

# Measuring Disrespect and Abuse During Childbirth in a High-Resource Country: Development and Validation of a German Self-Report Tool

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## Research

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## Abstract

**Background.** Increasing evidence on disrespect and abuse during childbirth has led to growing concern about the quality of care childbearing women are experiencing. To provide quantitative evidence of disrespect and abuse during childbirth services in Germany a validated measurement tool is needed.

**Research Aim.** The aim of this research project was the development and psychometric validation of a survey tool in the German language that measures disrespect and abuse of women during childbirth.

**Methods.** A survey tool was created including the following measures: German adaptations of the short and long form of the “Mothers on Respect” (MOR) index (MOR-7 and MOR-G); the “Mothers’ Autonomy in Decision Making” (MADM) scale; a mistreatment-index (MIST-I) comprising indicators of mistreatment during childbirth; and a set of items that measure experiences of discrimination during maternity care. Internal consistency reliability and construct validity of the scales were assessed using Cronbach’s alpha, unweighted least squares factor analysis and non-parametric correlation analysis with a scale that measures a related construct, the Posttraumatic Symptom Scale – Self Report (PSS-SR) scale. We distributed the survey online, recruiting through snowball sampling via social media. The final sample of participants (n=2045) had given birth in Germany between 2009 and 2018.

**Findings.** More than 77% of the study participants reported at least one form of mistreatment with non-consented care being the most commonly reported type of mistreatment, followed by physical violence, violation of physical privacy, verbal abuse and neglect. All included scales showed good psychometric properties with high Cronbach’s alphas (0.95 for both MOR versions and 0.96 for MADM). Factor analysis generated one factor scales with high factor loadings (0.75 to 0.92 for MOR-7; 0.37 to 0.90 for MOR-G and 0.83 to 0.92 for MADM). MOR-7, MOR-G, MADM and MIST-I scores were significantly ( $p<0.001$ ) correlated with PSS-SR scores (Spearman’s rho -0.70, -0.61 and 0.68 for MOR-G, MADM and the MIST-I, respectively).

**Conclusions.** This study presents a valid and reliable instrument for the quantitative assessment of disrespect and abuse during childbirth in Germany. Childbearing women’s experiences of disrespect and abuse are a relevant phenomenon in German hospital based maternity care. Disrespect and abuse during childbirth appear to contribute to post-traumatic symptoms and may be associated with severe mental health problems postpartum.

## Plain English Summary

Reports of disrespect and abuse during childbirth are becoming more common and this has led to concern about the quality of health services during pregnancy and childbirth. To assess disrespect and abuse in German maternity care a validated measurement tool is needed. This paper presents the development and validation of a German language survey that includes existing validated measures of respect and autonomy in decision-making during pregnancy and childbirth as well as validated items covering common experiences of mistreatment and discrimination during childbirth. We distributed the survey online, using social media. The final sample of 2045 participants had given birth in Germany between 2009 and 2018.

More than two thirds of the participants reported at least one form of mistreatment. The most common form of mistreatment was care providers not seeking consent for procedures like caesarean section, vaginal examination or episiotomy, followed by physical violence, violation of physical privacy, verbal abuse and neglect. All included scales met the threshold for reliable and valid scales. Higher scores on a measure of Posttraumatic Symptoms were significantly associated with lower score on scales measuring respect and autonomy and higher rates of mistreatment.

This study presents a valid and reliable instrument for the measurement of disrespect and abuse during childbirth in Germany. Childbearing women’s experiences of disrespect and abuse are a relevant phenomenon in German hospital based maternity care, appear to contribute to post-traumatic symptoms and may be associated with severe mental health problems postpartum.

## Introduction

Increasing evidence of disrespect and abuse (D&A) of women during childbirth has caused growing concern worldwide about the quality of care childbearing women experience. The World Health Organization emphasises a positive childbirth experience as a

human right and provides evidence for respectful maternity care as essential to improve women's experience of labour and birth, (1). A negative experience of the birth event can have serious adverse effects on maternal mental health and was found to be the most significant predictor for postpartum posttraumatic stress disorder (PP-PTSD). PP-PTSD affects between 4.6 and 6.3% of childbearing people (2), and experiences of traumatic childbirth seem to be strongly related to care provider actions and interactions (3–5).

Disrespect and abuse during childbirth was first defined and categorized by Bowser & Hill (6) in their landscape analysis. The authors identified different manifestations of D&A in facility-based childbirth and classified them in the following seven categories: physical abuse, non-consented care, non-confidential care, non-dignified care, discrimination based on patient attributes, abandonment of care and detention in facilities. These categories have been used to inform tools to measure D&A, predominantly in low resource settings (7–12). Other self-report measures have been developed and validated in Ethiopia (13), India (14) and Iran (15).

Based on the evidence of a systematic review of 65 predominantly qualitative studies conducted in 34 countries, the WHO Research Group on the Treatment of Women during Childbirth presented a typology of the mistreatment of women during childbirth in health facilities worldwide (16). The authors differentiate the themes physical abuse, sexual abuse, verbal abuse, stigma and discrimination, failure to meet professional standards of care, poor rapport between women and providers and health system conditions and constraints. To identify grievances in maternal care and improving its quality, the authors emphasise the need to develop evidence-based, validated and reliable tools for a quantitative assessment of mistreatment of women during childbirth, suggesting their typology to be used for this purpose. A recent cross-sectional study with labour observations and community-based surveys performed in four low-income and middle-income countries based on this typology showed a prevalence of D&A between 35 and 42 percent (17).

Quantitative evidence on disrespect and abuse during childbirth in high-income countries is still scarce. Some data are available from the USA: The “Giving Voice to Mothers” study (18), a nationwide online cross-sectional survey addressing service users of maternity care, revealed that 17.3% of the 2,138 participants who had given birth in the USA between 2010 and 2016 had experienced one or more types of mistreatment.

In Germany respectful maternity care is understudied. However, an increasing number of reports of women who have experienced disrespectful and abusive care spread on social media. Every year, on November 25th, the international day against violence towards women, the activists of “Roses Revolution”, a global movement against obstetric violence, invite women to lay down a rose at the door of the labour ward where they had suffered disrespect and abuse. Following this call in 2017, women laid down roses at the doors of 171 labour wards and three birth centres in Germany (19).

When developing items and scales to measure disrespect and abuse during childbirth, Freedman et al. (20) emphasise that D&A needs to be understood in local contexts, because what is considered as D&A may differ from country to country, between cultures and maternity care settings. Thus, tools have to be developed, adapted and validated for their respective local contexts. To date, no validated measurement tools are available in German language and no studies have quantitatively assessed the phenomena of D&A in German speaking countries.

This paper presents the development and psychometric validation of a survey tool that measures disrespect and abuse of women during childbirth in the German language.

## Methods

A German language survey instrument was developed, based on existing tools that measure common aspects of respectful maternity care and mistreatment during childbirth in high-income countries. The tools, originally developed for use in North America (21, 22), were translated and adapted to German maternity care conditions. A cross-sectional online survey was administered to validate the survey instrument.

### *Survey development*

Socio-demographic questions covered age, migration background, religious affiliation, education, income, health insurance, disabilities or chronic diseases and number of children. Perinatal questions asked about the date of childbirth, parity, multiple birth, stillbirth or disabled child, birth place, mode of birth and pregnancy risks. These questions were selected and translated from validated items in the “Giving Voice to Mothers” survey (18) and two other large national maternity care surveys, the British “Women’s Experiences of Maternity Care” (23) and “Listening to Mothers III” from the US (24).

Scales and items measuring different manifestations of disrespect and abuse were chosen from the “Giving Voice to Mothers” survey (18): The 14 item “Mothers on Respect” (MOR) index (21) was included with three additional items. The seven item “Mother’s Autonomy in Decision Making” (MADM) scale (22) was used as is, and the seven “Mistreatment by Care Providers in Childbirth (MCPC) Indicators (18), items that measure experiences of mistreatment during birth, were also included in the survey. As the “Giving Voice to Mothers” survey and the included scales have been validated in the USA and Canada, it was assumed that the items and scales were relevant in high resource settings and therefore adequate for use in Germany. The selected MOR, MADM and mistreatment items cover Bohren et al.’s (16) proposed third-order themes. The MOR and MADM items had a 6-point Likert format with answer options ranging from “strongly disagree” to “strongly agree”. The MCPC items measure distinct interactions with care providers rather than components of a scale to measure a single construct, hence the different types of mistreatment experiences could be indicated by checking a box.

The MOR, MADM and mistreatment items were translated into German in a forward/backward translation process according to the WHO guidelines for the process of translation and adaptation of instruments (25), following a multistep approach (26).

### ***Content Validation by Expert review***

The translated items were presented to five German experts, including a researcher in the field of traumatic childbirth, a researcher in the field of obstetric violence, a trauma therapist specialised in traumatic childbirth and two experienced midwives. The experts were asked to review the instrument regarding relevance in the German context, comprehensibility and missing items. Engaging content experts in developing or reviewing items enhances the content validity of measures.

Following experts’ opinion the third MOR section “When I had my baby I was treated poorly [...] because of” was considered incomplete because a number of common reasons for discrimination were missing. Therefore, it was extended with additional items naming other social categories as listed in the „General Act on Equal Treatment“(AGG) (27), the German anti-discrimination law: age, disability or chronic disease and socio-economic status. Furthermore, being HIV positive and being overweight was included because of the strong stigmatising effect of these attributes. In total, this resulted in nine items addressing discrimination (table 4).

In view of reports of childbearing women in Germany (19, 28), three additional items were added to the mistreatment section, one asking about disparaging remarks against the childbearing woman, one about non-consented interventions (including episiotomy, caesarean section, labour augmentation, amniotomy, drug injection and venous access) and one about the use of fundal pressure during the second stage of labour (table 5).

### ***Inclusion of a PTSD screening tool to assess convergent validity***

Convergent validity is established when two or more scales that measure related constructs show a high degree of association. Evidence on the relationship between inappropriate intrapartum care and trauma (2, 3, 29) suggested the use of a self-report tool that screens for posttraumatic stress disorder (PTSD) for convergent validation. Out of the available tools validated in the German language the “PTSD Symptom Scale – Self Report” (PSS-SR) (30) was chosen for the present study because of its reasonable number of items, its appropriate psychometric properties and its previous use in other post partum studies (29, 31-33). The PSS-SR is highly specific for PTSD, with its 17 items corresponding directly with the symptoms for PTSD as presented in the DSM IV (34).

### ***Pilot testing***

The questionnaire was pilot tested by 14 women who had given birth in the last 3 to 6 months. They reported on the time needed to fill in the questionnaire and if they had any difficulties answering the questions or problems with comprehensibility or clarity of wording. They also had the opportunity to provide general comments on the questionnaire. Participants endorsed all of the items, thus providing evidence of content validity from the perspectives of service users. Participants suggested to add a question about the lack of time or presence of caregivers. Abandonment of care is one of the Bowser and Hill (6) categories and part of Bohren et

al.'s (16) typology, therefore the item: "The health care providers had no time for you when you needed help " was added in the mistreatment section of the survey.

### ***Sampling procedure***

The Facebook website of Roses Revolution Germany ([www.facebook.com/RosesRevolutionDeutschland](http://www.facebook.com/RosesRevolutionDeutschland)) with more than 10,000 followers was chosen for the distribution of the online survey. Through further distribution via social media, a snowball sampling process started. After four weeks, with 3,336 responses including 2,045 fully completed questionnaires, the survey was closed.

### ***Inclusion criteria***

Participation was restricted to women who had given birth in Germany between 2009 and 2018, to ensure that results reflect the current maternity care situation in Germany.

### ***Ethical considerations***

Approval to conduct the study was given by the ethics committee of Hannover Medical School and was approved on September 10th, 2018 (Ref No: 8075\_BO\_K\_2018). Participation was anonymous and confidentiality was assured. Respondents could stop participating at any stage. We informed participants that recalling a previously traumatic event may be distressing, and provided contact details of the research team as well as free national counselling services for support.

### ***Measures***

The MOR-7 is the German translation of the original "Mothers on Respect" seven item scale developed in Canada. Scale scores ranged from 7 to 42. The long version of the MOR scale included an additional 6 items and was named "Mothers on Respect – German" (MOR-G). The possible range of scores was 13 to 78. Higher scores on the two scales indicated a higher degree of experienced respect. Possible MADM scores ranged from 7 to 42, higher scores indicating that the care provider facilitated autonomy in decision making to a higher degree.

In order to be able to investigate women's discrimination experiences as a separate concept instead of subsuming it under the concept of respect, the nine discrimination items were separated from the MOR scale. The Likert six-point response options were recoded into dichotomous variables with the values that indicate disagreement (1 – 3) being grouped together and the values that indicate agreement (4 – 6) constituting the group that experienced discrimination. Multiple forms of discrimination were assessed by summing up the recoded item values. The scores ranged from 0-9.

A mistreatment-index (MIST-I) was defined according to the number of marked mistreatment items and calculated by summing up the dichotomous item values coded as 1 = "answered" and 0 = "not answered". The scores ranged from 0 – 12.

### ***Data analysis***

Statistical analysis was performed via IBM SPSS, version 25. Descriptive statistics were conducted to assess sample characteristics and to describe scale scores. Cronbach's alpha was computed for the scales to assess internal consistency reliability. Corrected item-to-total-correlations were calculated to assess whether individual items correlate highly with the sum of the items. Items with high correlation coefficients indicate high conceptual overlap whereas items with low coefficients indicate that the item might not measure the same construct. Information about how much each item impacted the reliability of the respective scale was given by the comparison of the Cronbach's alpha if the item would be deleted with the overall Cronbach's alpha.

Factor analysis was performed for the included scales, i.e MOR-7, MOR-G and MADM to determine how many dimensions the scales had. For these very short scales it was desirable that they were not only reliable but also uni-dimensional. The suitability of the data set for factor analysis was assessed by the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and the Bartlett's test of sphericity. Factor extraction was performed by unweighted least squares; the scree test was used to confirm the number of factors to be retained.

Non-parametric correlation analysis was used to assess convergent validity of the translated MOR and MADM scales and the mistreatment index (MIST-I) against the PSS-SR scale. Spearman's rho values above 0.5 were interpreted as a large or strong

positive correlation, values below -0.5 as a large or strong negative correlation.

## Results

### *Sample characteristics*

Participating women (n = 2045) gave birth in all German federal states. The participants' mean age at the date of childbirth was 29.8 years (SD 4.5; min/max: 16 – 44). About half of women had obtained higher education at the university level (51.4%), accordingly, the distribution of income in the sample displayed a strong tendency towards medium and high income, with only around 10% reporting low-incomes (less than EUR 1400 net household income). Women with a migration background represented 8.9% of the sample.

Most participants reported on the birth of their first child (77.4%); 22.6% were multiparous. 59.5% had low-risk pregnancies without any health problems, the others marked one or more pregnancy risks. Two percent reported on the birth of twins and four participants had triplets or more. A stillbirth or a disabled child was reported by 0.8% and 1.2%, respectively.

A hospital was the place of birth for 86.5% of the participating women (planned 74.2%). Six percent of women had a hospital birth with a caseload midwife (planned 7.5%). Out of 401 planned community births (19.6%), 77 women (3.8%) gave birth in a birth centre and 77 (3.8%) at home. The birth mode was spontaneous in 56.0% of the cases, 11.1% had a vacuum extraction, 1.3% a forceps and 31.2% a caesarean section, including 7.1% emergency caesareans.

### *Experience of respect*

Around half of the participants reported that they felt comfortable asking questions of their intrapartum care providers while making decisions, felt comfortable accepting or declining care that was offered, or that their personal preferences had been respected (table 1). In contrast, around half of the participants reported that they held back from asking questions because their care providers seemed rushed, because they wanted maternity care that differed from what their care providers wanted, or because their care providers might view them as difficult or would not value their opinion. Nearly 60% (n=1219) felt coerced into accepting care options their care provider suggested. A lower percentage felt discriminated against (18.2%, n=372) or had difficulties understanding the language the care provider used (8.2%, n=168). The median MOR-7 score was 24 (5th/95th percentile: 7 – 42, range: 35). The median MOR-G score was 47 (5th/95th percentile: 25 – 77, range 65).

### *Experience of autonomy in decision making*

Less than one third of the participants (28.5%, table 3) reported to have been asked how involved in decision making they wanted to be; 36.6% agreed they were informed about different options for their maternity care; and 31.4% were told about advantages and disadvantages of these options. About a third of respondents (35%) reported that they were able to choose what they considered the best care options and 45.6% felt that their doctor or midwife respected their choices. The median MADM scale score was 18 (5th/95th percentile: 7 – 42, range 35).

### *Experience of discrimination*

Some kind of discrimination (for one or more reasons) was reported by almost half of the women (49.6%). Most of them reported to have been treated poorly because of a difference in opinion with their caregivers about the right care for themselves or their baby (43.2%, see table 4). Substantial numbers of women felt discriminated against for personal characteristics like age (10.1%), high BMI (10.6%) or/and race, ethnicity, cultural background or language (5.1%). 18.6% of the participants agreed with more than one discrimination item.

### *Experience of Mistreatment*

Some kind of mistreatment was reported by 1586 women (77.6%). Most women (64.7%) experienced more than one form of mistreatment. The median mistreatment index (MIST-I) score was 3.0 (min/max: 1 – 12). Non-consented interventions (42.8%, table 8) were most frequently reported, followed by physical violence (33.6%) and violation of physical privacy (32.7%). Fundal pressure by the Kristeller maneuver was reported by 27.3% of the women during the second stage of labour. Verbal abuse was reported by 19

to 30% (items 3 to 6) and around 30% of women felt neglected or ignored by health care providers (items 7 and 8). Breaches of confidentiality were reported by less than five percent of the participating women.

### ***Internal consistency reliability and construct validity of the scales***

Table 6 provides a summary of scale characteristics and reliability statistics. The Cronbach's alphas were 0.95 for both MOR scales and the PSS-SR scale and 0.96 for the MADM scale, indicating very high internal consistency reliability of all included scales.

Corrected item-to-total correlations for MOR-7 exceeded 0.73 for all items (table 2). These strong correlations indicate that the scale is homogeneous, measuring one single underlying construct. The internal consistency reliability of the scale could not be improved by item deletion. For the 13-item version MOR-G the corrected item-to total correlations ranged from 0.37 to 0.87 (table 1). As for the seven-item version, the internal consistency reliability of the scale could not be improved by item deletion. Similarly to MOR-7, the MADM scale showed very high item-to-total correlations (0.81 to 0.90) and no improvement of internal consistency reliability by item deletion (table 3).

The suitability of the data set for factor analysis was supported by the Kaiser-Meyer-Olkin (KMO) measures of sampling adequacy and the Bartlett's Test of Sphericity. The KMO values were 0.94, 0.96 and 0.94 for MOR-7, MOR-G and MADM respectively, all far exceeding the recommended minimum value of 0.60 (35), and for all three scales Bartlett's Test of Sphericity was statistically significant ( $p < 0.001$ ). Factor extraction by unweighted least squares revealed one single factor for each scale with one eigenvalue above one (5.4, 8.1 and 5.7 for MOR-7, MOR-G and MADM, respectively). These eigenvalues explained 76.9%, 62.5% and 81.4% of the variance in MOR-7, MOR-G and MADM, respectively, suggesting that the scales were uni-dimensional. The one-factor structure of all three scales was further confirmed by the scree plots, which all showed a clear elbow curve after the first factor (figure 1). Factor loadings ranged from 0.75 to 0.92 for the MOR-7 items (table 2), from 0.37 to 0.90 for the MOR-G items (table 1) and from 0.83 to 0.92 for the MADM items (table 3).

### ***Convergent validity of the scales***

Nonparametric correlation coefficients (Spearman's rho) are shown in table 7. Large negative correlations ( $\rho = -0.67, -0.70$  and  $-0.61$  respectively) were observed between PSS-SR scores and the scores of MOR-7, MOR-G and MADM suggesting a strong relationship between low perceived respect or autonomy and increased posttraumatic stress symptoms. The correlations were statistically significant at the  $p < 0.001$  level. These results confirmed convergent validity of the MOR and MADM scales in their German versions with the PSS-SR scale.

Further, the MOR and MADM scales were positively correlated with each other, also at the  $p < 0.001$  significance level. Large correlations were observed between MOR-7 and MADM scores ( $\rho = 0.82$ ) as well as between MOR-G and MADM scores ( $\rho = 0.82$ ).

A large positive significant correlation ( $\rho = 0.68, p < 0.001$ ) was observed between the mistreatment-index MIST-I and PSS-SR, indicating a strong association between mistreatment experiences and posttraumatic reactions and providing evidence of convergent validity. Moreover, as expected, MIST-I was negatively and significantly correlated with MOR-7, MOR-G and MADM ( $\rho = -0.77, -0.79$  and  $-0.70$  respectively,  $p < 0.001$ ), i.e. women who reported more mistreatment experiences perceived less respect and autonomy.

## **Discussion**

The survey instrument with the four components measuring respect, autonomy in decision making, discrimination and mistreatment during pregnancy and childbirth is a valid and reliable tool for assessing the quality of intrapartum care experiences of childbearing women in Germany. This is the first study to document manifestations of disrespect and abuse during childbirth (D&A) in German maternity care. The results suggest that women in Germany experience disrespectful and abusive care similar to women in other high-income countries. The women's reported experiences reflected all third-order themes of Bohren et al.'s (2015) typology of mistreatment during childbirth (16).

Non-consented care was the most commonly reported form of mistreatment: More than 40% of the participants reported that intrapartum interventions were carried out without their consent. These numbers confirm the findings of Begley, Sedlicka & Daly (2018) for the Czech Republic (36) and Morton et al. (2018) for USA and Canada (37), who found non-consented care to be the most often occurring form of disrespect and abuse observed by doulas, nurses and midwives. Compared to the participants in the Canada-based “Changing Childbirth in British Columbia” (21) study women in the current study experienced far more disrespect and coerced decision making during childbirth. For example, in British Columbia around 90% of the survey participants agreed to have felt comfortable asking questions while making decisions, to have felt comfortable accepting or declining care that was offered and that their personal preferences had been respected. In the present study only around half of the participants agreed to the respective items. Furthermore, almost 60% felt coerced into accepting care options their care provider suggested, compared to 13% in the British Columbia sample and around 20% in the US Giving Voice to Mothers study (18). With respect to autonomy in decision making, similar differences were observed: The median “Mothers’ Autonomy in Decision Making” (MADM) score was 18 in the present study, less than one third of the total scale range, and 39 in the British Columbia sample (38), which is very close to the highest possible scale score of 42. These discrepancies confirm the known selection bias resulting from recruitment via a mothers consumer organization representing women affected by obstetric violence in the present study, whereas the British Columbia study (21) embedded MOR and MADM into a large survey on maternity care experiences in a geographically and socioeconomically diverse population. In addition, the North American studies had a disproportionately high number of midwifery clients, and the US study also included many people who gave birth at home or in birthing centres (50% of sample). Previous research has shown that midwifery clients and those planning a community birth have much lower rates of mistreatment (18) and higher respect and autonomy scores (21, 38).

Being coerced into accepting interventions instead of being engaged in a process of informed decision-making during childbirth undermines women’s autonomy and constitutes a disrespectful and abusive practice. Coercion has been reported previously in the “Listening to Mothers III” survey, a national survey of 2,400 US women who gave birth in US hospitals from mid-2011 to mid-2012 (24): Women experienced pressure from health professionals to accept labour induction (15%), epidural analgesia (15%), or caesarean section (13%). Similarly, in the “Giving Voice to Mothers” study, 13.0% felt pressured to have labour induction, 7.3% to have epidural analgesia, and 10.6% to have a caesarean Sect. (18).

In the current study, one third of the participating women reported physical abuse. This constitutes a large proportion compared to the few “Giving Voice to Mothers” survey participants who agreed to the respective item (1.3%)(18). Besides the selection bias towards women affected by abusive intrapartum care in the present study, a broader definition of physical abuse may explain this difference. As suggested by the German experts, painful vaginal examinations and insufficient anesthesia for the suture of an episiotomy were included as additional examples in the translated item.

The high number of women reporting the use of fundal pressure by maternity care providers in the second stage of labor is another important finding of the current study. Twenty-seven percent of the survey participants have experienced this intervention for which there is insufficient evidence (39). Fundal pressure is commonly used with the indication of maternal exhaustion or suspected fetal distress in order to avoid instrumental birth but often it is applied without formal indication (40). According to the guidelines of the International Childbirth Initiative (41), fundal pressure is among the harmful procedures to be avoided; in addition, its use is not recommended by the WHO (1). For women, this intervention is frequently experienced as physical violence and can be traumatising (28, 42).

Violation of physical privacy also was a frequently reported experience in the present sample, which is congruent with findings from Vedam et al. (18). Being uncovered and having unknown people, e.g. medical students, watching the birth without the woman’s consent can cause distress and loss of dignity as qualitative research showed (43–45).

A large number of women in the present study felt ignored or did not get help when needed. Both quantitative and qualitative studies found neglect and abandonment to be one of the most frequently cited mistreatment experiences and is linked to women’s perceptions of traumatic childbirth (4, 18, 46). Neglect and abandonment of childbearing women, next to indicating disrespectful attitudes of care providers or a disrespectful facility culture, are likely to also be a consequence of structural constraints leading to staffing shortage, which is described by Bohren et al. (16) under the theme “health system conditions and constraints”. The shortage of midwives in German hospitals – with one midwife caring for up to four labouring women (47) – may play a key role for failure of professional standards and meeting women’s needs. Given the fact that a delayed response to clinical warning signs has been



found to be one of the most common types of contributors to maternal deaths (48), these findings are alarming, especially in a high resource setting.

Finally, large numbers of women in the current study reported verbal abuse – shouting, scolding or threatening – resonating with Vedam et al.'s (18) findings and confirming Beck's (46) qualitative observations of harsh language, threats and blaming of childbearing women by intrapartum caregivers. Racially or sexually demeaning language as well as threats that a baby might die if a woman did not comply with a proposed procedure were often witnessed in Morton et al.'s (37) study of doulas' and nurses' observations of disrespectful maternity care. Such care provider threats were also reported by Reed, Sharman & Inglis (5), in their global online survey among women with traumatic birth experience, mainly from Australia, Oceania, North America and Europe.

Overall, the survey instrument in the current study showed very good psychometric properties. Feedback from the pilot testing phase and the expert review provided support for the content validity of all included measures. The internal consistency reliability of included scales exceeded 0.95 and was high compared to other published tools in the area of research (13–15) and comparable to the findings of the scale developers (21, 22). Similarly to the original scales, very high item-to-total correlations above 0.7 were found for MOR-7 and for MADM, i.e. each single item strongly correlated with the sum of all other items of the respective scale, thus providing strong evidence for the homogeneity of these scales (49).

Because of their homogeneity, uni-dimensionality of the scales was assumed. Factor analysis confirmed this assumption for all scales: With only one eigenvalue larger than one, scree plots showing a clear elbow curve and high loadings on one factor, MOR7, MORG and MADM – similarly to the original scales – form uni-dimensional scales with good construct validity. Future users of the MORG scale might discuss eliminating item f ("During my birth I held back from asking questions or discussing my concerns because my doctor or midwife didn't use language that I could understand.") because of its far lower factor loading in comparison to the other items of this scale.

The almost perfect correlation between MORG and MOR7 allows to consider the use of MOR7 as sufficient for the assessment of respectful care. It would be a short and effective measure and, as it has not been altered in the validation process, it may be more useful for international comparisons than the adapted version MORG. On the other hand, MORG integrates more aspects of respectful care drawing a broader picture of the construct respect. In consequence, for German prevalence or intervention studies MORG would be the preferable option.

Finally, strong and significant negative correlations of MOR7, MORG and MADM scale scores with PSSSR scale scores assessed convergent validity of these scales, thus further confirming construct validity. Based on scientific evidence on the relationship between inappropriate intrapartum care and trauma (2, 3, 5, 29, 43), it has been hypothesized that low perceived respect or autonomy during childbirth would be associated with increased posttraumatic stress symptoms. Hollander et al. (50), for example, found lack of autonomy in decision making to be attributed to childbirth trauma by 30% of the participants of their cross-sectional survey conducted in the Netherlands among 2,192 women with a self-reported traumatic birth experience. However, measures of respectful care, autonomy in decision making or mistreatment during childbirth have never been correlated with validated measures of postpartum PTSD before. A strong association of indicators of obstetric violence with postpartum depression has recently been assessed in a Brazilian cross sectional study with 10,468 women (51): Women who experienced neglect, verbal violence, or physical violence were found to have an up to seven times higher risk of developing postpartum depression than women without these experiences. It has to be noted, however, that the authors did not use a validated instrument to measure obstetric violence.

#### *Strengths and limitations of the study*

The present study is the first quantitative study on disrespect and abuse during childbirth (D&A) in the German maternity care context. Furthermore, the current study assessed associations between indicators of D&A and symptoms of postpartum posttraumatic stress disorder for the first time. Convergent validation against a measure of PTSD is a new and significant addition to the testing of validity and utility of the MOR and MADM scales.

Certainly, the high sample size is another strength of this study. As delineated above, the sample is not representative of the target population, and therefore generalisability of the results is limited. The selection bias towards women who experienced disrespect & abuse in the sample, however, facilitated tool validation in particular with regard to the relevance of the items. The recall bias is

assumed to be minimal in this study because women's recall of their childbirth experiences has been shown to be very accurate when compared to medical records, even 10 to 15 years after the event (52).

Due to a transcription error from paper to the survey software, the PSS-SR item "Did you have trouble concentrating?" was missing in the survey. One possibility to overcome this problem could have been to replace the missing values by the respective means of the other 16 values to get an estimate of the PSS-SR scores. Although this option is an established statistical procedure to deal with a moderate number of missing data, it is not recommended when all values are missing because it can severely distort results of analyses (35). All calculations therefore were made with the remaining 16 items. The Cronbach's alpha was higher than has been reported for the original scale (30) and also higher than in later studies using the PSS-SR postpartum (33, 53, 54). Therefore the 16-item scale was considered to be valid and useful for the purpose of this study to assess convergent validity between the constructs of respect, autonomy in decision making, and mistreatment and the construct of postpartum posttraumatic stress. The missing item, which refers to difficulties concentrating after the event, moreover, can be considered as one of the less meaningful symptoms when used to assess posttraumatic stress in the puerperium. Difficulties concentrating may be normal in this phase of reorientation, often accompanied by lack of sleep, instead of indicating trauma.

Despite the strong associations observed between indicators of D&A with postpartum PTSD symptoms, causality cannot be assumed because of the cross-sectional nature of the study measuring outcome and exposure simultaneously. Furthermore, the survey participants were not screened for prior trauma, one of the main predictors of postpartum PTSD (2).

## Conclusions

This study presents a valid and reliable instrument derived from international evidence for the quantitative assessment of disrespect and abuse during childbirth in Germany. It addresses the four domains respect, autonomy in decision making, discrimination and mistreatment, which are relevant aspects for high-income countries and align with WHO definitions of disrespect and abuse. The included translated and adapted scales showed very good psychometric properties when administered to a German sample of childbearing women. The study results demonstrate that childbearing women's experiences of disrespect and abuse are a relevant phenomenon in German maternity care.

Disrespect and abuse during childbirth may be associated with severe mental health problems postpartum. By providing respectful, dignified and supportive care to women during childbirth, midwives and other maternity care providers play a key role in preventing postpartum trauma with its possible negative impact on women's, family and child health.

## Declarations

*Ethics approval (see line 208):* Ethics committee of Hannover Medical School, September 10th, 2018 (Ref No: 8075\_BO\_K\_2018). Participation (online) was anonymous and confidentiality was assured. Respondents could stop participating at any stage.

*Consent for publication:* The manuscript contains no individual person's data.

*Availability of data and materials:* The datasets generated and analysed during the current study are not publicly available because they are still used in further research but are available from the corresponding author on reasonable request.

*Competing interests:* The authors declare that they have no competing interests.

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*Authors' contributions:* MMG and JL made substantial contributions to the conception and design of the work. KS made substantial contributions to the data analysis and SV substantially revised the manuscript. All authors read and approved the final manuscript and have agreed to be personally accountable for their contributions and have appropriately investigated and resolved all questions related to the accuracy and integrity of any part of the work.

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## Tables

Table 1. MOR-G frequency table, item – total statistics and factor structure (n = 2045).

Item*	% who agreed with item	Corrected item – total correlation	Cronbach's $\alpha$ if item deleted	Factor loadings**
Bei Entscheidungen über meine Versorgung während der Geburt... <i>[Overall while making decisions about my birth care...]</i>				
(a) konnte ich im Allgemeinen mit gutem Gefühl Fragen stellen. <i>[I felt comfortable asking questions.]</i>	56.3	0.85	0.94	0.88
(b) konnte ich Betreuungsangebote mit gutem Gefühl ablehnen. <i>[I felt comfortable declining care that was offered.]</i>	43.7	0.81	0.94	0.84
(c) konnte ich mit gutem Gefühl die Art der Betreuung annehmen, die meine Hebamme* oder mein Arzt / meine Ärztin empfohlen hatte. <i>[I felt comfortable accepting the options for care that my (midwife, doctor) recommended.]</i>	49.3	0.87	0.94	0.90
(d) habe ich mich genötigt / gedrängt gefühlt, die Vorschläge meiner Hebamme oder meines Arztes / meiner Ärztin anzunehmen. <i>[I felt coerced/pushed into accepting the options my (midwife, doctor) suggested.] reverse coded</i>	59.6	0.80	0.94	0.82
(e) habe ich die Art meiner Betreuung grundsätzlich selbst gewählt. <i>[I chose the care options that I received.]</i>	43.2	0.79	0.94	0.81
(f) wurden meine persönlichen Wünsche generell respektiert. <i>[my personal preferences were respected.]</i>	48.5	0.87	0.94	0.90
(g) wurden meine kulturellen Gewohnheiten und Bedürfnisse generell respektiert. <i>[my cultural preferences were respected.]</i>	75.9	0.72	0.95	0.75
Während der Geburt hielt ich mich zurück, Fragen zu stellen oder meine Sorgen zu besprechen... <i>[During my birth I held back from asking questions or discussing my concerns because...]</i>				
(a) weil meine Hebamme oder mein Arzt / meine Ärztin in Eile zu sein schien. <i>my (midwife, doctor) seemed rushed</i>	51.9	0.71	0.95	0.72
(b) weil ich mir eine Geburtsbetreuung wünschte, die sich von den Empfehlungen meiner Hebamme oder meines Arztes / meiner Ärztin unterschied. <i>[I wanted maternity care that differed from what my (midwife, doctor) recommended.]</i>	44.7	0.74	0.95	0.75
(c) weil ich dachte, meine Hebamme oder mein Arzt / meine Ärztin könnte mich sonst für schwierig halten. <i>[I thought my doctor or midwife might think I was being difficult.]</i>	45.2	0.63	,95	0.64
(d) weil ich mich diskriminiert fühlte. <i>[I felt discriminated against.]</i>	18.2	0.64	0.95	0.65
(e) weil ich das Gefühl hatte, dass meine Hebamme oder mein Arzt / meine Ärztin meine Meinung nicht wertschätzte. <i>[I felt my doctor or midwife didn't value my opinion.]</i>	51.7	0.85	0.94	0.87
(f) weil meine Hebamme oder mein Arzt / meine Ärztin eine Sprache verwendete, die für mich unverständlich war. <i>[my doctor or midwife didn't use language that I could understand.]</i>	8.2	0.37	0.95	0.37

\* Original English version in brackets

\*\* Factor extraction method: Unweighted least squares

Table 2. MOR-7 frequency table, item – total statistics and factor structure (n = 2045).

Item*	% who agreed with item	Corrected item – total correlation	Cronbach's $\alpha$ if item deleted	Factor loadings**
Bei Entscheidungen über meine Versorgung während der Geburt...				
(a) konnte ich im Allgemeinen mit gutem Gefühl Fragen stellen.	56.3	0.86	0.94	0.89
(b) konnte ich Betreuungsangebote mit gutem Gefühl ablehnen.	43.7	0.84	0.94	0.86
(c) konnte ich mit gutem Gefühl die Art der Betreuung annehmen, die meine Hebamme* oder mein Arzt / meine Ärztin empfohlen hatte.	49.3	0.89	0.94	0.92
(d) habe ich mich genötigt / gedrängt gefühlt, die Vorschläge meiner Hebamme oder meines Arztes / meiner Ärztin anzunehmen. <i>(reverse coded)</i>	59.6	0.79	0.95	0.82
(e) habe ich die Art meiner Betreuung grundsätzlich selbst gewählt.	43.2	0.80	0.94	0.83
(f) wurden meine persönlichen Wünsche generell respektiert.	48.5	0.89	0.94	0.91
(g) wurden meine kulturellen Gewohnheiten und Bedürfnisse generell respektiert.	75.9	0.73	0.95	0.75

\* English version see table 1

\*\* Factor extraction method: Unweighted least squares

Table 3. MADM frequency table, item – total statistics and factor structure (n = 2045).

Item*	% who agreed with item	Corrected item – total correlation	Cronbach's $\alpha$ if item deleted	Factor loadings**
(a) Meine Hebamme oder mein Arzt / meine Ärztin hat mich gefragt, inwieweit ich an Entscheidungen beteiligt werden wollte. <i>[My doctor or midwife asked me how involved in decision making I wanted to be.]</i>	28.5	0.81	0.96	0.83
b) Meine Hebamme oder mein Arzt / meine Ärztin hat mir erklärt, dass es für meine geburtshilfliche Betreuung unterschiedliche Möglichkeiten gibt. <i>[My doctor or midwife told me that there are different options for my maternity care.]</i>	36.6	0.88	0.96	0.90
(c) Meine Hebamme oder mein Arzt / meine Ärztin hat mir die Vor- und Nachteile verschiedener Formen geburtshilflicher Betreuung erklärt. <i>[My doctor or midwife explained the advantages/disadvantages of the maternity care options.]</i>	31.4	0.88	0.96	0.90
d) Meine Hebamme oder mein Arzt / meine Ärztin half mir, alle Informationen zu verstehen. <i>[My doctor or midwife helped me understand all the information.]</i>	41.9	0.87	0.96	0.89
e) Mir wurde ausreichend Zeit gegeben, die unterschiedlichen geburtshilflichen Möglichkeiten gründlich zu durchdenken. <i>I was given enough time to thoroughly consider the different care options.]</i>	32.0	0.90	0.95	0.92
f) Ich konnte die Betreuungsmöglichkeiten auswählen, die ich für die besten hielt. <i>[I was able to choose what I considered to be the best care options.]</i>	35.0	0.87	0.95	0.91
(g) Meine Hebamme oder mein Arzt / meine Ärztin haben meine Entscheidungen respektiert. <i>[My doctor or midwife respected my choices.]</i>	45.6	0.83	0.96	0.85

\* Original English version in brackets

\*\* Factor extraction method: Unweighted least squares

Table 4: Frequency statistics of items indicating discrimination (multiple answers possible, n = 2045)

Item*	Frequency	Percent
Während der Geburt fühlte ich mich von meiner Hebamme oder meinem Arzt/meiner Ärztin schlecht behandelt... <i>[When I had my baby I felt that I was treated poorly by my (midwife, doctor)...]</i>		
(a) wegen meiner Herkunft, meiner Hautfarbe, meines kulturellen Hintergrundes oder meiner Sprache. <i>[because of my race, ethnicity, cultural background or language.]</i>	104	5.1
(b) wegen meiner sexuellen Orientierung und / oder meiner Geschlechtsidentität. <i>[because of my sexual orientation and/or gender identity.]</i>	12	0.6
(c) wegen meiner Behinderung / chronischen Krankheit. <i>[because of my handicap/chronic disease.]</i>	40	2.0
(d) wegen meines HIV-Status. <i>[because of my HIV status.]</i>	0	0.0
(e) wegen meines Alters. <i>[because of my age.]</i>	207	10.1
(f) wegen meines Übergewichts. <i>[because of my overweight.]</i>	216	10.6
(g) aufgrund meiner sozialen Lage. <i>[because of my socio-economic situation.]</i>	79	3.9
(h) wegen meiner Art der Krankenversicherung bzw. meiner fehlenden Versicherung. <i>[because of my type of health insurance or lack of insurance.]</i>	71	3.5
(i) weil ich über die richtige Versorgung für mich oder mein Baby anderer Meinung war als mein Betreuungspersonal (z.B. den Wunsch nach einem alternativen Vorgehen geäußert habe). <i>[because of a difference in opinion with my caregivers about the right care for myself or my baby.]</i>	883	43.2

\* Original English version in brackets

Table 5: Frequency statistics of the mistreatment items (listed by frequency, n = 2045)..



Items*	Frequency	Percent
(9)* Eingriffe (z. B. Dammschnitt, Kaiserschnitt, vaginale Untersuchung, Anlegen eines Wehentropfs, Fruchtblaseneröffnung, Injektion eines Medikaments, venöser Zugang) wurden ohne Ihr Einverständnis durchgeführt. <i>[interventions (e.g. episiotomy, cesarean section, oxytocin infusion, amniotomy, drug injection, venous access) were conducted without your consent.]</i>	875	42.8
(10)* Sie haben körperliche Gewalt erfahren (einschließlich schmerzhafter vaginaler Untersuchung, nicht ausreichender Betäubung beim Nähen eines Dammschnittes, unangemessener sexueller Berührung, aggressivem Körperkontakt, o. Ä.). <i>[You experienced physical abuse (including painful vaginal examination, insufficient anaesthesia for an episiotomy, inappropriate sexual conduct, aggressive physical contact, etc.)]</i>	688	33.6
(2)* Ihre Privatsphäre wurde verletzt (z. B. wurden Sie ungefragt entblößt oder andere Menschen waren ohne Ihr Einverständnis im Geburtsraum). <i>[Your physical privacy was violated (i.e., being uncovered or having people in the delivery room without your consent)]</i>	668	32.7
(7)* Das Betreuungspersonal hat Sie ignoriert, Ihnen Hilfe verweigert oder innerhalb eines angemessenen Zeitraums nicht auf Ihre Bitte um Hilfe reagiert. <i>[Health care provider(s) ignored you, refused your request for help, or failed to respond to requests for help in a reasonable amount of time.]</i>	626	30.6
(5)* Eine Hebamme, ein Arzt / eine Ärztin oder ein/e Krankenpfleger*in hat Ihnen auf eine andere Weise gedroht (z.B. mit der Gefahr für das Leben des Kindes). <i>[Health care provider(s) threatened you in any other way (e.g. with danger of live for your baby).]</i>	612	29.9
(8)* Das Betreuungspersonal hatte keine Zeit für Sie, als Sie dringend Hilfe brauchten. <i>[The health care providers had no time for you when you needed help.]</i>	607	29.7
(3)* Eine Hebamme, ein Arzt / eine Ärztin oder ein/e Krankenpfleger*in hat mit Ihnen geschimpft oder Sie angeschrien. <i>[A health care provider (doctor, midwife, or nurse) shouted at or scolded you.]</i>	584	28.6
(11)* Eine Hebamme, ein Arzt / eine Ärztin oder ein/e Krankenpfleger*in hat Ihnen mit den Händen oder den Unterarmen stark auf den Bauch gedrückt, um dem Baby herauszuhelfen. <i>[A doctor/midwife/nurse conducted fundal pressure with the hands or forearms to help the baby out.]</i>	558	27.3
(6)* Eine Hebamme, ein Arzt / eine Ärztin oder ein/e Krankenpfleger*in machte abfällige Bemerkungen über Sie. <i>[A health care provider (doctor, midwife, or nurse) made disparaging remarks against you.]</i>	505	24.7
(12)* Nichts von dem Genannten. <i>[None of the above.]</i>	478	23.4
(4)* Eine Hebamme, ein Arzt / eine Ärztin oder ein/e Krankenpfleger*in hat damit gedroht, Ihnen eine Behandlung zu verweigern oder Sie genötigt, einer Behandlung zuzustimmen, die Sie nicht wollten. <i>[Health care provider(s) threatened to withhold treatment or to force you to accept treatment that you did not want.]</i>	386	18.9
(13)* Sonstiges. <i>[Other.]</i>	265	13.0
(1)* Ihre privaten und persönlichen Informationen wurden anderen Personen ohne Ihr Einverständnis zugänglich gemacht. <i>[Your private or personal information was shared without your consent.]</i>	94	4.6

\* Numbers in brackets represent the sequence in the survey.

Table 6. Characteristics and reliability statistics of the scales (n = 2045).

Scale	Number of items	Median	Range	5 <sup>th</sup> /95 <sup>th</sup> Percentile	Cronbach's $\alpha$
MOR-7	7	24	35	9/42	0.95
MOR-G	13	47	65	25/77	0.95
MADM	7	18	35	7/42	0.96
MIST-I	12	3	12	0/9	n.a.
PSS-SR*	16	12	48	0/40	0.95

\*excludes item 14 ("Did you have trouble concentrating?")

Table 7. Nonparametric correlations of scale scores and indices (n = 2045).

		MOR-7	MOR-G	MADM	MIST-I	PSS-SR
<b>MOR-7</b>	Spearman's rho	1.00	0.96	0.82	-0.77	-0.67
	Sig. (2-tailed)	.	0.000	0.000	0.000	0.000
	n	2045	2045	2045	2045	2045
<b>MOR-G</b>	Spearman's rho	0.96	1.00	0.82	-0.79	-0.70
	Sig. (2-tailed)	0.000	.	0.000	0.000	0.000
	n	2045	2045	2045	2045	2045
<b>MADM</b>	Spearman's rho	0.82	0.82	1.00	-0.70	-0.61
	Sig. (2-tailed)	0.000	0.000	.	0.000	0.000
	n	2045	2045	2045	2045	2045
<b>MIST-I</b>	Spearman's rho	-0.77	-0.79	-0.70	1.00	0.68
	Sig. (2-tailed)	0.000	0.000	0.000	.	0.000
	N	2045	2045	2045	2045	2045
<b>PSS-SR</b>	Spearman's rho	-0.67	-0.70	-0.61	0.68	1.00
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	.
	n	2045	2045	2045	2045	2045

## Figures

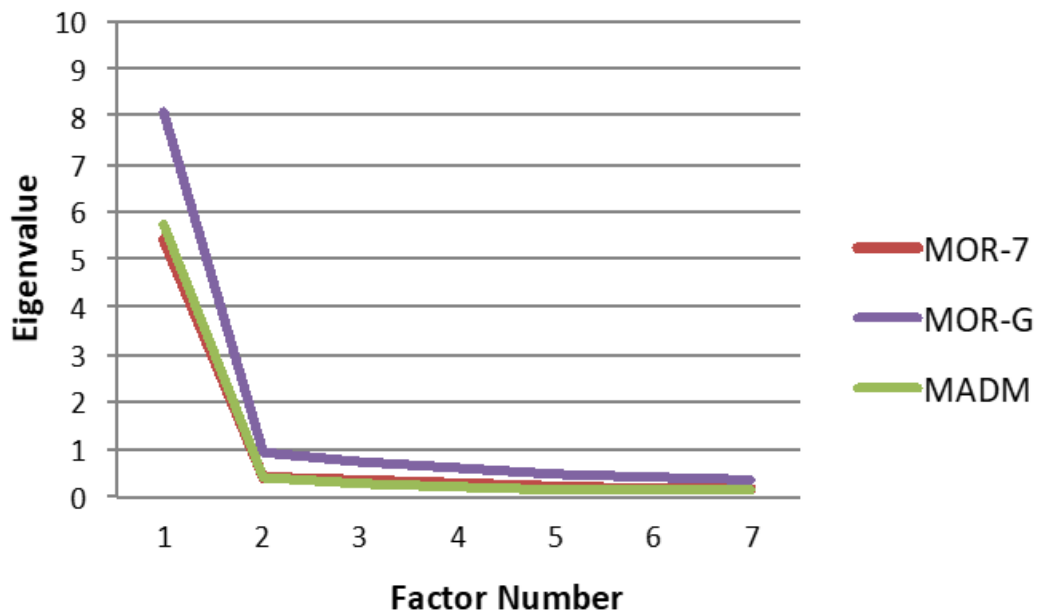


Figure 1

Figure 1. Scree plots for MOR-7, MOR-G and MADM items (n = 2045).

