceived quality of care

Positive experiences

The majority of the participants spoke positively about their experiences with maternity care, particularly in relation to their midwife from primary care. Women appreciated healthcare professionals who were approachable, kind, and willing to take time for questions or concerns. Feeling taken seriously and emotionally supported contributed strongly to positive experiences. Several respondents described their midwife as a

reassuring and familiar presence throughout pregnancy, which helped them feel calmer and more confident.

"Yes, I get the impression that things are really well organized in the Netherlands. And that different parties work together well. (…) Overall, I'm very satisfied with the support that is available and the different places where you can ask for advice. And as I said, I also find midwives very approachable people." (P07)

Negative experiences

Alongside positive experiences, participants also shared moments in which they felt unheard, dismissed, or insufficiently supported. Some women felt that their concerns or symptoms were minimized, especially when emotional experiences or insecurities were not fully acknowledged. Others described consultations as rushed, leaving little room for discussion or reassurance. These experiences sometimes resulted in frustration, insecurity, or disappointment with the care they received.

"So when I look back on it now, I think that it was only once I arrived at the hospital, when things had already progressed quite far, that I really started to be taken more seriously." (P01)

Relationship with healthcare providers

The relationship with healthcare providers seemed to play an important role in how women experienced maternity care overall. Participants often talked about the importance of continuity of care, familiar faces, and having a personal connection with their provider. Feeling comfortable with a healthcare professional made it easier to ask questions, discuss concerns, and trust the advice they received. Midwives were often

described not only as medical professionals, but also as trusted guides who offered emotional support and helped women navigate the uncertainties of pregnancy.

Theme 2. Trust

Participants described trust as a central aspect of how they navigated information and care during pregnancy. Trust emerged in different ways, including through personal relationships with healthcare professionals, confidence in professional expertise, and trust in larger healthcare institutions and official information sources.

Trust through personal relationships

Many participants described trust as something that developed through ongoing contact with healthcare professionals, particularly their midwife. Because women often saw the same midwife(s) throughout pregnancy, trust frequently grew over time and made it easier to discuss questions, uncertainties, or concerns. Participants described how having a familiar healthcare professional gave them confidence that they would receive advice that was relevant to their situation.

"I think that because of the relationship you build with someone, you feel like you can trust them, which also makes it easier to ask questions and trust that they will give good answers, or at least answers that help you move forward. (...) So I would say that I really trusted the person when it came to the information, more than the technical side of the information itself." (P12)

For many women, trust was therefore not only about receiving accurate information, but also about feeling comfortable enough to ask questions and discuss decisions openly.

Several participants described their midwife as an important source of reassurance who helped them navigate uncertainty throughout pregnancy.

Trust in professional expertise

At the same time, participants expressed strong trust in the expertise of healthcare professionals. Midwives, obstetricians, and hospital staff were generally viewed as knowledgeable and reliable sources of information. Participants often assumed that recommendations were grounded in professional expertise and experience, which made it easier for them to rely on the advice they received.

"In the end, they're professionals too, so there's also a bit of that white-coat effect. You tend to take their advice at face value because you assume they know what they're doing. So, in the end, I mostly got my information from them." (P03)

Whereas trust in midwives was frequently connected to an ongoing relationship, trust in hospital professionals on the other hand appeared to be based more on their specialist role and medical expertise. Contact with hospital-based care often took place in more urgent or medically complex situations, leaving less opportunity to build a personal relationship.

Trust in professional expertise was not unconditional. Some participants described moments in which they questioned medical advice, particularly when recommendations differed between healthcare professionals or conflicted with their own experiences, feelings, or intuition.

"Then we had two different maternity care assistants. They were both really great, but one was quite young and had been working in the profession for about four years, while

the other had around twenty or thirty years of experience. They both gave really good advice, but they completely disagreed with each other. (…) We were really left thinking, 'What are we supposed to do with this?' (P12)

Institutional trust

Participants also described trust in larger healthcare institutions and official sources of information, such as government websites or national health organizations. In general, these sources were viewed as more reliable than information found on social media, online forums, or through influencers, mainly because they were associated with scientific research and professional guidelines.

Theme 3. Information

Information needs and information-seeking

All participants described a strong need for information throughout pregnancy, particularly regarding childbirth, miscarriage risk, mental health, and the postpartum period. Women with multiple children frequently mentioned that this need for information was strongest during their first pregnancy, as they themselves felt more uncertain at the time and simply did not yet know what to expect.

"With my first pregnancy, I looked up a lot of things. Now, I hardly look anything up anymore." (P11)

Many women described searching for information as a way to cope with uncertainty during pregnancy. Online searching, reading experiences of others, and attending childbirth education classes were frequently used to gain reassurance and reduce

feelings of insecurity. Several participants explained that collecting information helped them feel more prepared for labour and motherhood.

"I think I'd rather have too much information than too little. That way, I can still decide for myself what I want to take in and what I want to act on. So yes, I'm glad those kinds of apps exist. But could I have managed without them? Yeah, probably." (P06)

Sources and forms of information

Participants used many different sources of information throughout pregnancy. Formal sources, such as midwives, obstetricians, and official healthcare websites, were generally seen as more reliable because they were associated with medical expertise and scientific evidence.

"I think at some point I asked our own midwife. Then at least I already had someone I trusted, or someone I felt good about. So in my opinion, that's better than asking and looking things up everywhere and from everyone." (P02)

At the same time, participants valued informal sources, including social media, online communities, friends, and family members, for reasons that differed from the information they received from healthcare professionals. While professional sources were often consulted for medical advice and personalized recommendations, participants described using informal sources to hear about the experiences of others, gain reassurance, and feel less alone in their concerns. Several women explained that conversations with friends who had been pregnant were valuable not necessarily because they provided new information, but because they offered recognition and a sense of normality.

"And that you can talk about it together: that it's not always fun, and that sometimes it's okay to admit that it can be really hard. That you can think: actually, I'm not enjoying this at all. And why does everything have to be this way? Being able to talk openly about the fact that it's not always this perfect, romantic picture is actually really nice. It helps to know that other women feel the same way too. In that sense, you don't feel like you're the only one experiencing it like that." (P04)

Participants also frequently searched for information online. Women described using websites, apps, and online forums to learn more about physical changes during pregnancy, fetal development, symptoms, and practical questions. However, several participants noted that online information often consisted of averages and general recommendations, which did not always reflect their personal situation.

Childbirth education classes were frequently mentioned as a helpful addition to the information women received within maternity care. Participants appreciated these courses because they provided practical information, created space for discussion, and allowed women to hear about the experiences of others. Experiential knowledge was often experienced as particularly valuable because it helped normalize insecurities and made women feel less alone in their experiences.

Information overload

A recurring finding across interviews was that participants felt that they were frequently confronted with large amounts of information. Women described receiving information from healthcare professionals, online platforms, social media, apps, and people within their personal environment.

In many cases, participants felt overwhelmed by the large number of options, recommendations, and perspectives they were confronted with during pregnancy. Several women explained that this was particularly challenging in situations where there was no clear 'right' answer. For example, participants described searching for ways to manage pregnancy symptoms such as nausea and encountering many suggestions, treatments, and experiences online. Even when information was not directly contradictory, the large number of possible options sometimes created uncertainty about which choice would be best or most reliable.

"I honestly don't want to say that I'm particularly smart, or above average, not at all, actually, but how do people manage who don't speak the language, or who are illiterate, or, well, maybe less educated? How do you navigate this maze of information? I found myself wondering that all the time. I kept thinking: you just get blown in every direction. But maybe someone else is better at making sense of it, I don't know. There's just too much information, I think, and it's not always reliable information either." (P02)

Information inconsistency

In addition to information overload, most participants described situations in which they encountered inconsistent information. Women spoke about receiving different recommendations from healthcare professionals, online platforms, social media, and people within their personal environment. When it came to informal sources (e.g. social media, websites, or friends), all women agreed that the information they encountered online was regularly inconsistent, both internally and in relation to professional sources.

“I think, if I had to summarize it in one word, it can be confusing. […] Because it’s a period in which you really want to do things right for your child, whom you haven’t even met yet. […] And then receiving different information is very confusing and actually makes you feel more uncertain, rather than more confident.” (P02)

Women indicated that, although conflicting information from social media, websites, or friends could be confusing, they often expected these sources to contain different opinions and experiences. In contrast, inconsistencies between healthcare professionals were experienced as more problematic because healthcare providers were generally viewed as the most trusted source of information during pregnancy.

Some participants described receiving different advice from general practitioners and midwives, while others experienced differences between primary and hospital care. These inconsistencies often led to confusion and uncertainty, particularly when participants were unsure which advice to follow. Several women interpreted differences in advice as a sign that communication between healthcare professionals was not always well coordinated.

“The maternity care assistant and our own midwife weren’t very happy about it. It kind of turned into a discussion about, well, who was in charge and who was right. In the end, I was given medication in the ambulance to stop the bleeding. But according to our own midwife, that wasn’t really necessary, because I wasn’t bleeding that much. (…) So that was quite a big difference too; the contrast between taking a more hands-off approach and stepping in medically straight away. And when you’ve just given birth, you just go along with it all, of course.” (P02)

Impact and coping

Participants described using different strategies to deal with the large amount of information they encountered during pregnancy. While some women actively searched for additional information to feel more informed or prepared, others deliberately limited their exposure to (online) information when they noticed it increased feelings of uncertainty or stress.

Participants described checking information with their midwife when they encountered conflicting advice or were unsure how to interpret information found elsewhere. Others discussed information with their partner, friends, or family members before making decisions.

Several women emphasized that online information often reflected averages rather than individual experiences, which made it difficult to determine how relevant it was to their own situation. Participants therefore described becoming increasingly selective in the information they engaged with, choosing sources they perceived as useful while ignoring information they considered irrelevant, unreliable, or overly alarmist.

4. Conclusion

We examined how perceived informational consistency across sources relates to trust in maternity care and perceived quality of care. Women's experience of care during pregnancy and childbirth is shaped by many factors, including their expectations (22), social support (23) and qualitative care from health care providers (24). The present study focuses on one key issue that intersects with these factors: information provision. While access to diverse information can support informed decision-making, the sheer abundance of available content may also lead to information overload (25) and make it

difficult to distinguish reliable guidance from less credible or contradictory content (26). This is illustrated by findings of the Dutch Patient Federation, who reported that while roughly half of pregnant women value the diversity of available information, the other half perceives it as overwhelming, unreliable or even contradictory, leading to confusion or insecurity (27).

Our data shows that higher perceived consistency of information from professional sources is consistently and strongly associated with both higher trust in care providers and higher perceived quality of care during pregnancy. This association remained robust after controlling for relevant demographic factors. We find a small but significant association for consistency of information from informal sources with quality of care, but no significant results for the relationship with trust. Perceived consistency between professional and informal sources was not significantly associated with trust or quality of care. Overall, **women in our study reported high levels of trust in maternity care providers and generally positive evaluations of the quality of Dutch maternity care.**

The qualitative findings helped contextualize these quantitative associations by showing that women did not experience informational consistency simply as whether information was consistent or inconsistent. Instead, **participants described informational consistency in relation to trust in healthcare professionals, communication between providers, and experiences of coordination within maternity care.** In this context, midwives were often described not only as providers of medical information, but also as trusted guides who also helped women interpret and contextualize information from different sources. At the same time, **women described**

a tension between their need for information and the stress that information could also create. Women actively searched for information about topics such as miscarriage, mental health, pregnancy related complaints or complications and childbirth, often as a way to gain a sense of control and reduce uncertainty. In this context, exposure to large amounts of information, conflicting advice, and difficulties in assessing the reliability of information sources could also increase feelings of uncertainty and stress.

The role of trust and informational consistency

Our quantitative findings indicate that consistency of information from professional sources plays a central role in shaping both trust and women's evaluations of the quality of maternity care, whereas consistency of informal sources or between professional and informal sources appears less influential. This suggests that although women are exposed to many different sources of information during pregnancy and childbirth, the coherence of information within the professional care system is the primary driver of both trust and perceived quality of care. Thus, when information provided by different healthcare professionals (e.g., midwives and obstetricians) is inconsistent or contradictory, this may undermine women's trust in care providers and negatively affect their evaluation of the care they receive. Additional analyses show that the association between consistency of information from professional sources and quality of care became substantially smaller after adjusting for trust in care providers. This suggests that part of the effect of informational consistency on quality of care may operate through trust, and that consistent communication between healthcare professionals may strengthen women's

trust in care providers. This interpretation is further supported by the qualitative findings, in which participants described how continuity of care, familiar healthcare professionals (mainly midwifes) and relational communication helped them deal with uncertainty during pregnancy and childbirth. Consistent with the notion that trust serves as a mechanism for reducing complexity in uncertain situations (10), trust appeared to be shaped not only by the information women received, but also by their relationships and communication with health care professionals.

We argue that our findings provide support for insights derived from agency theory and notions of trust as a heuristic. In maternity care, women (principals) depend on multiple healthcare providers (agents) who possess greater expertise and access to information. Under such conditions of information asymmetry, patients must rely on professional 'agents' to act in their best interest. Our findings suggest that consistency in information across professional agents serves as a signal of alignment and reliability. This aligns with previous research showing that communication and collaboration between maternity care providers are important for patients' experiences of trust and quality of care (28,29). When different providers communicate similar information, this may indicate that they share a common understanding of best practices and that they act in the best interest of the patient, which reduces uncertainty and supports trust. This may be particularly relevant in maternity care, where women often interact with multiple professionals across different stages of care and continuity is not always guaranteed (30).

Strengths and limitations

This study has several strengths. First, the mixed methods design enabled us to combine breadth and depth: the survey provided insights into patterns of information use, perceived consistency, trust, and quality of care, while the interviews allowed for an in-depth exploration of how women experience and interpret informational inconsistencies and how these experiences relate to trust and decision-making in maternity care.

This study also has several limitations. First, the correlational and cross-sectional nature of the quantitative study prevents causal conclusions from being drawn. Although we hypothesized perceived informational consistency as a factor in shaping trust and perceived quality of care, the reverse direction might also be possible. Women who already hold a high level of trust in their care providers or who evaluate their care positively may in turn perceive the information they receive as more consistent. Second, highly educated women and women born in the Netherlands were overrepresented in our sample, which limits the generalizability of the findings. According to Statistics Netherlands, 58% of women between 25 and 45 years old have completed higher professional education or university. In our sample, this proportion was and 74%. Similarly, 78% of women in this age group were born in the Netherlands and 22% were born abroad, compared with 94% and 6% respectively in our sample. Women with lower educational levels or from migrant backgrounds may rely differently on information sources and may experience informational inconsistency in different ways. This is particularly relevant given recent research showing that women with non-Dutch ethnic backgrounds are overrepresented among those reporting negative childbirth experiences in the Netherlands (31). Finally, although we adjusted for several relevant covariates, we could not account for other potentially important factors, such as health

literacy or previous traumatic experiences, which may also influence trust, information experiences, and perceived quality of care.

Implications for policy and practice

Women appear to rely primarily on maternity care professionals, while also increasingly seeking information through online sources such as apps, websites, and social media, which is in line with previous research showing that online information use is highly prevalent during pregnancy (32). Moreover, while professional sources were often consulted for medical advice, participants described the benefits of talking to peers to hear about the experiences of others because these conversations offered recognition and a sense of normality. This highlights the importance of initiatives such as CenteringPregnancy, an evidence-based model in which midwives guide groups of pregnant women, with the aim of exchanging not only medical knowledge but also personal experiences. In some cases, women may not actively seek additional information but are still confronted with large amounts of pregnancy-related content online. This growing exposure to digital information highlights the importance of making reliable and professionally endorsed information easy to recognize and access online, particularly as online pregnancy information may also contribute to feelings of uncertainty or anxiety (33,34). Greater visibility of validated and professionally endorsed information across digital platforms may help women better navigate complex information environments and support trust in professional guidance, especially for women in their first pregnancy.

Within this broader and sometimes fragmented information environment, coherent communication between healthcare professionals may become even more important.

However, it is important to acknowledge that complete consistency across healthcare professionals is neither feasible nor necessarily desirable, as different professional perspectives may legitimately lead to variation in advice. Our results suggest that the coherence of communication, at least within maternity care, plays a central role in shaping trust and perceived quality of care. The qualitative findings highlight that inconsistencies in information were particularly experienced as problematic when differences in advice were not explained or when communication between healthcare provides appeared fragmented, often leading to feelings of uncertainty, confusion or stress. Rather than striving for complete uniformity in communication, these findings suggest that providing women with more explanation or context about why advice differs between professionals may help them better navigate these differences and maintain trust in maternity care. Asking about potential differences could therefore improve women's experiences. Policymakers could therefore consider investing in initiatives that support clearer communication between healthcare professionals, for example through shared knowledge exchange programs, joint training initiatives and perhaps informal exchanges, while healthcare providers themselves should aim to explain differences in advice to patients in a clear and coordinated way.

Ethics approval and consent to participate

This study was approved by the Ethics Committee of the University of Groningen, Campus Fryslân (reference cf-ucg.2025.0041). All participants provided informed consent to participate and for the qualitative interviews, to have the sessions audio-recorded. Respondents who did not provide informed consent in the questionnaire were not permitted to proceed with the survey.

Competing interests

The authors declare no competing interests.

Funding

This study was funded by the Dutch Ministry of Public Health, Welfare and Sport. The funder had no role in the study design, data collection, analysis, interpretation of the data, preparation of the manuscript, or decision to submit the manuscript for publication.

Authors Contributions

[Anonymized]

Availability of data and materials

The anonymized quantitative dataset supporting the findings of this study will be made available in the Open Science Framework repository OSF page. The qualitative interview data are not publicly available because they contain potentially identifiable and sensitive participant information.

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