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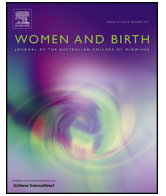
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## Original Research

# Measuring respect and autonomy in Dutch maternity care: Applicability of two measures



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## ABSTRACT

**Problem:** In the Netherlands there are no valid measurement tools available to measure respectful maternity care and women's autonomy.

**Background:** Respectful maternity care including women's autonomy during childbirth are key components of high quality care.

**Aim:** This study aims to evaluate the applicability of the Canadian measures; the Mothers Autonomy in Decision Making (MADM) scale and the Mothers on Respect index (MORi) measures among pregnant women in the Netherlands.

**Methods:** We translated the measures MORi and MADM according to the WHO guidelines, adapted them to the Dutch health care system, evaluated their psychometric properties, and pilot tested before administration through an online cross-sectional survey. We assessed feasibility by calculating descriptive statistics on scores, and reliability by calculating Cronbach's alpha. The construct validity was measured by hypotheses on differences between subgroups based on maternal characteristics, pregnancy characteristics and healthcare provision.

**Findings:** Of 557 women included in the study, 83% experienced high respect and 62% experienced high autonomy. Both the MORi and MADM showed feasibility, internal consistency, and with respect to construct validity, both measures discriminated between type of care provision. Compared to women with pregnancy complications, those with a healthy pregnancy reported statistically higher MORi-scores. No differences were observed on MADM-scores.

**Discussion:** Both instruments can be used as quality of care measures aiming to improve care and thus experiences of women.

**Conclusion:** The results of this study support the feasibility, reliability, and to a certain extent known group validity of the Dutch MORi and MADM measures in pregnant women.

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## Statement of significance

**Problem**

Currently, in the Netherlands there are no valid measures available to measure women's experiences of respectful maternity care and women's autonomy.

**What is already known**

It is important to be able to measure respectful maternity care and women's autonomy since these are key components of high quality care.

**What this paper adds**

Evidence that the MORi and MADM are applicable within the Netherlands to assess autonomy and respect in pregnant women. The vast majority of the women (83%) experienced high respect, and 62% of the women experienced high autonomy.

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## 1. Introduction

Respectful maternity care and women's autonomy have been elevated as key components of high quality care [1]. The WHO (2018) defines respectful maternity care as care that maintains a woman's dignity, privacy and confidentiality, ensures freedom from harm and mistreatment, and enables informed choice and continuous support during labour and childbirth [2]. Facilitating informed choice is one of the factors associated with experiences of respectful maternity care [3]. Within the NICE guideline Intrapartum care for healthy women and babies, informed choice is defined as the right of the woman to be involved in making choices about her care [3].

To assess respectful maternity care and women's autonomy and role in decision making during maternity care, Vedam et al. developed two measures: the Mothers on Respect Index (MORi) [4] and Mothers Autonomy in Decision Making scale (MADM) [5]. These measures were designed by service users in Canada to assess the lived experiences of provider-patient relationships and communication. They demonstrated good psychometric properties in a diverse Canadian population of women in the antenatal, natal, and postnatal periods. In the original questionnaire women could report on their experiences during three pregnancies including the current (if applicable). For maternity care, the MORi and MADM are the only patient-driven quantitative, validated scales available to assess the complex concepts of patient autonomy and respect. Within the Canadian population, overall, women reported a respectful environment. However, over 10% felt coerced into accepting options for care [4]. Across the groups, women with self-reported risk factors, were more likely to score in the bottom 10th percentile of the MORi, as compared to women with no reported risk factors. In addition, women who were recent immigrants, had a history of substance use, or who had a vulnerable status were more likely to have very low MORi scores. In addition, women who planned birth at home, and women under care of midwives were less likely to have low MORi scores [4]. With regard to women's autonomy and role in decision making MADM scores were highest among women who were cared for by midwives. Finally, increased time for prenatal appointments also resulted in significantly higher MADM scores [5,6].

Currently, in the Netherlands there are no valid measures available to measure women's experiences of respectful maternity care and women's autonomy. Therefore, in the present study we aimed to develop a Dutch version of the MADM and MORi tailored to the Dutch health care system. The Dutch health care system is divided in echelons, the so called primary, secondary and tertiary echelons. Registered midwives and/or General Practitioners provide primary care for women who are at low risk for experiencing obstetric complications. Women who have a medical indication are referred to secondary and/or tertiary care where hospital-based midwives and obstetricians collaborate to provide care [7]. Within this system, risk selection (a clear distribution of tasks and a good mutual cooperation between professionals in the different echelons) is one of the pillars that forms the strength of the Dutch system [7].

This paper reports on results of a study to evaluate applicability, including the psychometric properties (i.e. feasibility, reliability and construct validity), of a translated and adapted version of the MORi and MADM in a Dutch population of pregnant women living in different areas in the Netherlands.

## 2. Methods

From February until June 2018, a cross-sectional study was conducted among pregnant women in the Netherlands.

### 2.1. Participants and recruitment

Pregnant women living in all areas in the Netherlands were eligible to participate if they were able to complete an online survey. Women younger than 16 years of age were excluded due to the restrictions of this group to autonomously participate in scientific research [8]. We recruited pregnant women in two ways. Eligible women were approached via social media and networking through midwifery practices. Eleven Facebook groups (of 37 approached) shared the online survey in a Facebook post, and 42 midwifery practices (of 146 midwifery practices approached) posted the online survey on their website. We aimed to include at least 500 women to measure the psychometric properties of the Dutch MORi and MADM [9]. This number is defined as 'very good' for defining psychometric properties by Comrey and Lee [10].

### 2.2. Survey construction

Our online survey comprised the following items: maternal characteristics (age, region, ethnicity, marital status, educational level, monthly income, and religion), pregnancy characteristics (parity, gestational age, and pregnancy complications, i.e. high blood pressure, blood loss etc.), health care provision (primary health care provider, number of midwives per practice, and number of antenatal care visits), and previous birth experiences of multiparous women (previous place of birth, and previous mode of birth). These variables were chosen because they correspond to the earlier analysis by Vedam et al. [4,5].

### 2.3. Measures

The MORi and MADM were translated according to the WHO guidelines [11]: (1) The forward translation was performed by two independent translators who were knowledgeable of the English and Dutch language. They were asked to translate the MORi and MADM from English to Dutch. (2) In an expert panel, differences between the two independent translations were identified and resolved. The expert panel consisted of the original translators, an expert in maternity care, an expert on measure development and psychometric evaluation. The result of this process was a complete translated version of the measures. (3) The Dutch versions of the MORi and MADM were backwards translated by two other independent translators who had no knowledge about the MORi and MADM and whose mother tongue is English. (4) Finally, any discrepancies found after the backward translation were discussed with the original developers of the Canadian version of the MORi and MADM. Cultural differences were also discussed within this group.

As a result of the translation process and discussions with the Canadian researchers two adjustments were made: 1. The Likert-type response options of the MADM were made equal to the response options of the original MORi, since the small differences between the response options of the MORi and the MADM are not applicable in the Dutch language. The Dutch version of the MORi and the MADM contains the following response options: strongly disagree, disagree, somewhat disagree, somewhat agree, agree, and strongly agree. Within the MORi we decided to change one item due to the Dutch health care insurance system. In the Netherlands, basic health insurance is obligatory for all Dutch people, thus every woman has a health insurance, however, reimbursement of the costs for midwifery-led hospital births requires supplementary insurance. Therefore, item 10 "My type of health insurance or lack of insurance" was changed in to "type of supplementary insurance or lack of supplementary health insurance".

In order to pilot test the measures we recruited 11 women (two pregnant women, and 9 women who had recently given birth), and asked them to assess the measures on comprehensibility and

readability. This resulted in a small adjustment to the lay-out of the measures.

The Dutch MORi consists of 14 items (Fig. 1), and has a theoretical range of 14–84. A higher score indicates more experiences of respectful maternity care. The following cut-off scores for the MORi were applied for either nulliparous or multiparous women: very low respect (14–31), low respect (32–49), moderate respect (50–66), and high respect (67–84) [4]. The Dutch-MADM consists of 7 items (Fig. 1) and has a theoretical range of 7–42. A higher score indicates or greater ability to participate in decision making during pregnancy. The following cut-off scores for the MADM were applied: very low autonomy (7–15), low autonomy (16–24), moderate autonomy (25–33), and high autonomy (34–42) [5]. Next to the measures we included an option for women in the online survey to provide additional information to explain if it was difficult to complete items of the measures.

#### 2.4. Ethical consideration

In the Netherlands no ethical approval is required regarding this type of research. (<http://www.ccmo.nl>) The local Medical Research Ethics Committee of the University Medical Center Groningen has confirmed this and defined this study as non-WMO (Medical Research Involving Human Subjects Act, [www.ccmo.nl](http://www.ccmo.nl)) research (number 2018/185). Informed consent was obtained prior to filling in the survey.

#### 2.5. Data analysis

Baseline characteristics were analyzed using descriptive statistics. The **feasibility** of the MADM and MORi were analysed by descriptive statistics on individual responses to the question

about the level of difficulty in completion of both measures (no or minor difficulties versus major difficulties). Potential differences on all baseline characteristics between women with and without difficulties in completion of the MADM and MORi were assessed by calculating chi-square tests or Mann–Whitney U tests, where appropriate. Moreover, individual remarks about the experienced difficulties were analyzed.

**The reliability** of both measures was assessed by calculating Cronbachs alpha, an alpha above 0.70 indicates satisfactory internal consistency [12].

**The construct validity** of both measures was assessed in terms of known group validity [13]. We hypothesized that higher MADM-scores were observed in subgroups of women that received care from a midwife, and if the duration of prenatal visits took longer than 15 min [5]. We expected lower MORi scores in subgroups of women that experienced pregnancy complications [4]. Moreover, we expect that women who received maternal care from a Dutch caseload midwifery practice, in which care is provided by 1–2 midwives, have higher scores on MADM and MORi [4,5]. Mann–Whitney U or Kruskal Wallis tests were used appropriately to assess statistical differences between subgroups of women who differed on maternal and healthcare provision characteristics [14,15].

Additionally, post-hoc analyses were performed between subgroups of more than three categories, when an overall statistical significant difference was calculated on MADM and MORI scores. With Mann–Whitney U tests we indicated which specific subgroups differed between each other on both measures.

### 3. Results

628 women completed the survey. Respondents were excluded in the analyses if they indicated that they were not pregnant

#### DUTCH-MOTHER'S ON RESPECT index (MORi)

Overall while making decisions during my pregnancy I felt:

1. Comfortable asking questions
2. Comfortable declining care that was offered
3. Comfortable accepting the options for care that my (midwife, doctor) recommended)
4. Coerced into accepting the options my (midwife, doctor) suggested
5. I chose the care options that I received
6. My personal preferences were respected
7. My personal cultural preferences were respected

During a antenatal visit I held back from asking questions of discussing my concerns:

8. Because my maternity care provider seemed rushed
9. Because I wanted maternity care the differed from what my maternity care provider recommended
10. Because I thought my maternity care provider might think you were being difficult

When I was pregnant I felt that I was treated poorly by my (midwife, doctor)

12. Because of my race, ethnicity, cultural background or language
13. Because of my sexual orientation and/or gender identity
14. Because of my supplementary health insurance
15. Because of a difference in opinion with your caregivers about the right care for yourself of your baby

#### DUTCH-MOTHER'S AUTONOMY IN DECISION MAKING (MADM)

Please describe your experiences when making decisions and choosing options for care during this pregnancy

1. My midwife/obstetrician asked me how involved in decision making I wanted to be
2. My midwife/obstetrician told me that there are different options for my maternity care
3. My midwife/obstetrician explained the advantages and disadvantages of the maternity care options
4. My midwife/obstetrician helped me understand all the information
5. I was given enough time to thoroughly consider the different maternity care options
6. I was able to choose what I considered to be the best care options
7. My midwife/obstetrician respected that choice

Fig. 1. Items of the Dutch MORi and MADM.

( $n = 38$ ), did not list their maternity healthcare professional ( $n = 24$ ) or had not received antenatal visits ( $n = 9$ , Fig. 2 flowchart).

In total 557 women were included in this analysis. The mean age of the pregnant women was 31 (SD4) years, with a range of 19–46 years. The final sample was primarily Dutch (93%) and most of them had a partner/spouse (98%). Women were located in different regions, and the majority of the women lived in the Northern part of the Netherlands (38%). About 69% were multiparous women and approximately a third experienced pregnancy complications. The majority of the women (86%) received care from a primary care midwife regardless of which Dutch regions they were living. About 14% of the women received care from a small primary midwifery practice (1–2 midwives) (Table 1).

In the total population the MORi and MADM median (Interquartile range) scores were: 77 (69–82) and 35 (30–41) respectively. Based on the cut-off scores of the MORi [16], women included in the study indicated several levels of respect: 0% experienced very low respect, 5% ( $n = 27$ ) had experienced low respect, 12% ( $n = 67$ ) moderate respect and 83% ( $n = 463$ ) high respect. Based on the cut-off scores of the MADM [17], women indicated several levels of autonomy: 8% ( $n = 45$ ) very low autonomy, 8% ( $n = 47$ ) low autonomy, 22% ( $n = 120$ ) moderate autonomy and 62% ( $n = 345$ ) high autonomy.

### Feasibility

About 514 women (92%) experienced no or minor difficulties in the completion of the MORi and the MADM, whereas 43 women (8%) indicated major difficulties. By comparing both groups, it showed that women with major difficulties had a statistically significantly lower monthly income as well as they did not want to report their monthly income, compared with women who indicated no or minor difficulties ( $p = 0.05$ ). Additionally, both groups did not differ on all other baseline characteristics. By analyzing the additional remarks of the women who experienced difficulties it showed that six women received care from several healthcare professionals, and therefore they indicated it was not possible to complete both measures per specific healthcare provider.

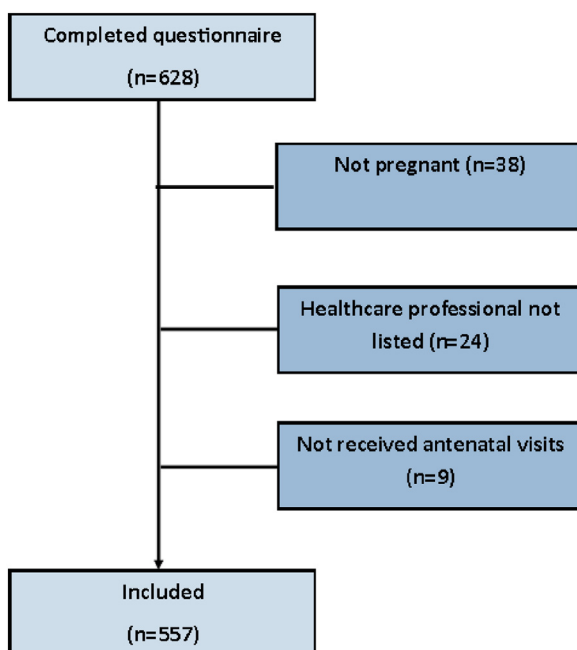


Fig. 2. Number of women included in the study.

### Reliability

The internal consistency of the MORi and MADM were 0.91 and 0.96, respectively.

### Construct validity

Table 1 shows the statistical differences on the median MORi and MADM scores between women who differed on maternal characteristics, pregnancy characteristics, healthcare provision, and previous birth experiences. No statistical differences on both measures were found between subgroups who differed on maternal characteristics, except for the Dutch region in which the women were living. Women living in the south of the Netherlands showed statistically higher scores on both measures compared with the other regions, indicating that they experienced higher respect and more autonomy. Regarding all other characteristics, the MORi and MADM scores differed between subgroups. Compared with women with pregnancy complications, those with a healthy pregnancy reported statistically higher MORi-scores, however no differences were observed on MADM scores. Compared with healthcare provision from an obstetrician, statistically higher scores on both measures were found in women who received care from a general practitioner or midwife. Additionally, women who received care from a small primary midwifery care practice showed statistically higher MORi and MADM scores, compared to practices with a higher number of midwives per practice.

## 4. Discussion

### 4.1. Summary

The objective of this study was to evaluate the psychometric properties of the Dutch MORi and the MADM. The results of this study support the feasibility, reliability, and to a certain extent known group validity of the Dutch MORi and MADM measures in pregnant women living in the Netherlands. The vast majority of the women (83%) experienced high respect, and with regard to women's autonomy and role in decision making 62% of the women experienced high autonomy.

### 4.2. Reflection on the results

The feasibility of the Dutch MORi and MADM was satisfactory: 92% of the women indicated no or some minor difficulties in the completion of the items. Some women ( $n = 6$ ) gave feedback on the open-ended question "Do you have any additional remarks regarding the measures?" They indicated that some items were not easily applicable in their healthcare provision. Since women indicated that if they had received antenatal care by different maternity healthcare professionals, it was not clear whether to report experiences as related to a midwife or an obstetrician. This is inherited by the Dutch maternity healthcare system, in which pregnant women can be referred from a midwife to an obstetrician and vice versa. Therefore we recommend that, when used to assess experience of care or to inform quality improvement, women complete the MORi or MADM measures for each healthcare professional separately.

The internal consistency of the Dutch MORi and MADM was good; the calculated Chronbach's alpha's of both measures were 0.91 and 0.96, respectively. This corresponds with previous psychometric evaluations of both instruments by Vedam et al. [4,5] With regard to construct validity, the results of the known group validity analyses showed that both the Dutch-MORi and the Dutch-MADM discriminated as hypothesized, between healthcare provision and number of midwives per practice, which confirms previous published results [4,5]. Women with pregnancy

complications report statistically lower levels of respect in the Netherlands. This results confirm previous published findings and may be explained by the reality that aspects like intuitiveness, empathy and caring during childbirth receive less attention from providers when unexpected medical problems and birth interventions arise [18]. Emotional support, respect, and involvement in decision making during these critical events are important factors of respectful care and can contribute to a positive birth experience

[18,19]. Previously, Vedam and colleagues reported that e.g. poverty and immigrants or refugees reported lower MADM and MORi-scores [4,5]. Unfortunately, we could not confirm similar findings in our population since non-Dutch women, women with a low SES or low income were underrepresented in our study. However, our study sample closely matched the overall Dutch population based on maternal age, with only the group women below 25 being smaller in the study population compared to the

**Table 1**

Baseline characteristics, total scores and construct validity on the Mothers on Respect-index (MORi) and the Mothers Autonomy in Decision Making Scale (MADM) in a Dutch population of pregnant women N = 557.

	Total population N=557	MORi Median (Interquartile range)	Statistical differences among groups	MADM Median (Interquartile range)	Statistical differences among groups
<b>TOTAL score</b>		<b>35 (30-41)</b>		<b>77 (69-82)</b>	
Very low		-		8%	
Low		5%		8%	
Moderate		12%		22%	
High		83%		62%	
<b>MATERNAL CHARACTERISTICS</b>					
<b>Maternal age (in years)</b>			0.59		0.38
< 25	27 (5)	78 (70-84)		35 (30-38)	
25-29	190 (34)	78 (71-82)		35 (31-41)	
30-34	243 (44)	77 (70-82)		35 (30-41)	
35-39	86 (15)	76 (66-82)		35 (25-39)	
≥ 40	11 (2)	79 (62-84)		40 (14-42)	
<b>Dutch Region<sup>1</sup></b>			<b>0.01</b>		<b>0.05</b>
North	209 (38)	77 (72-83)		35 (32-41)	
East	193 (35)	77 (70-82)		35 (30-41)	
South	54 (10)	80 (71-84)		38 (28-42)	
West	101 (18)	72 (67-80)*		34 (26-38)*	
<b>Ethnicity</b>			0.30		0.68
Dutch	517 (93)	77 (70-82)		35 (30-41)	
Non-Dutch	40 (7)	76 (67-82)		36 (23-40)	
<b>Marital status</b>			0.81		0.09
Single	10 (2)	76 (58-83)		29 (19-39)	
Married/living with partner	547 (98)	77 (69-82)		35 (30-41)	
<b>Education level</b>			0.11		0.14
None or primary school	41 (7)	78 (69-83)		35 (20-39)	
Middle (secondary school)	213 (38)	78 (70-84)		35 (31-42)	
High (higher education)	303 (54)	76 (69-81)		35 (30-40)	
<b>Monthly income</b>			0.15		0.20
< €2000	96 (17)	78 (67-83)		35 (27-40)	
€2000–€2499	46 (8)	75 (68-80)		35 (27-40)	
€2500–€3499	191 (34)	78 (71-83)		36 (32-41)	
≥ 3500	171 (31)	77 (71-81)		35 (28-40)	
Unknown/does not want to	53 (10)	77 (69-82)		35 (32-41)	
<b>Religion</b>			0.68		0.70
None	374 (67)	76 (70-82)		35 (30-41)	
Christianity, Islam or other	183 (33)	77 (69-83)		35 (30-40)	
<b>PREGNANCY CHARACTERISTICS</b>					
<b>Parity</b>			0.67		0.92
Nulliparous	171 (31)	77 (70-82)		35 (30-40)	
Multiparous	386 (69)	77 (69-82)		35 (30-41)	

<b>Gestational age</b>			0.94		0.96
First trimester	68 (12)	77 (69-83)		35 (28-41)	
Second trimester	206 (37)	77 (70-82)		35 (31-40)	
Third trimester	283 (51)	76 (71-82)		35 (30-40)	
<b>Pregnancy complications</b>			<b>0.01</b>		0.37
None	358 (64)	78 (71-83)		35 (30-41)	
Pregnancy complications	199 (36)	76 (68-81)		35 (29-40)	
<b>HEALTHCARE PROVISION</b>					
<b>Primary healthcare provider</b>			<b>≤0.001</b>		<b>≤0.001</b>
Midwife	478 (86)	77 (71-83)**		35 (31-41)**	
Obstetrician	77 (14)	71 (63-78)		31 (21-37)	
General Practitioner	2 (0)	80 (NA <sup>2</sup> )		41 (NA <sup>2</sup> )	
<b>Number of midwives per</b>			<b>≤0.001</b>		<b>≤0.001</b>
1-2 midwives	79 (14)	80 (76-84)***		38 (35-42)***	
3-4 midwives	280 (50)	77 (70-82)		35 (30-40)	
≥ 5 midwives	137 (25)	76 (69-82)		35 (32-40)	
Not applicable	61 (11)	71 (65-78)		32 (21-39)	
<b>Antenatal care visits</b>			0.40		0.40
1-2 visits	71 (13)	78 (72-82)		36 (33-41)	
3-5 visits	151 (27)	76 (69-81)		35 (27-41)	
6-7 visits	156 (28)	76 (70-82)		35 (30-40)	
≥ 8 visits	179 (32)	77 (68-83)		35 (30-41)	
<b>Duration of visits in minutes</b>			0.38		0.18
< 15 minutes	205 (37)	77 (69-82)		35 (28-40)	
15-29 minutes	288 (51)	76 (69-82)		35 (31-41)	
30-59 minutes	42 (8)	79 (73-84)		38 (34-41)	
≥ 60 minutes	22 (4)	76 (67-82)		35 (27-40)	

<sup>1</sup>Dutch regions, North (Groningen, Drenthe Friesland), East (Overijssel, Gelderland, Flevoland), South (Noord-Brabant, Limburg), West (Noord-Holland, Zuid-Holland, Utrecht, Zeeland).

<sup>2</sup>Not applicable, could not be calculated.

\*Compared with other Dutch regions, women who were living in the west of the Netherlands had statistically significantly lower scores on the MADM and MORi.

\*\*Compared with women who received care from obstetricians, women who received care from midwives had statistically significantly higher score on the MADM and MORi.

\*\*\*Compared with women who received care from 3-4 or 5 midwives per practice, women who received care from 1-2 midwives had statistically significantly higher score on the MADM and MORi.

overall Dutch population. Regarding ethnicity, Dutch respondents are overrepresented in this study. In terms of parity, there are more multiparous women in the study population compared to the overall Dutch population [20].

Moreover, regarding health care provision, our study showed that women experienced less respect and autonomy in decision-making when receiving care of an obstetrician. A survey performed in the United Kingdom showed similar findings [21]. In the Netherlands, women are referred to obstetricians if complications occur during pregnancy and/or birth. Therefore, this finding may be linked to experiences during unexpected medical problems and birth interventions, or differences inherent in the professional models for approaching patient-provider communication or person-centred care [6,22].

We found that women receiving care in small midwifery practices had higher scores on both measures, likely indicating that relationship based care and continuity of care are associated with experiences of greater respect and autonomy. A study from Australia, in which standard midwifery care was compared to caseload midwifery care (continuity of care by one maternity care provider throughout pregnancy, childbirth and postpartum period), showed similar findings. Women receiving caseload midwifery care experienced more continuity of care, felt more in control and felt they had an active say during their labor and childbirth,

which subsequently led to positive birth experiences [14,15]. Additionally, it has been found that relational continuity with the caregiver and a trustful, respectful relationship with the caregiver are a key elements in a positive birth experience [23,24]. In the Netherlands, Baas et al. [25] asked over 3500 women, who just had given birth, how they would like to improve maternity care. The majority mentioned continuity of care provider during the antenatal, natal and postnatal periods as an important improvement point. Also, they mentioned more tailored care for the client. This can explain why women in small midwifery practices score higher on both the MADM and MORi Scale [25].

Similar to the MORi measurement in Canada [4], Dutch women who had a pregnancy complication or had a hospital birth instead of a planned home birth also scored lower on the MORi score [4]. When completing the MADM, Canadian women who received maternity care from an obstetrician or family physician scored lower on autonomy in decision making than women who received maternity care from a midwife. This is also in line with the findings of the current study, in which women receiving maternity care from a midwife score higher on autonomy than women who receive care from an obstetrician [5,6].

Overall, the results of the MORi showed that 83% of the women reported high respect in maternity care in the Netherlands. Although there are no previous studies on the level of respectful

maternity care in the Netherlands. However, studies, concerning concepts that relate to respectful care, show that 84% of Dutch women look back positively on their birth three years postpartum [26]. Also, Baas et al. [27] found that 92% of the Dutch women experienced the care during childbirth 'good to best possible'. When looking to autonomy and decision making in maternity care, in Canada, 6% of the women were dissatisfied with decision making in pregnancy [5]. The numbers regarding labour, birth and postpartum are similar to the findings in our study, in which the MADM measurement indicated that 38% of the women experienced less than high autonomy, of which 16% report (very) low autonomy. Bosch et al. [28] found similar results in a qualitative study among 69 Dutch women of which one third mentioned they were not aware what was going on during their childbirth, meaning they had limited autonomy during the event. Furthermore, a study on informed consent among 1386 women in Wales showed similar number around decision making in maternity care; just over half (54%) of the women perceived that they received enough information and communication with the caregiver to make a decision regarding their maternity care [29].

#### 4.3. Strengths and limitations

A major strength of the study is the extensive psychometric evaluation of the MORi and the MADM in a large sample of pregnant women throughout all regions in the Netherlands. In addition, the development of both measures has been performed according to the WHO-guidelines.

A limitation of this study is that we evaluated the MORi and the MADM in the antenatal period and not in the natal and postnatal period. We assume that levels of respect of autonomy can vary within these different periods. Despite studies showing the use of social media as an effective recruitment method to reach participants of lower social economic status [30], women with low socio economic status, women from varied ethnic backgrounds, recent immigrants or refugees, or with low illiteracy were underrepresented in the study. It is possible that the Facebookgroup pages where the questionnaire was posted and the midwifery practices that were involved in recruitment were more connected to women of higher socioeconomic status and thus did not reach the other populations.

#### 4.4. Recommendations

The measurement of autonomy regarding decision-making in pregnancy provides information which may assist women in making decisions regarding her own maternity care, for example, by choosing between models of care or place of birth. A future study can be test if the MADM can be used by maternity care professionals and pregnant women as a guiding instrument to determine the effectiveness of a person-centred decision making process. The measurement of the Dutch-MORi sheds light on the presence of respectful maternity care in Dutch maternity care, of which evidence is currently lacking. The results from both measures can contribute to improving Dutch maternity health care services to the needs and demands of women, and subsequently might improve women's experiences. In addition, both instruments can be used as quality of care measures aiming to improve care and thus experiences of women.

Since in this study we only applied the Dutch MORi and MADM in the pregnancy period, and other investigations have noted significant differences in experiences of autonomy and respect during the intrapartum period [22], we recommend testing of the psychometric properties of, and administration of the MADM and MORi in the natal and postnatal period. In addition, in future studies, effort has to be made to include women with low socio economic status, varied ethnic backgrounds and immigration status, and/or with low illiteracy as well to evaluate the measures

in different periods (i.e. natal and postnatal periods). Despite the majority scoring high on experienced respect and autonomy in this study, a part of the study population reported low scores on both scales. We suggest qualitative methods to gain in depth understanding of women experiencing a low amount of respect and autonomy in maternity care in the Netherlands, with a main focus on the role of women's decision making during pregnancy.

## 5. Conclusion

We conclude that the results of this study support the feasibility, reliability, and validity of applying the MORi and the MADM scales to evaluate respectful care and women's autonomy within the Dutch maternity care system.

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## Ethical statement

The local Medical Research Ethics Committee of the University Medical Center Groningen has defined this study as non-WMO (Medical Research Involving Human Subjects Act, [www.ccmo.nl](http://www.ccmo.nl)) research (number 2018/185). Informed consent was obtained prior to filling in the survey.

## Conflicts of interest

None declared.

## CRediT authorship contribution statement

**E.I. Feijen-de Jong:** Conceptualization, Formal analysis, Methodology, Writing - original draft. **M. van der Pijl:** Writing - original draft. **S. Vedam:** Writing - review & editing. **D.E.M.C. Jansen:** Writing - review & editing. **L.L. Peters:** Conceptualization, Formal analysis, Methodology, Writing - original draft.

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## Appendix 1 : Dutch MORi and MADM

Dutch-Mother's on respect index (MORi)

Over het geheel genomen tijdens mijn zwangerschap . . .

1. voelde ik me op mijn gemak bij het stellen van vragen.
  2. voelde ik me op mijn gemak bij het afwijzen van aangeboden zorg.
  3. voelde ik mij op mijn gemak om de keuzes rondom zorg te accepteren, die werden aanbevolen door mijn verloskundige/gynaecoloog.
  4. voelde ik me onder druk gezet om de keuzes rondom zorg welke werden aanbevolen door mijn verloskundige/gynaecoloog te accepteren.
  5. ontving ik zorg waarvoor ik zelf heb gekozen.
  6. werden mijn persoonlijke keuzes gerespecteerd.
  7. werd mijn culturele achtergrond gerespecteerd.
- Tijdens mijn zwangerschap was ik terughoudend met het stellen van vragen of het bespreken van zorgen omdat:
8. De verloskundige/gynaecoloog haast leek te hebben.
  9. Ik zwangerschapszorg wilde die anders was dan dat de dokter of verloskundige aanbevolen had.
  10. Ik het gevoel had dat de dokter of verloskundige dacht dat ik moeilijk deed.
- Ik had het gevoel dat ik tijdens mijn zwangerschap slecht behandeld werd door mijn dokter of verloskundige vanwege:



12. Mijn huidskleur, afkomst, culturele achtergrond of taal.
13. Mijn seksuele geaardheid en/gender identiteit.
14. Mijn aanvullende zorgverzekering of het niet hebben daarvan.
15. Een verschil van mening met mijn zorgverleners over de juiste zorg voor mij of mijn baby.

#### Dutch-Mother's autonomy in decision making (MADM)

Beschrijf je ervaringen over het maken van beslissingen tijdens je zwangerschap

1. Mijn verloskundige of gynaecoloog vroeg me in hoeverre ik betrokken wilde zijn in het maken van beslissingen.
2. Mijn verloskundige of gynaecoloog gaf aan dat er verschillende keuzemogelijkheden of opties waren in mijn zwangerschapszorg.
3. Mijn verloskundige of gynaecoloog heeft de voordelen en nadelen uitgelegd over verschillende keuzemogelijkheden of opties in mijn zwangerschapszorg.
4. Mijn verloskundige of gynaecoloog heeft mij geholpen alle informatie te begrijpen.
5. Ik kreeg genoeg tijd om de verschillende keuzemogelijkheden grondig tegen elkaar af te wegen.
6. Ik kon de zorg kiezen die ik zelf het beste vond.
7. Mijn verloskundige of gynaecoloog respecteerde mijn keuzes.

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