



Adaptation and validation of the encoding of observations using CONSUL-MCC: A self-determination theory-based tool to observe consultations in maternity care

Joyce Kors^{a,c,h,*}, Veerle Duprez^b, Linda Martin^c, Corine J. Verhoeven^{c,d,i}, Ann van Hecke^{b,e}, Saskia M. Peerdeman^{f,j,k}, Rashmi A. Kusurkar^{a,g,h}

^a Amsterdam UMC Location Vrije Universiteit Amsterdam, Research in Education, Amsterdam, the Netherlands

^b Department of Public Health and Primary Care, Faculty of Medicine and Health Sciences, University Centre for Nursing and Midwifery, Ghent University, Ghent, Belgium

^c Amsterdam UMC Location Vrije Universiteit Amsterdam, Department of Midwifery Science, AVAG, Amsterdam Public Health Research Institute, Amsterdam, the Netherlands

^d Department of Obstetrics and Gynecology, Maxima Medical Centre, Veldhoven, the Netherlands

^e Nursing Department, Ghent University Hospital, Ghent, Belgium

^f Amsterdam UMC, Department Neurosurgery, Amsterdam, the Netherlands

^g Amsterdam Public Health, Quality of Care, Amsterdam, the Netherlands

^h LEARN! Research Institute for Learning and Education, Faculty of Psychology and Education, Vrije Universiteit Amsterdam, Amsterdam, the Netherlands

ⁱ Division of Midwifery, School of Health Sciences, University of Nottingham, Nottingham, UK

^j Amsterdam UMC, Faculty of Medicine, Teaching and Learning Centre, Amsterdam, the Netherlands

^k Amsterdam Public Health (APH), Program Quality of Care, Amsterdam, the Netherlands

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ABSTRACT

Objective: During autonomy-supportive consultations, professionals use a need-supportive interaction style to facilitate patients' self-regulated behaviour. To improve maternity care professionals' need-supportive interactions, it is important to provide insights into their interaction style. No tool is currently available for measuring need-supportive interactions in maternity care. Therefore, the aim of this study was to adapt the COUNSEL-CCE to evaluate need-supportive interactions in maternity care and to validate their measurements.

Methods: A five-step adaptation and validation process was performed based on the guideline of Sousa and Rojjanasrirat: 1) adaptation of COUNSEL-CCE by two authors independently; 2) development of a consensus-based tool: CONSUL-MCC; 3) qualitative assessment of CONSUL-MCC; 4) pilot testing of CONSUL-MCC in the target population ($N = 10$) and 5) psychometric testing in the target population ($N = 453$).

Results: All indicators of the original tool remained relevant. Four items were rephrased, one indicator was added, and all examples were adapted to maternity care. The results of psychometric testing indicated good construct validity. However, the data characteristics made it impossible to prove the presumed factor structure and perform an accurate intraclass correlation.

Conclusions and innovation: COUNSEL-CCE proved to be a new instrument to gain insights into professionals' interactions and be applied to maternity care.

1. Introduction

The past decades, there has been a shift in focus towards patient-centred care in maternity care. A key element of patient-centred care is providing the patients with choice and control [1]. This is specifically important in maternity care because of an increasing number of options

available for the various decisions that patients' need to make, such as participation in prenatal screenings, vaccination programmes or preferences regarding their care (e.g. birth plan). To help patients' make these decisions, healthcare professionals can use autonomy-supportive consultation, where they create an autonomy-supportive healthcare climate for the patients using a need-supportive interaction style.

* Corresponding author at: Amsterdam UMC, Location VUmc, PK KTC 7.024, De Boelelaan 1118, 1081 HZ Amsterdam, the Netherlands.

E-mail address: j.kors@amsterdamumc.nl (J. Kors).

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According to self-determination theory (SDT) autonomy-supportive consultation can facilitate more autonomous forms of self-regulated behaviour in patients regarding their health [2]. According to SDT, patients have three basic psychological needs: autonomy (feeling of choice in one's own behaviours), competence (feeling effective) and relatedness (feeling understood and cared for by others). The satisfaction of these psychological needs predicts autonomous motivation, adaptive self-regulated behaviour and health [3]. Self-regulated behaviour regarding health is important because if patients experience more autonomy, they will have better decision satisfaction and show higher compliance with treatment or behaviour change [4]. In contrast, frustration of these needs can result in controlled motivation, amotivation, and ill-being [3]. Autonomy-supportive consultation is based on empirically supported recommendations for healthcare professionals on how to meet patients' basic psychological needs. A need-supportive interaction style is autonomy-supportive, structuring and warm and facilitates patients' autonomy. In contrast, a need-thwarting interaction style is controlling, chaotic and cold and hinders patients' autonomy [2,3,5,6].

As mentioned before, the number of decisions patients need to make in maternity care has increased over the past few years. Maternity care professionals find it challenging to guide their patients through these decision-making processes in an autonomy-supportive way [7]. In the past decade, communication training in relation to decision-making for prenatal anomaly tests, has been offered to maternity care professionals. Despite such training, professionals tend to focus on providing information and find it difficult to offer decision-making support [8,9].

To support maternity care professionals and students in improving their need-supportive interaction style, it is important to provide insights into their own interaction style so that they can eventually adopt a more need-supportive style. Receiving personal, specific, meaningful and trustworthy feedback facilitates gaining insights into one's own interaction style [10,11]. In the specific case of healthcare professionals, it is helpful to provide feedback afterwards instead of interrupting professionals during a task. Feedback is perceived as more trustworthy if it is based on direct observation of performance [10,12]. A key component for facilitating assessors is an observation tool that defines the different aspects of the performance and instruct the assessors on what to look for and how to judge to build their feedback on [13]. At present, however, to the best of our knowledge, there is no tool available for observing and coding both need-supportive and need-thwarting interactions in maternity care in daily practice.

Interaction is an important component to support autonomous motivation. For this reason, studies on need-supportive interactions in other domains (e.g. education) are also meaningful for healthcare. In 2013, a study on teacher-student interactions by Haerens et al. [14] found four factors related to need-supportive dimensions in SDT: autonomy support, structure before the activity, structure during the activity, and relatedness support. To achieve more integrative and fine-grained insights into both need-supportive and need-thwarting interactions, a multiscale analysis was performed by Aelterman et al. [5]. They found a circumplex model with an autonomy support-control axis and a structure-chaos axis, in which more autonomy-supportive and structuring interactions meet students' basic psychological needs. Based on their results, they divided each factor into two subfactors, as represented in Fig. 1.

Grounded in this SDT circumplex model [5] and the empirically founded recommendations for healthcare professionals [6], Duprez et al. [15] developed and validated the Coding and Observing Need-Supportive Counseling in Chronic Care Encounters (COUNSEL-CCE). The COUNSEL-CCE is a tool which is used for encoding healthcare professionals' engagement in need-supportive and need-thwarting counseling in chronic care encounters. COUNSEL-CCE encodes healthcare professionals' interaction styles on two axes: autonomy supportive versus control and structure versus chaos. Each factor is divided into two subfactors, based on Aelterman et al.'s model [5]. Each subfactor is

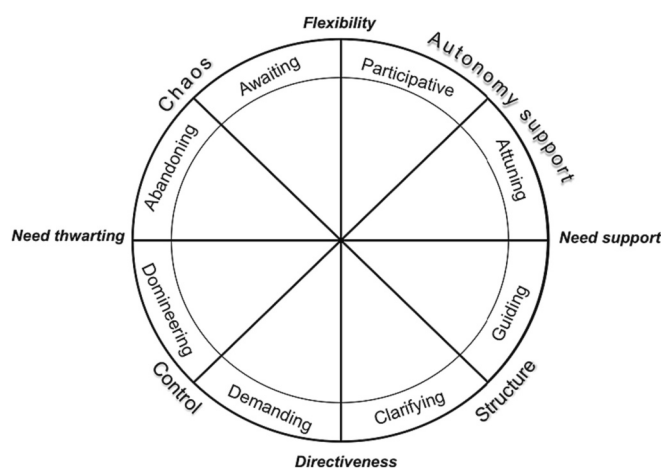


Fig. 1. Graphical representation of the circumplex model in an educational context [4,5].

operationalised using three to six observable indicators [16] (Appendix A), which means that the empirical evidence is translated into observable indicators. In addition, there are two overall indicators for the healthcare climate: the extent to which the climate is observed as warm and the extent to which the climate is observed as cold. COUNSEL-CCE comprises a manual in which each indicator is described and illustrated using an example. The manual also includes instructions on how to assess the video fragments and how to encode the indicators using the included score form.

COUNSEL-CCE appears promising: the authors reported supporting internal construct validity, and the correlations between the global impression and associated items revealed the highest correlation values (r between 0.35 and 0.85; $p < .01$). The inter-rater reliability was high for two subscales (>0.75), moderate for four subscales (between 0.50 and 0.75) and poor for three subscales (<0.50). The consistency of the coding was high (>0.75) for all subscales except the awaiting approach, for which the intra-rater reliability was moderate ($ICC = 0.66$; $95\% CI = 0.13-0.82$) [15].

In view of these promising results, we chose to adapt COUNSEL-CCE for use in the context of maternity care instead of developing a completely new tool. Adapting COUNSEL-CCE allowed us to investigate the applicability of this tool to another healthcare context, which potentially contributes to the development of a universal tool for encoding autonomy-supportive consultations in healthcare. The use of a universal tool would provide the opportunity to compare results among different healthcare contexts and learn from each other in the future. Moreover, the circumplex model offers a gradual appraisal of need-supporting and need-thwarting interactions, which enables professionals to gain precise insights into their own interaction style. Finally, the tool has been proved useful in the context of chronic care. Nevertheless, evidence is required for using the adapted tool in another context under different circumstances [17].

The aim of this study was to adapt COUNSEL-CCE to the context of maternity care and to validate the encoding of observations in maternity care. This process contributes to enhancing the knowledge on the extent to which indicators of need-supportive or need-thwarting interactions are generic over different healthcare contexts and to the development of a universal tool for encoding autonomy-supportive consultation in practice.

2. Methods

2.1. Design

The adaptation and validation process of this study was based on the

guideline for cross-cultural translation, adaptation and validation of instruments by Sousa and Rojjanasrirat [18](Fig. 2). The psychometric testing of the tool was grounded in the standard for education and psychological testing [17].

The process involved the steps as shown in Figure 2

2.2. Tool

The adapted tool was termed Coding and Observing Need-Supportive Consultation in Maternity Care Consultations (CONSUL-MCC), which encode need-supportive or need-thwarting interactions between maternity care professionals and their patients based on audio-taped consultations. The tool comprises a manual in which each indicator is described and illustrated using an example. The manual also includes instructions on how to assess the audio fragments and encode the indicators using a scoring form. The audiotapes were divided into units of 5 min to facilitate the assessor to focus on the accurate coding of the interactions. The assessors were allowed to recode a certain fragment when they had doubts about the coding. Each indicator was scored on a Likert scale (0–4). The coding ranged from 0 (not observed at all), through 1 (rarely observed), 2 (sometimes observed) and 3 (observed regularly) to 4 (observed continuously).

To assess the construct validity during the validation process, the tool was extended with 12 indicators to encode the overall impression on each factor and subfactor.

2.3. Setting

The consultations took place in primary maternity care, as well as in maternity care in hospitals. The tool was used in all types of maternity

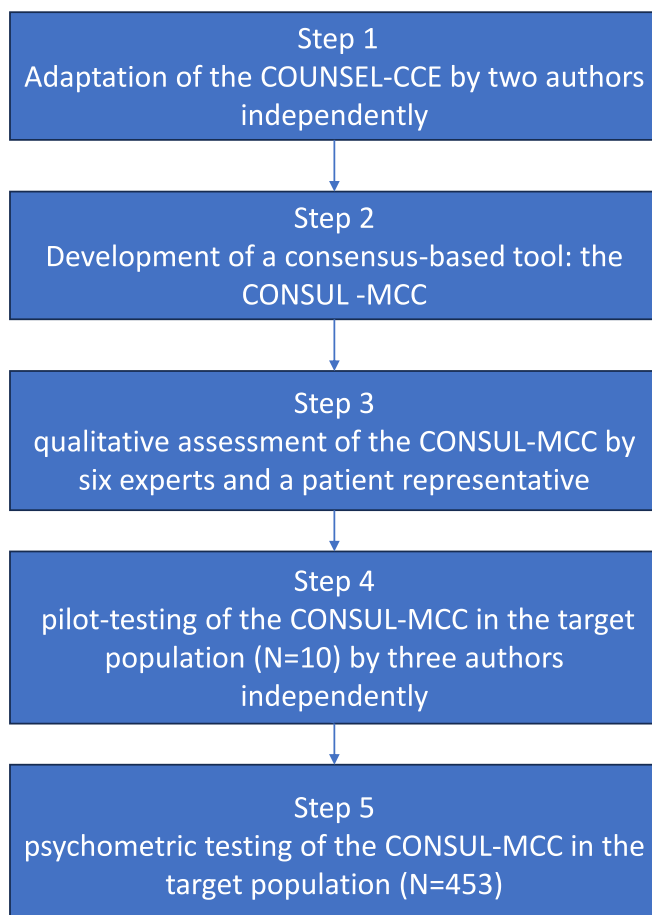


Fig. 2. Adaptation and validation of CONSUL-MCC.

care consultations because in each consultation, there are choices to discuss and decisions to be made. Considering the applicability of the tool in this study, consultations with an interpreter, emergency consultations and encounters during birth were excluded.

2.4. Adaptation

First the original tool was adapted to the context of maternity care in the Netherlands by checking the applicability of the indicators' descriptions and rewriting the examples in the context of maternity care. This adaptation was independently performed by two researchers: VD, a nurse and developer of the original tool, and JK, an educationalist and midwife (non-practicing). Second, both adapted versions were compared, and discrepancies were discussed until consensus was reached. This step generated the preliminary version of CONSUL-MCC. In the next step, an expert group was asked to look at the relevance and ecological validity of all indicators for maternity care, the clarity of the indicators' descriptions and the recognisability of the examples. The group comprised six experts: midwives (hospital-based and primary care), communication experts and SDT experts. They were also asked to compare CONSUL-MCC with the original tool and assess the consistency between the tools. To do so each expert received a document with the original tool and the preliminary version of CONSUL-MCC next to each other. Subsequently each expert was interviewed individually by JK during which every indicator and example, as well as the overall impression, was discussed. To finalise the adaptation, a patient representative recruited by the Board of Mothers (patient organisation) based on recent experience with both primary and hospital-based maternity care was asked to judge the relevance of the indicators for maternity care consultations, the clarity of the descriptions and the recognisability of the examples. The patient representative also received a document with the original tool and the preliminary version of CONSUL-MCC next to each other and was subsequently interviewed by JK, during which every indicator and example as well as the overall impression, was discussed.

2.5. Pilot-testing

The pre-final version of CONSUL-MCC was tested in a small sample population ($N = 10$), after which further adaptations were made. Pilot testing was intended to test the comprehensibility, relevance and usability of the tool. The pilot testing was performed by three researchers (JK, VD and LM), who independently coded the same 10 units of maternity care consultations each [16].

2.6. Psychometric testing

The final version of CONSUL-MCC was tested psychometrically in a sample of the target population. The sample comprised 104 consultations with 21 maternity care professionals. The 104 consultations were divided into 453 units of five minutes of audiotaped interactions.

2.6.1. Factor structure

The theoretical grounded factor structure of the tool was confirmed using a confirmatory factor analysis (CFA) [19,20]. The internal consistency of the indicators within a factor was explored by calculating Cronbach's alpha [19]. For a complex construct such as interaction style, a Cronbach's alpha value of >0.60 was considered acceptable [17].

2.6.2. Construct validity

Construct validity was tested by calculating the correlation between the total sum score of the indicators on the factors and subfactors and the global impression on these factors and subfactors. Because the data were measured at the ordinal level, they were compared using Spearman's correlation coefficients. A positive correlation was assumed; therefore, significance was tested in a one-tailed fashion [19].

2.6.3. Inter- and intra-rater reliability

Since the validity of the measurements depends on their reliability [17], their consistency, regardless of the rater or the moment, was analysed. To establish the inter-rater reliability, a sample of 51 units was independently rated by three assessors [VD, JK and LM (communication expert)] [16]. All assessors were familiar with the tool and trained by VD before starting coding. After coding the first 10 units, the codes were compared and the differences were discussed. A sample of 50 is usually suitable for balancing out rater variance while having an acceptable workload for the assessors [16]. To establish intra-rater reliability, 30 units were rated twice by JK with an interval of two weeks. Since the level of the measurements was continuous, the intraclass correlation (ICC) coefficients were calculated with 95% confidence intervals [16].

3. Results

3.1. Adaptation

The experts and the patient representative indicated that all indicators used in the original tool were also relevant for use in maternity care. They expected most indicators of controlling and chaotic interactions to be rarely observed, especially in non-acute consultations. However, they found it highly relevant that these interactions were explicitly observed whenever they occurred. To improve clarity, the descriptions of three indicators... aligns with the patient's perspective', '... allows emotions and actively names them 'and '... explores the patient's goals', were made more specific based on the Maastricht History-taking and Advice Scoring list (MAAS-global) [21]. One indicator, '... let the patient find out for himself', was rephrased as '...do not disturb the patient, let the patient think for themselves' to improve interpretability.

Table 1
Frequencies of observed indicators

Indicator	0 Not observed at all	1 Rarely observed	2 Observed occasionally	3 Observed regularly	4 Observed continuously	Missing value
Autonomy support						
Attuned						
1	35	35	115	268	0	
2	243	50	70	90	0	
3	74	48	151	180	0	
4	121	68	122	142	0	
5	380	36	25	12	0	
6	48	41	131	233	0	
Participatory						
7	316	44	65	28	0	
8	220	101	89	43	0	
9	249	68	91	45	0	
10	280	51	63	59	0	
10a	429	18	5	1	0	
11	219	31	79	121	3	
12	451	1	0	1	0	
Control						
Dominating						
13	446	5	2	0	0	
14	393	48	11	1	0	
15	385	47	16	5	0	
16	155	135	52	111	0	
17	409	36	7	1	0	
Demanding						
18	444	7	1	0	0	1
19	447	6	0	0	0	
20	453	0	0	0	0	
21	444	8	0	0	0	1
Structure						
Guiding						
22	315	81	37	20	0	
23	191	65	91	103	2	1
24	411	18	20	3	0	1
25	430	19	2	1	0	1
26	322	105	8	17	0	1
Clarifying						
27	385	34	21	13	0	
28	444	7	1	1	0	
29	54	22	56	316	5	
30	385	56	9	2	0	1
31	233	87	89	44	0	
32	1	0	3	447	2	
Chaos						
Abandon						
33	425	20	8	0	0	
34	437	15	1	0	0	
35	451	1	1	0	0	
36	436	14	3	0	0	
Awaiting						
37	452	1	0	0	0	
38	442	11	0	0	0	
39	436	15	2	0	0	

Furthermore, the experts stressed the need to include a new indicator about stimulating patients to organise the support of next of kin. All original examples needed to be adapted to make them recognisable for professionals in the context of maternity care. The examples in the pre-final version of CONSUL-MCC were formulated by VD and JK and were supplemented and clarified by the experts and the patient representative.

3.2. Pilot-testing

Some adjustments were made during the pilot testing based on the difficulties the researchers experienced while coding the indicators. To clarify the differences between some indicators, a comparison was added to the description. For example, a comparison was added to clarify the difference between indicators 15 and 17, with 17 indicating that the healthcare professional ignored the value of the patient's contribution, while 15 indicating that the healthcare professional did not provide room for the patient to participate and dominated the conversation. For some indicators, the description was clarified by adding specific examples, for instance, for indicator 10: 'How would you like to achieve your goal?' In some cases, parts of the description were highlighted; for instance, indicator 11: was about explaining and interpreting, **not** informing.

3.3. Psychometric testing

Although our sample comprised 453 units, some of the indicators were observed only a few times or never. These indicators were specifically related to the controlling and chaotic subfactors: Demanding, Dominating, Abandoning, and Awaiting. Other indicators were mostly observed at the same frequency, such as '...the professional uses suitable language' (item 32), which resulted in only a small variance (Table 1). These characteristics of our data induced some statistical difficulties; which are described below.

3.3.1. Factor structure

To perform CFA, a minimum sample size is required. Although there is no exact rule for the number of measurements required, the general consensus appears to be 10 per estimated parameter [20]. Because some of the indicators were not observed, we did not have enough measurements to perform CFA.

Cronbach's alpha was acceptable for the subfactors Attuned (0.75) and Participatory (0.56). For the subfactor Guiding, after deleting one indicator, (i.e. indicator 22, '...Sets realistic goals in collaboration'), Cronbach's alpha was moderate (0.43). Based on the statistical outcome, the consistency between the indicators within this subfactor was qualitatively reassessed. Because 'Sets realistic goals in collaboration' differs from the other indicators described within the subfactor Guiding, indicator 22 was deleted. For the other subfactors, the number of test indicators was too small; hence, the assumption of tau-equivalence was violated. In that case, it was not meaningful to calculate Cronbach's alpha because the reliability would be underestimated [22].

3.3.2. Construct validity

The strongest correlation was found between the sum score and the overall impression on the same factor. This was also the case for the subfactors excluding, Demanding and Clarifying. For these subfactors, the strongest correlation was found between the sum of their indicators and the factor to which they belonged. Spearman's correlation was good (>0.7) for all factors and subfactors except Structure and Clarifying, for which the correlation was moderate (Table 2).

3.3.3. Inter- and intra-rater reliability

When calculating the inter- and intra-rater reliability, difficulties were experienced because some indicators were not observed by one of the three assessors; it was not always the same assessor who did not

Table 2 Construct validity of Spearman's correlation between factors/subfactors and internal measure (global impression).

Sum of indicators	Global impression											
	Autonomy support	Attuning	Participating	Control	Dominating	Demanding	Structure	Guiding	Clarifying	Chaos	Abandoning	Awaiting
Autonomy support	0.794**	0.792**	0.511**	-0.263**	-0.002	-0.264**	0.232**	0.352**	0.007	-0.091*	-0.093*	-0.044
Attuned	0.763**	0.811**	0.448**	-0.299**	-0.003	-0.300**	0.215**	0.345**	-0.012	-0.105*	-0.115**	-0.033
Participatory	0.744**	0.416**	0.884**	-0.171**	-0.014	-0.169**	0.439**	0.496**	0.194**	-0.037	-0.037	-0.017
Control	-0.118**	-0.110**	-0.095*	0.778**	0.227**	0.761**	-0.019	0.014	-0.078*	0.112**	0.140**	0.017
Dominating	0.011	0.019	-0.037	0.145**	0.731**	0.054	-0.025	0.025	-0.036	0.041	-0.069	0.160**
Demanding	-0.119**	-0.119**	-0.086*	0.773**	0.145**	0.772**	-0.015	0.015	-0.075	0.091*	0.150**	-0.048
Structure	0.330**	0.179**	0.401**	-0.213**	-0.003	-0.213**	0.633**	0.506**	0.436**	0.051	-0.078*	-0.026
Guiding	0.442**	0.275**	0.507**	-0.200**	0.048	-0.208**	0.635**	0.808**	0.134**	0.027	0.019	0.016
Clarifying	0.312**	0.128**	0.422**	-0.161**	-0.006	-0.159**	0.639**	0.434**	0.517**	0.053	0.091*	-0.044
Chaos	-0.084*	-0.108*	-0.010	0.062	0.047	0.052	-0.042	0.018	-0.061	0.746**	0.663**	0.358**
Abandon	-0.109*	-0.146**	-0.010	0.091*	0.033	0.084*	-0.006	-0.006	-0.003	0.672**	0.781**	0.104*
Awaiting	-0.0007	0.004	-0.008	-0.005	-0.001	-0.007	-0.076	0.018	-0.116**	0.437**	0.035	0.802**

** Correlation is significant at the 0.01 level (one-tailed).

* Correlation is significant at the 0.05 level (one-tailed).

observe an indicator. In addition, the number of scores for some of the indicators was too small to produce sufficiently accurate ICC for assessment [23]. For this reason, only the inter-rater reliability was calculated for the subfactor Attuned. The ICC for Attuned was 0.65 (CI 0.44–0.79), which is considered moderate.

4. Discussion and conclusion

4.1. Discussion

The aim of this study was to adapt COUNSEL-CCE to the context of maternity care and to validate the encoding of this tool in maternity care. All indicators underlying the four factors of COUNSEL-CCE were also deemed important in the context of maternity care. Although based on the factor analyses, we doubt if ‘...sets realistic goals in collaboration’ is an indicator belonging to the subfactor Guiding; it is a relevant indicator based on the qualitative assessment. We could replace the examples in the context of chronic care with those in the context of maternity care. A new indicator was added about stimulating patients to organise the support of next of kin. The results of psychometric testing showed good construct validity based on the correlation between the sum score and the overall impression on the four factors and their subfactors. The data characteristics made it challenging to prove the proposed factor structure and to produce a sufficiently accurate ICC.

The results of testing the re-named CONSUL-MCC in the target population showed many zero scores because some indicators were not observed. In particular, the need-thwarting indicators were hardly observed. This phenomenon attributable to several explanations, such as the origin of the tool, the context of maternity care in daily practice and the data collection.

The tool is based on SDT, which states that need-supportive interactions can facilitate people's autonomous motivation and self-regulated behaviour. This theory is applied in many domains, including education and healthcare. Grounded in Aelterman et al.'s circumplex model [5], CONSUL-MCC facilitates the observation of need-supportive and need-thwarting interactions. However, this model [5] was constructed based on vignettes in which students and teachers had to choose between interactions which contribute to autonomy support or control and to structure or chaos. For developing COUNSEL-CCE, the factors were adapted to observable indicators, based on empirical evidence [15]. In the present study, the audiotaped interactions were observed and scored on the indicators that contribute to the diverse factors. According to previous studies, need-thwarting interactions, which are found in the study context, are difficult to observe in daily practice. This might be due to the complexity of daily practice [24]. In addition, the literature shows much more empirical evidence for need-supportive interactions than that for need-thwarting interactions for healthcare professionals [2,3,6]. Particular chaos interactions have only scarcely been investigated [24]. Our results are in line with those of Duprez et al. [15], whose observational study in the context of chronic care encounters also found the lowest number of scores on the need-thwarting subfactors Dominating, Abandoning and Awaiting.

Perhaps the descriptions of need-thwarting indicators are too explicit, as they may be more subtle in daily practice. It is also possible that need-thwarting occur in interactions in which the professional uses too much of the need-supportive interactions. For example, too much structure or too much information giving can hinder someone's autonomy and competence needs [5]. Although measuring need-thwarting interactions is complicated, their specific measurement of is a strong aspect of CONSUL-MCC because according to the literature people are not demotivated by the absence of autonomy-supportive interactions, but through the use of need-thwarting interactions [24]. The overall good construct validity, as well as the qualitative assessment by experts, confirmed that the indicators tally with the assessors' holistic impression of the factors and subfactors.

Although autonomy support and competence building are important

in all contexts, their appearances can differ between different contexts. In the context of chronic care encounters and maternity care consultations, the content, focus and relationship are different. The focus in chronic care encounters is more on decision-making regarding behaviour change and on supporting motivation and confidence regarding healthy behaviour not only for the short term but also for the long term. In chronic care, professionals and patients build long-lasting relationships. In maternity care consultations, the focus in decision-making is mostly on relatively short-term health issues of patients or their babies and on the patients' wishes regarding care. During the limited period of care, maternity professionals support their patients to build confidence regarding their pregnancy, delivery and parenthood. In the literature, maternity care consultations have been described as comfortable and unconstrained [25]. Compared to Duprez et al.'s study [15], we observed fewer need-thwarting indicators. In addition, the indicators were assessed differently. For instance, for the indicator ‘...provides task-oriented or progress-oriented feedback’ in maternity care, the focus of this feedback is more on the patient's health and the normal progress in pregnancy instead of their behaviour. This focus may have made it more difficult for assessors to score an interaction as providing feedback or as providing information. We assume that context influences if and how indicators are observed.

Our findings may also have been influenced by our data collection method. We used audiotaped consultations because audiotapes are a proven concept in prenatal maternity care consultations [26]. This approach differs from the original approach, which encodes observations based on video fragments. Although the data were divided into five minute fragments to give assessors a relatively short focused time during coding, assessors could have missed some aspects of the interaction because of the large number of indicators in the tool. In qualitative research, the use of seven indicators with a standard deviation of two is recommended, whereas CONSUL-MCC comprises 39 indicators distributed over four factors and eight subfactors. To optimise the coding, it might be better if assessors first listen to the whole consultation before dividing it into units of five minutes.

Finally, some indicators might not have been present in the data, despite the large number of collected units. Some experts have suggested that need-thwarting interactions occur more often during birth or during more unpredictable and acute situations.

4.2. Limitations

We observed relatively few need-thwarting indicators which hinder autonomy-supportive consultation. Therefore, we could not perform full psychometric validation of the tool. However, the results of the construct validation and the qualitative assessment provide sufficient confirmation that CONSUL-MCC can be used to collect feedback on autonomy-supportive consultation in maternity care. We suggest further research to be conducted on the need-thwarting factors and their underlying indicators to provide detailed insights into these interactions and their effects on patients' self-regulated behaviour.

The professionals and patients knew that their consultations were being audiotaped for research purposes. This could have meant that they sometimes used more need-supportive and fewer need-thwarting interactions because they were in their best behaviour.

4.3. Innovation

Looking from a more general framing for innovation, the application of COUNSEL-CCE to the new context of maternity care is a novelty. COUNSEL-CCE seems to be the first tool which enables assessors to observe need-supportive and need-thwarting interactions in chronic care encounters. In our study, for the first time, COUNSEL-CCE was adapted and validated for use in another healthcare context, specifically maternity care. Our results show that COUNSEL-CCE can be adapted for use in the context of maternity care. This makes CONSUL-MCC the first

tool to facilitate feedback to maternity care professionals specifically on their need-supportive and probably to a lesser extent, their need-thwarting interactions in daily practice. This is important for patients because when they experience more autonomy, they will have more decision satisfaction and show higher compliance with treatment or behaviour change [4]. Based on our study results, we assume that COUNSEL-CCE can also be applied to other healthcare contexts. To achieve this, it is necessary to adapt the indicators' descriptions and examples for each context. Based on our research and the literature, the four factors, as well as the eight subfactors and their underlying indicators, appear to be universally applicable to all healthcare contexts. However, how these indicators are observable in practice can differ among different contexts.

The resulting tool can help assessors observe and thereby facilitate specific and trustworthy feedback. This feedback can offer professionals and students insights into their autonomy-supportive consultation behaviour. The large number of indicators allows assessors to provide, detailed feedback on specific interaction aspects. If the score on the indicators is amplified with observed examples, the feedback becomes even stronger, especially if the feedback receiver can listen to a recording of these specific moments in the interaction [10]. This can help professionals achieve a deeper understanding of the effects of their interactions [24].

4.4. Conclusion

It proved possible to adapt COUNSEL-CCE to the context of maternity care. The resulting CONSUL-MCC is a useful tool to gain insights into professionals' autonomy-supportive consultation although the tool is somewhat less suitable for observing need-thwarting interactions. For teachers and trainers, the tool might be helpful to collect detailed feedback on the difficulties that interns or professionals experience in autonomy-supportive consultation in daily practice. These insights could help teachers improve their training. For researchers, need-thwarting interactions are especially important to improve their knowledge of the way interactions could hinder patients' self-regulated behaviour during consultation.

Ethical considerations

The Medical Ethics Review Committee (METC) of Amsterdam UMC stated that this research is not subject to the Medical Scientific Research with Humans Act (WMO) (case number 2019.415). All participants received an information letter and a verbal explanation of the research and the audio recording. The participating maternity care professionals and patients gave their written consent.

Contributors

All co-authors contributed to the study design and data interpretation. Adaptation and construction of the MCC were undertaken by JK and VD. The pilot-testing was conducted by JK, VD and LM. JK wrote the first draft of the article and all co-authors contributed to the article with important critical revisions in multiple rounds of revisions. The final manuscript is the result of the combined expertise of all authors and is approved for publication by all authors. All individuals who qualify for authorship are listed as authors.

Credit author statement

All co-authors contributed to the design of the study and interpretation of the data. Adaptation and construction of the MCC was done by JK and VD. The pilot-testing was done by JK, VD and LM. JK wrote the first draft of the article and all co-authors contributed to the article with important critical revisions in multiple revision rounds. The final manuscript is the result of the combined expertise of all authors and is

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Declaration of Competing Interest

None declared.

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Appendix A. Supplementary data

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