


**ORIGINAL RESEARCH:
EMPIRICAL RESEARCH - QUALITATIVE**

From equity to power: Critical Success Factors for Twinning between midwives, a Delphi study

Franka Cadée^{1,2}  | Marianne J. Nieuwenhuijze² | Antoine L. M. Lagro-Janssen³ | Raymond de Vries^{1,2,4}

¹CAPHRI School for Public Health and Primary Care, Maastricht University, Maastricht, The Netherlands

²Research Centre for Midwifery Science Maastricht, Zuyd University, Maastricht, The Netherlands

³Department of Primary and Community Care, Gender and Women's Health, Radboud University Medical Center, Nijmegen, The Netherlands

⁴Center for Bioethics and Social Sciences in Medicine, University of Michigan Medical School, Ann Arbor, MI, USA

Correspondence

Franka Cadée, CAPHRI School for Public Health and Primary Care, Maastricht University, Maastricht, The Netherlands. Email: frankacadee@gmail.com

Abstract

Aims: To gain consensus for Critical Success Factors associated with Twinning in Midwifery.

Background: International publications identify midwifery as important for improving maternity care worldwide. Midwifery is a team effort where midwives play a key role. Yet their power to take on this role is often lacking. Twinning has garnered potential to develop power in professionals, however, its success varies because implementation is not always optimal. Critical Success Factors have demonstrated positive results in the managerial context and can be helpful to build effective Twinning relationships.

Design: We approached 56 midwife Twinning experts from 19 countries to participate in three Delphi rounds between 2016 - 2017.

Methods: In round 1, experts gave input through an open ended questionnaire and this was analysed to formulate Critical Success Factors statements that were scored on a 1–7 Likert scale aiming to gain consensus in rounds 2 and 3. These statements were operationalized for practical use such as a check list in planning, monitoring and evaluation in the field.

Findings: Thirty-three experts from 14 countries took part in all three Delphi rounds, producing 58 initial statements. This resulted in 25 Critical Success Factors covering issues of management, communication, commitment and values, most focus on equity.

Conclusion: The Critical Success Factors formulated represent the necessary ingredients for successful Twinning by providing a practical implementation framework and promote further research into the effect of Twinning. Findings show that making equity explicit in Twinning may contribute towards the power of midwives to take on their identified key role.

KEYWORDS

Delphi technique, empowerment, international health, leadership, midwifery, nursing

1 | INTRODUCTION

The only realistic way to achieve Sustainable Development Goal (SDG) 3.1 that calls for “the reduction in the global maternal mortality ratio to less than 70 per 100,000 live births by 2030”, is to extend midwifery services and empower midwives (UN, 2015). As with any healthcare service, the extension of midwifery requires evidence of effectiveness (Homer et al., 2014; Lawn et al., 2014; Mwaniki, 2016; Renfrew, Homer, et al., 2014; Renfrew, McFadden, 2014; ten Hoope-Bender et al., 2014; Van Lerberghe et al., 2014), supportive policy (WHO, 2015b) and political will (UN, 2015; United Nations Population Fund, 2014; WHO, 2015a). It is clear that midwives have the skills, willpower and passion needed to make a substantial contribution to SDG 3.1, but their potential to assume this key role has yet to be optimized. What midwives need to achieve this potential is “power” (Lopes et al., 2016): and specifically “power to” and not “power over”. This perspective on power draws on Hawks’ definition (Hokanson Hawks, 1991, p. 754): “the actual or potential ability, or capacity to achieve objectives through an interpersonal process in which the goals and means to achieve the goals are mutually established and worked towards”. In line with this Barrett developed a theory of power defined as “knowing participation in change” (Caroselli & Barrett, 1998, p. 9) based on Rogers’ Science of Unitary Human Beings (Rogers, 1994). The perception of power as a universal experience as viewed by Rogers and Barrett is specifically relevant cross-culturally. Growing evidence indicates that an effective way for midwives to strengthen this type of power is through Twinning (Cadée, Perdok, Sam, de Geus, & Kweekel, 2013; ICM, 2014; Ireland, Van Teijlingen, & Kemp, 2015; RCM, 2015).

2 | BACKGROUND

Despite, or perhaps because of, its emerging popularity (International Confederation of Midwives, 5 August 2014), Twinning is understood and implemented in several ways. Twinning is unlike other forms of collaboration because of its explicit emphasis on the core value of reciprocity. In an effort to build equitable relationships, twinning encourages giving, receiving and reciprocating as part of its method suggesting that empowerment of the participant “twins” may be directly linked to this (Cadée, Nieuwenhuijze, Lagro-Janssen, & De Vries, 2016; Cadée et al., 2013). If twinning is to be a means for empowering midwives, the concept and practice of Twinning needs further development.

Over the past few years midwives have gained substantial experience with Twinning by participating in at least nine Twinning projects between 18 midwifery organizations (ICM, 2014; International Confederation of Midwives, 5 August 2014). A clear and systematic method for the implementation and evaluation of these projects has yet to be developed. There is insufficient and contradictory information available about how to organize successful Twinning (Cadée et al., 2016). A recent concept analysis (CA) provided an important step in addressing this gap in knowledge, offering a clear definition

Why is this research needed?

- Twinning in health care defined as: “a cross-cultural reciprocal process where two groups of people work together to achieve joint goals” is gaining popularity, however, it is implemented in different ways and an evidence base for the outcomes is still poor. The Critical Success Factors as defined as: “key areas of activity in which favourable results are absolutely necessary to reach goals” formulated in this study represent the necessary ingredients for successful Twinning by providing a practical implementation framework.
- Twinning has the potential to increase the power of healthcare workers to be change agents for their communities. We therefore need to know what contributes or hinders the success of Twinning.
- The expertise of midwives in the field can be used to formulate Critical Success Factors for Twinning. This will allow for better implementation, monitoring and evaluation and therefore more effective Twinning not only for midwives but health care in general.

What are the key findings?

- Midwifery experts have reached consensus regarding 25 Critical Success Factors for twinning operationalized for practical use in the field.
- Critical Success Factors for Twinning cover the following issues: values, communication, management and commitment.
- Most of the Critical Success Factors for effective Twinning focus on the importance of equity.

How should the findings be used to influence policy/practice/research/education?

- The use of these Critical Success Factors for implementation, monitoring and evaluation purposes can increase the effect of twinning projects.
- Twinning has the potential to increase the power of not just midwives, but healthcare workers in general to be change agents for their communities. These Critical Success Factors potentially increase the effect of Twinning.
- Further research into Twinning, using these Critical Success Factors as a basis for twinning, should increase the evidence base of this potentially successful method.

of Twinning in health care —“a cross-cultural reciprocal process where two groups of people work together to achieve joint goals”—and identifying four main attributes of Twinning: (1) reciprocity; (2) building personal relationships; (3) dynamic process; (4) participation of two named organizations across different cultures (Cadée et al., 2016, p.

1). The implementation of twinning is a dynamic process, an important step in the implementation of Twinning is the identification of factors critical for effective Twinning, using the knowledge midwives have gained as a result of their experience with these projects. Due to the contradictory information available about how to organize successful Twinning the Delphi method was used because it facilitates the transformation of opinion into consensus and therefore enhances decision making during the process of defining Critical Success Factors for Twinning in health care (Hasson, Keeney, & McKenna, 2000).

The Critical Success Factors (CSF) approach offers a promising means of identifying the features of effective Twinning. Defined in management literature as: “*key areas of activity in which favourable results are absolutely necessary to reach goals*” (Bullen & Rockart, 1981, p. 3), CSF have proven to be a strategy for promoting organizational success (Howell, 2009). According to Howell, CSF are practical to use and understand as they refer directly to intended results and can be used throughout a process from planning through to monitoring and evaluation. Table 1 lists four types of CSF required for effective organizations (Bullen & Rockart, 1981).

Identifying and implementing CSF for Twinning projects can contribute towards their potential to increase the power and influence of midwives and their midwifery organizations, a critical feature for promoting respectful maternity care worldwide (Mwaniki, 2016). The identified CSF (Bullen & Rockart, 1981) may also be useful for the successful implementation of Twinning between nurses or health care in general. Furthermore, we think CSF may provide a practical and clear framework for further research into the effects of Twinning. A project where CSF are being implemented in the method is “Twinning up North” (midwives4mothers, 2018) initiated in January 2018 between Dutch and Icelandic midwives.

3 | THE STUDY

3.1 | Aim

To gain consensus for Critical Success Factors associated with Twinning in Midwifery.

3.2 | Design

We conducted a Delphi study between June 2016 and October 2016. This method was chosen because it offers a structured approach whereby experts of an identified group give their opinions. We started with a round of open questions followed by an iterative process of two additional rounds with statements until maximum group consensus was reached (Diamond et al., 2014; McKenna, 1994).

3.3 | Participants

Twinning experts were defined as midwives with personal experience in one or more Twinning projects, as a participant, organizer or evaluator

TABLE 1 Rockart's four types of CSF

| Rockart's CSF categories | Explanation of category | Examples for Twinning |
|--------------------------|--------------------------------|--|
| Industrial | Factors specific to Twinning | Its reciprocal character and bridging two cultures |
| Strategic | Factors particular to the goal | Enhancing the power of midwives |
| Environmental | External factors | The context of Twinning |
| Temporal | Factors arising short term | Day to day spontaneous issues |

between 2000 and 2016. Experts were identified through Twinning projects either facilitated by, or known to the International Confederation of Midwives (ICM). ICM represents 131 midwifery organizations worldwide and uses twinning as one of its strategies to strengthen these organizations (ICM; International Confederation of Midwives, 5 August 2014). In addition, experts were identified using the literature search performed for a concept analysis of Twinning (Cadée et al., 2016). An initial 56 experts, at least one Twinning expert from every known midwifery Twinning project, were invited in English by e-mail (Figure 1).

3.4 | Data collection

Experts (Figure 1) were informed of the purpose of the study by means of an invitation by e-mail. In this e-mail background information was given about twinning, referring to an earlier published concept analysis on twinning in health care (Cadée et al., 2016). It was explained to the experts why their expertise was requested and they were informed about the scope of the Delphi method. They were also informed about the duration of the study including the expected number of rounds to reach consensus which reflected the estimated time investment. Experts were requested to respond by e-mail if they were willing to participate. All respondents who agreed to participate were sent a questionnaire by e-mail. To enhance the response rate and so minimize attrition, two reminders were sent at 2 week intervals to experts who had agreed to participate but had not yet responded, a strategy that was repeated for all Delphi rounds that were approximately 1 month apart per round (Keeney, Hasson, & McKenna, 2006). We chose not to use Internet surveys to avoid variations in Internet access between experts. The possibility to respond by phone or text message was offered to all participants. To overcome these potential biases and achieve a high response rate, we made individual contact with some participants to help them stay connected, creating what McKenna terms as “quasi-anonymity” (McKenna, 1994). We did however, guarantee confidentiality to all participants. To minimize attrition only experts who responded positively to the initial invitation e-mail and who completed all three rounds of the Delphi were included in the study (Sinha, Smyth, & Williamson, 2011).

3.5 | Round 1

We asked experts to provide socio-demographic characteristics that may influence their opinion of twinning such as the country of the

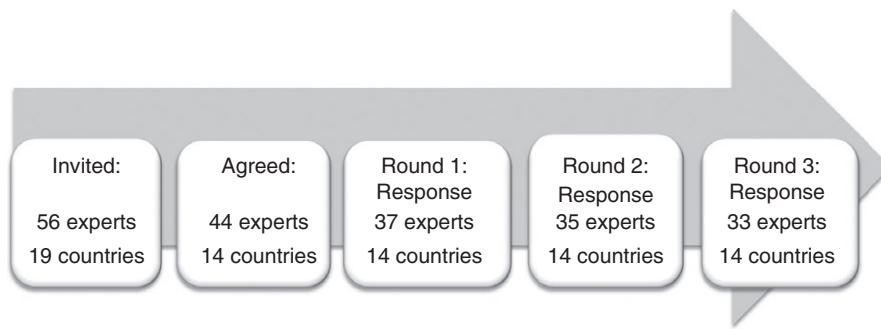


FIGURE 1 Flow of experts in the Delphi study

midwifery organization they were affiliated to, their position in the project and type and length of their Twinning experience. This was followed by an open ended questionnaire where experts shared their experiences regarding factors that could either hinder or facilitate the Twinning process in general and specifically for the preparation, implementation, monitoring, evaluation and sustainability of a Twinning project. The attributes of Twinning as identified by the concept analysis of Twinning were also integrated into this open ended questionnaire (Cadée et al., 2016). Experts were encouraged to give their viewpoint as an individual “twin” participant as well as on an organizational level and asked to elaborate in approximately 250 words per question.

3.6 | Round 2

The purpose of this round was to gain consensus regarding the CSF statements for Twinning as well as to provide experts with the opportunity to add CSF or give comments (Diamond et al., 2014). Using the responses from round 1, CSF statements were formulated with imperatives such as “must”, “should” or “only” to help experts score statements more easily on a Likert scale of 1 (totally disagree)–7 (total agree). We used a 7-point Likert scale to allow for diversity in the answers and for the option to choose neither to agree or disagree (score 4). There is evidence that using Likert scales of < 5 or > 7 becomes significantly less accurate (Jones, 1999). To give the experts a clearer overview of the CSF statements they were clustered into six categories. These categories were chosen on the basis of the analysed data using the different types of information given by the participants.

3.7 | Round 3

In this round we sought to gain final consensus and/or to receive extra comments regarding the CSF statements. Except for new statements, experts were given the μ (mean) and SD (standard deviation) for the round 2 statement scores and asked to score the statements again on a 7-point Likert scale.

4 | ETHICAL CONSIDERATIONS

Confirmation of an exemption from ethical review was given by the Medical Ethical Committee of Atrium-Orbis-Zuyd, Heerlen, The

Netherlands, reference 16-N-110. In the invitation e-mail, experts were assured that participation was voluntary and that nonparticipation would have no consequence for their relationship with the research team or institution. Experts were asked to give their consent for the team to access their personal information. Participants were assured of the security of their data.

5 | DATA ANALYSIS

5.1 | Round 1

The answers to questions were analysed by means of a thematic content analysis using Dedoose, an online tool to assist analysing qualitative data (<http://www.dedoose.com/>). We formulated a combination of predetermined and emergent codes that were exhaustive, independent and mutually exclusive (Burla et al., 2008). The first author read and reread all the answers to the open ended questions, adding a combination of predetermined and emergent codes that were exhaustive, independent and mutually exclusive (Burla et al., 2008). The second author monitored and checked the whole coding process. Discrepancies were discussed in the research team until consensus was reached.

The four attributes of the concept analysis of Twinning (Cadée et al., 2016) were added to these codes. A content analysis of the answers to the open questions from round 1 was performed using the same online tool, Dedoose. The goal of this open question was to explore the variation in the way twinning was implemented from one project to another, the background and context of the different organizations that twinned together. The results were clustered into categories and used to develop a questionnaire with closed CSF statements for round 2. Dedoose is an online mixed method tool for analysing qualitative research.

5.2 | Round 2

For the results of this study to reflect consensus opinion it was necessary to define set criteria for the achievement of this consensus. In this round positive consensus was set a priori at 75% or more of the experts scoring ≥ 6 (75% expert agreement) and fewer than 10% scoring ≤ 2 (disagree); negative consensus was set at 75% or more of the experts scoring ≤ 2 (75% panel agreement) and fewer than 10% scoring ≥ 6 (agree). Due to critique that the process of defining the threshold of consensus is often arbitrary, we used the relatively high

cut-off point of 75% expert agreement because of the relatively homogenous group of midwives who were all involved in twinning (Diamond et al., 2014). We modified statements that were close to consensus or where participants mentioned that they did not understand the statement using their comments. These modified statements were then resent to the experts and clustered under the same categories as in round 3. The μ and SD for round 2 were added to each statement.

5.3 | Round 3

In this round consensus per CSF statement was determined similarly as for round 2 and we calculated the μ and SD . Answers to questions and comments were analysed. CSF statements with positive consensus identified in rounds 2 and 3, were combined into themes and tabulated and ranked according to the μ and SD .

The CSF statements from round 3 were operationalized into practical CSF by removing the imperatives in the statements and joining overlapping statements. For practical use in the field, CSF statements were ordered into Rockart's four types as required for effective organizations (Bullen & Rockart, 1981) to enable the development of a check list for planning, monitoring and evaluation purposes.

6 | VALIDITY

We approached a diverse group of experts from both high, middle and low income countries to ensure that the sample size would be large and varied enough to reflect the aims of the study, to allow saturation (Mason, 2010; Morse, 1995) and to provide sufficient "information power" (Malterud, Siersma, & Guassora, 2015). Because no validated questionnaire was available, the questionnaire was composed making use of the literature, specifically the concept analysis on Twinning (Cadée et al., 2016) and the in-depth experience of the research team. The extended and broad input from the experts to open questions in the first round, together with the results from the concept analysis on Twinning was considered an appropriate strategy to contribute to the face validity of our questionnaire.

7 | FINDINGS

We invited 56 experts from 19 countries, of which eight high income and 11 middle or low income, to participate (World-Bank, 2017). We received a positive response from 44 experts from 14 countries, seven from high income and seven middle or low income countries.

Of the 12 other invitations, two were returned because of a wrong mail address, ten never responded to the original request after two reminders and two declined, one because of other priorities and one because she had not been involved in Twinning. Of the 44 experts who agreed to participate, 37 (84%) responded to round 1. Of these 37 respondents 35 (94%) completed round 2 and 33 (89%) completed round 3 (Figure 1). The final 33 experts who completed all three

rounds were Twinning participants ($N = 13$), organizers ($N = 9$), both participant and organizer ($N = 8$) or had a board position in a midwifery organization involved in Twinning projects ($N = 3$).

7.1 | Round 1

Experts gave a variety of detailed responses. This information was formulated into 53 statements reflecting CSF for Twinning and clustered into the following sub headings: I. Equity: *Sharing in a fair way*, II. Management: *The organization of the Twinning project*, III. Twinning within its context, IV. Twins as individuals, V. Goals: *What Twinning aims to achieve*, VI. Communication: *How twins and the management team communicate with each other and with stakeholders*.

7.2 | Round 2

Of the 53 CSF statements, there was positive consensus for 21 statements and negative consensus for one statement: *"Twins need to have the same religion"* μ 1.29 (SD 0.86). Of the remaining 31 statements, comments and questions by participants resulted in six new statements and seven changed statements, including one option of a question in case of a positive response. The score for the statement: *"Twinning projects must have at least 12 twins per twin organization for group support to function"* resulted in such a wide variation μ 3.13 (SD 1.76) that we decided to drop it and replace it by the question: *'What are the maximum and minimum number of participants of a successful Twinning project?'* This resulted in 36 statements and two questions for round 3 (Figure 2).

7.3 | Round 3

There was positive consensus for an additional eight statements leaving a total of 29 CSF statements with positive consensus after this round (Figure 2 and Table 2).

The main issues covered in these positive consensus statements were: values, communication, management and commitment (Table 2). The quotes below are illustrative of what the experts offered in their written comments:

Values: *'Cultural humility and openness to different world views are important for successful Twinning...'* (participant 02 from high income country).

Communication: *'Access to the internet is the critical thing...'* (participant 27 from low income country).

Management: *'While Twinning can succeed without a project leader and funding (we started that way), it was our experience that having designated staffing and funding enabled much richer input and programming'* (participant 21 from high income country).

Commitment: *'Highly interested and motivated twins will learn from the processes put in place by the Twinning associations.'* (participant 17 from low income country).

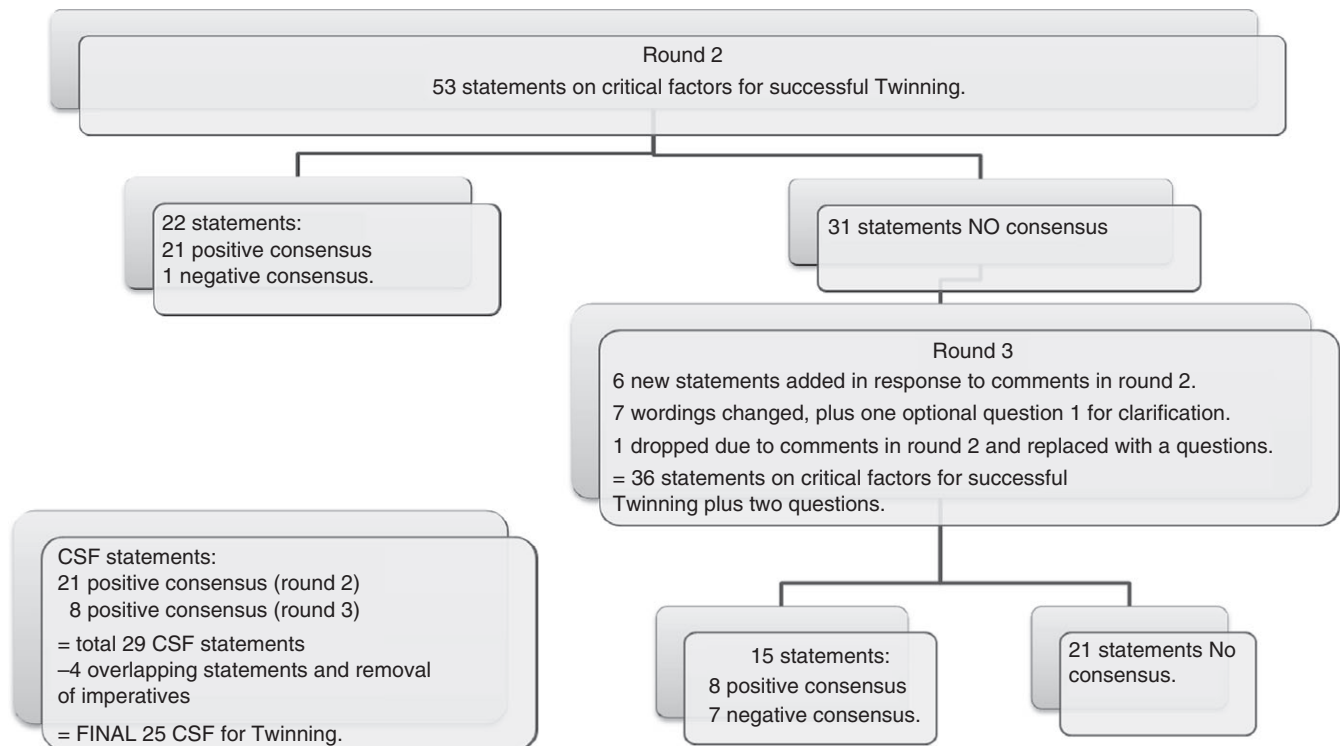


FIGURE 2 Delphi process for round 2 and round 3

Fifteen of the positive consensus statements (Table 2) focus on equity. Additionally, all 33 midwives from the 14 countries emphasized the importance of equity either by giving statements on equity high scores and/or in their written comments. This quote is illustrative of experts' comments: *"It's important to remember that equity is not the same as equality. Twins are not aiming to be similar, but to reach further in their own potential than they could have done individually and be open to respond to the opportunity that will arise"*. (participant 08 from high income country).

The CSF statements were operationalized to enable easy understanding and practical use by first combining four of the 29 consensus CSF statements that had substantial overlap in their meaning. We removed the imperatives and classified the CSF using Rockart's four types necessary for effective organizations (Bullen & Rockart, 1981). This resulted in the final 25 CSF for practical use in the field (Table 3).

Negative consensus was obtained for seven statements focussing on the need for twins to be similar with regard to midwifery practice, organization, education and registration. The following seven statements were indicative of the many comments made by experts about this: *"We learn from our differences. We don't have to be the same to work in partnership. However, if there are absolutely no similarities or completely different values or sense of purpose for midwifery associations, Twinning maybe very challenging."* (Participant 18 from low income country).

There were varied responses to the question about the critical minimum and maximum numbers of participants or "twins" per project. The minimum ranged between two and 50 (mode = 4) and

maximum between six and 100 (mode = 10) participants. Comments to this question are in line with this result: *"depends on the duration and scope of the project"*. (Participant 32 from middle income country).

8 | DISCUSSION

The most notable result from this Delphi study is the emphasis experts put on equity, meaning a situation where there is "fairness" (Pearsall & Trumble, 1995, p. 475). This is reflected in 15 of the final 25 CSF (Table 3) and by the fact that all participating midwives, equally from rich, middle and low income countries, with their broad experience and expertise in Twinning projects, mention the importance of equity in their comments.

One expert noted that: *"equity does not mean being the same, as long as there is equilibrium"* (participant 33 from middle income country). This recalls the definition of Twinning mentioned in the introduction: *"a cross-cultural reciprocal process where two groups of people work together to achieve joint goals"*. This definition, derived from a concept analysis of Twinning, identified reciprocity as a core value (Cadée et al., 2016, p. 1). The leading attribute of reciprocity—which involves a system of giving, receiving and returning—is equity (Crespo, 2008). Even though the outcomes of twinning are not yet clearly defined, there is a probable correlation between the reciprocal character of Twinning and the increased empowerment of health-care professionals (Cadée et al., 2016). The further emphasis with equity, as a result of this Delphi study, may appear obvious because

TABLE 2 Critical Success Factor Statements with positive consensus scored descending by mean

| No. | Critical success factor statements with positive consensus sorted descending by mean and SD | Theme | R ^a | Mean | SD |
|-----|--|---------------------|----------------|------|------|
| 1 | Setting project goals has to be done by both twin organizations. | Values (equity) | 2 | 6.86 | 0.35 |
| 2 | The potential of each twin has to be respected fully. | Values (equity) | 2 | 6.83 | 0.37 |
| 3 | Mutual respect is a prerequisite for successful twinning. | Values (equity) | 2 | 6.73 | 0.78 |
| 4 | Goals need to be realistic for both twin organizations. | Management (equity) | 2 | 6.70 | 0.28 |
| 5 | The twin management team must consist of representatives from both twin organizations. | Values (equity) | 2 | 6.66 | 0.64 |
| 6 | All technological possibilities should be explored to facilitate communication. | Communication | 2 | 6.63 | 0.60 |
| 7 | Every twinning project must have a monitoring and evaluation plan. | Management | 2 | 6.61 | 0.65 |
| 8 | Taking into account the cultural norms of your twin is essential. | Values (equity) | 2 | 6.60 | 0.80 |
| 9 | Goals need to be adapted if circumstances change. | Management | 2 | 6.56 | 0.66 |
| 10 | Twins need to understand their role within the program for twinning to succeed. | Management | 2 | 6.50 | 0.71 |
| 11 | All participants in a twinning project must agree about what twinning stands for. | Values (equity) | 2 | 6.43 | 0.78 |
| 12 | All participants in twinning need to be clear about the project goals from the start of the program. | Management (equity) | 2 | 6.43 | 0.84 |
| 13 | Motivation for the program from start to the finish is what keeps twins going. | Commitment | 2 | 6.43 | 0.70 |
| 14 | A twinning program needs to be flexible to incorporate new insights. | Management | 2 | 6.40 | 0.68 |
| 15 | Every twinning project needs to have a clear program from the start of the project. | Management | 2 | 6.36 | 0.81 |
| 16 | Twins need to be eager to learn. | Commitment | 3 | 6.33 | 0.70 |
| 17 | Twins can make or break their own twinning experience. | Commitment | 2 | 6.33 | 0.84 |
| 18 | Managing the expectations of twins is crucial for twinning. | Management | 3 | 6.33 | 0.91 |
| 19 | At the basis of twinning there must be trust between twins. | Values | 2 | 6.31 | 1.06 |
| 20 | If twins won't give, receive, and reciprocate there is no twinning. | Values (equity) | 3 | 6.30 | 1.00 |
| 21 | Supportive workshops for twins about the essence of twinning are essential. | Management | 2 | 6.28 | 0.71 |
| 22 | All participants in twinning need to take into account the available resources in their twin's country. | Values (equity) | 2 | 6.22 | 0.93 |
| 23 | The most important role of the twin management team is to keep project momentum going. | Management | 2 | 6.15 | 0.77 |
| 24 | A system for communication with stakeholders is essential. | Communication | 2 | 6.15 | 1.12 |
| 25 | Twins can only participate if they are prepared to receive and give feedback. | Values (equity) | 3 | 6.10 | 1.07 |
| 26 | Both twins should understand the mission, values and intent of each organization and how it operates before realistic goals are established. | Management (equity) | 3 | 6.08 | 0.99 |
| 27 | Twins must dedicate an agreed upon amount of time to the project. | Commitment (equity) | 3 | 6.06 | 1.02 |
| 28 | All participants in twinning must be equally committed to the set project goals. | Values (equity) | 3 | 6.02 | 1.08 |
| 29 | Each twin needs to take into account the pre-existing workload of their twin. | Values (equity) | 3 | 6.02 | 0.85 |

^aRound in which consensus was reached.

in the process of reciprocity, balancing the power of the relationship is crucial. The same balance of power is just as crucial for equity (Hokanson Hawks, 1991). This process is not a linear but a circular one, where equity increases power and power (to achieve objectives) increases equity. Equity is of profound importance when one wants to gain the power required to achieve the objectives of Twinning: in this case, the power of midwives to play the key role in a maternity team, to optimize safe and respectful midwifery care worldwide. It must be remembered that the direct correlation between the positive effect of empowered midwives on this key role is assumed (ICM, 2014) and warrants further research. Equity is often kept implicit and thus overlooked in Twinning projects (Cadée et al., 2016). The CSF from this Delphi study can be developed into an instrument for the purpose of planning, implementing, monitoring

and evaluating Twinning projects in health care. After validation, such an instrument will make explicit the importance of equity in Twinning projects, which can contribute towards the efficacy of Twinning in health care.

All 25 CSF for Twinning fit into one of the four types of CSF needed for successful projects as described by Rockart (1979). To our knowledge, the effect of the use of CSF in health care has not yet been researched. However, according to Howell (2009), CSF can be used in any context as long as the aim is to reach a well-defined goal. However, it must be remembered that CSF, like any other tool, are only as effective as their implementation.

Even though the participants of this study on the CSF for twinning were midwives, this study did not focus on their knowledge of practical "hands on" midwifery, but rather on their experience in the

TABLE 3 Twenty-five operationalized Critical Success Factors for twinning, organized according to Rockart

| Type of CSF | 25 Operationalized Critical Success Factors for twinning | CSF statement from Table 3 |
|----------------|--|----------------------------|
| Industry: | Factors specific to twinning, i.e. its reciprocal character and bridging two cultures | |
| | 1. All participants in a twinning project agree about what twinning stands for | 11 |
| | 2. The twin management team consists of representatives from both twin organizations | 5 |
| | 3. Both twins understand the mission, values and intent of both organizations and how it operates before goals are established | 26 |
| | 4. Project goals are set by both twin organizations | 1 |
| | 5. Goals are realistic for both twin organizations | 4 |
| | 6. Twins are prepared to receive and give feedback | 20 and 25 |
| | 7. All participants are equally committed to the set project goals | 28 |
| Strategy: | Factors particular to the goal, i.e. enhancing the power of midwives | |
| | 8. Twins trust each other | 19 |
| | 9. Twins respect each other | 2 and 3 |
| | 10. Twins take responsibility for their own twinning experience | 17 |
| | 11. Twins are eager to learn | 16 |
| | 12. Twins are offered workshops about the essence of twinning | 21 |
| | 13. Twins understand the project goals from the start of the program | 15 |
| | 14. The project program is clear to all participants from the start | 12 |
| Environmental: | External factors, i.e. the context of twinning | |
| | 15. A monitoring and evaluation plan is in place at the start of the program | 7 |
| | 16. Twins take into account each other's cultural norms | 8 |
| | 17. Twins take into account the available resources in their twin's country | 22 |
| | 18. Goals are adapted if circumstances change | 9 |
| | 19. All technological possibilities have been explored to facilitate communication | 6 |
| | 20. There is a communication plan for stakeholders management | 24 |
| Temporal: | Factors arising short term, i.e. day to day spontaneous issues | |
| | 21. All twins must keep motivated to participate | 13 |
| | 22. The twin management team keep the project momentum going | 23 |
| | 23. Twins dedicate an agreed upon amount of time to the project | 27 and 29 |
| | 24. The expectations for twins are clear | 10 and 18 |
| | 25. The twinning program is flexible to incorporate new insights | 14 |

organizational aspects of transcultural Twinning. We are convinced that the CSF on Twinning developed in this study are equally applicable to Twinning between nurses and other healthcare professionals, or even professionals outside the sphere of health care such as teachers or administrators.

9 | LIMITATIONS

Classifying CSF for Twinning into Rockart's four types needed for successful projects required a certain amount of interpretation (Table 3). To minimize bias, this potential weakness was taken into account and decisions about the classification of CSF were reached after rigorous discussion and agreement in our research group.

All Twinning projects known to the ICM were approached for this study. Of the 12 participants from five countries that did not

respond, four were from low income countries. The research team was aware that this type of selection bias could occur for a combination of reasons, including insufficient command of English or the unreliability of the Internet. It is also possible that some respondents found it challenging to be critical or give a low, or high score for cultural reasons.

The UK provided a proportionally high number of respondents, a result of the fact that each of the four countries in the UK were participating in a Twinning project (RCM, 2015). We believe that this overrepresentation did not affect the final results. According to the definition of "information power", the more information the sample holds, relevant to the actual study, the fewer number of participants required (Malterud et al., 2015). We achieved high "information power" as a result of the narrow aim of this study (determining CSF for Twinning), the inclusion of experts from diverse backgrounds and the quality and detail of the comments provided.

The limitation of having no validity estimates of the questionnaire was considered in this study. Making use of the independent and broad responses of the experts to the open questions in the first round, to formulate the statements in the 2nd and 3rd rounds, adds to the validity and reliability of the overall study (Keeney, Hasson, & McKenna, 2001; Iqbal and Pison-Young, 2009).

10 | CONCLUSION

Successful Twinning has the potential to increase the power of midwives (ICM, 2014; Wallerstein, 2002). This power specifically relates to their power to implement change (Caroselli & Barrett, 1998). This type of power is essential for midwives to take on their key role in the maternity team. The CSF determined by this Delphi study, with specific attention for the import role of equity, can be used to initiate, monitor and evaluate twinning projects. The development of a practical instrument and subsequent validation of its use can support midwives to build more successful Twinning relationships. Due to the high information power of our data, the applicability of the CSF determined in this Delphi study show potential not only for Twinning between midwives, but also for Twinning between nurses and health-care professionals in general. The limited amount of research into the outcomes of Twinning in health care limits the depth of the evidence for the outcomes of Twinning. Research into newly established Twinning projects where a CSF checklist and monitoring and evaluation plan based on CSF is used, will strengthen the evidence base.

ACKNOWLEDGEMENTS

We acknowledge all the midwives who took part in this Delphi study. Their spontaneous encouraging comments during the study are much appreciated.

CONFLICT OF INTEREST

No conflict of interest has been declared by the authors.

AUTHOR CONTRIBUTIONS

All authors have agreed on the final version and meet at least one of the following criteria [recommended by the ICMJE(<http://www.icmje.org/recommendations/>)]:

- substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data;
- drafting the article or revising it critically for important intellectual content.

ORCID

Franka Cadée  <http://orcid.org/0000-0002-8054-3667>

REFERENCES

- Bullen, C., & Rockart, J. (1981). *A primer on critical success factors*. (CISR no. 69, Sloan WP no. 1220-81). Massachusetts Institute of Technology, Sloan School of Management.
- Burla, L., Knierim, B., Barth, J., Liewald, K., Duetz, M., & Abel, T. (2008). From text to codings: Intercoder reliability assessment in qualitative content analysis. *Nursing Research, 57*(2), 113–117. <https://doi.org/10.1097/01.NNR.0000313482.33917.7d>
- Cadée, F., Nieuwenhuijze, M. J., Lagro-Janssen, A., & De Vries, R. (2016). The state of the art of twinning, a concept analysis of twinning in healthcare. *Globalization and Health, 12*(1), 66. <https://doi.org/10.1186/s12992-016-0205-5>
- Cadée, F., Perdok, H., Sam, B., de Geus, M., & Kweekel, L. (2013). 'Twin2twin' an innovative method of empowering midwives to strengthen their professional midwifery organisations. *Midwifery, 29* (10), 1145–1150. <https://doi.org/10.1016/j.midw.2013.07.002>
- Caroselli, C., & Barrett, E. A. M. (1998). A review of the power as knowing participation in change literature. *Nursing Science Quarterly, 11*(1), 9–16. <https://doi.org/10.1177/089431849801100105>
- Crespo, R. F. (2008). Reciprocity and practical comparability. *International Review of Economics, 55*(1–2), 13–28. <https://doi.org/10.1007/s12232-007-0028-z>
- Diamond, I. R., Grant, R. C., Feldman, B. M., Pencharz, P. B., Ling, S. C., Moore, A. M., & Wales, P. W. (2014). Defining consensus: A systematic review recommends methodologic criteria for reporting of Delphi studies. *Journal of Clinical Epidemiology, 67*(4), 401–409. <https://doi.org/10.1016/j.jclinepi.2013.12.002>
- Hasson, F., Keeney, S., & McKenna, H. (2000). Research guidelines for the Delphi survey technique. *Journal of Advanced Nursing, 32*, 1008–1015. <https://doi.org/10.1046/j.1365-2648.2000.t01-1-01567.x>
- Hokanson Hawks, J. (1991). Power: A concept analysis. *Journal of Advanced Nursing, 16*(6), 754–762. <https://doi.org/10.1111/j.1365-2648.1991.tb01734.x>
- Homer, C. S. E., Friberg, I. K., Dias, M. A. B., ten Hoope-Bender, P., Sandall, J., Speciale, A. M., & Bartlett, L. A. (2014). The projected effect of scaling up midwifery. *The Lancet, 384*(9948), 1146–1157. [https://doi.org/10.1016/s0140-6736\(14\)60790-x](https://doi.org/10.1016/s0140-6736(14)60790-x)
- Howell, M. T. (2009). *Critical success factors simplified: Implementing the powerful drivers of dramatic business improvement*. New York: CRC Press. <https://doi.org/10.1201/b10311>
- ICM. (2014). *International Confederation of Midwives twinning manual*. Retrieved from International Confederation of Midwives, I. (5 August 2014). New Twinning Workshop. Retrieved from <http://www.internationalmidwives.org/news/?nid=169>
- Iqbal, S., Pison-Young, S. (2009). The Delphi method with a step by step guide. Retrieved from <https://thepsychologist.bps.org.uk/volume-22/edition-7/delphi-method>
- Ireland, J., Van Teijlingen, E., & Kemp, J. (2015). Twinning in Nepal: The Royal College of Midwives UK and the Midwifery Society of Nepal working in partnership. *Journal of Asian Midwives (JAM), 2*(1), 26–33.
- Jones, M. B. P. (1999). 'Twinning' as a method of sustainable institutional capacity building. *Public Administration and Development, 19*, 381–401.
- Keeney, S., Hasson, F., & McKenna, H. P. (2001). A critical review of the Delphi technique as a research methodology for nursing. *International Journal of Nursing Studies, 38*(2), 195–200.
- Keeney, S., Hasson, F., & McKenna, H. (2006). Consulting the oracle: Ten lessons from using the Delphi technique in nursing research. *Journal of Advanced Nursing, 53*(2), 205–212. <https://doi.org/10.1111/j.1365-2648.2006.03716.x>
- Lawn, J. E., Blencowe, H., Oza, S., You, D., Lee, A. C., Waiswa, P., ... Christian, P. (2014). Every Newborn: Progress, priorities and potential

- beyond survival. *The Lancet*, 384(9938), 189–205. [https://doi.org/10.1016/S0140-6736\(14\)60496-7](https://doi.org/10.1016/S0140-6736(14)60496-7)
- Lopes, S. C., Nove, A., ten Hoop-Bender, P., de Bernis, L., Bokosi, M., Moyo, N. T., & Homer, C. S. (2016). A descriptive analysis of midwifery education, regulation and association in 73 countries: The baseline for a post-2015 pathway. *Human Resources for Health*, 14(1), 1.
- Malterud, K., Siersma, V. D., & Guassora, A. D. (2015). Sample size in qualitative interview studies guided by information power. *Qualitative Health Research*, 26, 1753–1760. <https://doi.org/10.1177/1049732315617444>.
- Mason, M. (2010). *Sample size and saturation in PhD studies using qualitative interviews*. Paper presented at the Forum qualitative Sozialforschung/Forum: qualitative social research.
- McKenna, H. P. (1994). The Delphi technique: A worthwhile research approach for nursing? *Journal of Advanced Nursing*, 19, 1221–1225. <https://doi.org/10.1111/j.1365-2648.1994.tb01207.x>
- midwives4mothers. (2018). Twinning up North. Retrieved from <https://www.facebook.com/midwives4mothers/photos/rpp.176994225736993/1129979260438480/?type=3&theater>
- Morse, J. M. (1995). Exploring the theoretical basis of nursing using advanced techniques of concept analysis. *Advances in Nursing Science*, 17(3), 31–46. <https://doi.org/10.1097/00012272-199503000-00005>
- Mwaniki, M. K. (2016). Quality in provision of maternity services: The missing link in health-care investments in LMICs? *The Lancet Global Health*, 4, e769–e770. [https://doi.org/10.1016/S2214-109X\(16\)30239-X](https://doi.org/10.1016/S2214-109X(16)30239-X)
- Pearsall, J., & Trumble, B. (Ed.). (1995). (2008 ed.) *Oxford English Reference dictionary*. USA: Oxford University Press.
- RCM. (2015). *Royal College of Midwives, Global midwifery twinning project*. Retrieved from: <https://www.rcm.org.uk/global-midwifery-twinning-project>. on 12 March 2018.
- Renfrew, M., Homer, C., Downe, S., McFadden, A., Muir, N., & Prentice, T. (2014). Midwifery: An executive summary for The Lancet's series. *Lancet*, 20, 1–8.
- Renfrew, M., McFadden, A., Bastos, M. H., Campbell, J., Channon, A., Cheung, N., ... Declercq, E. (2014). Midwifery and quality care: Findings from a new evidence-informed framework for maternal and newborn care. *The Lancet*, 384(9948), 1129–1145. [https://doi.org/10.1016/s0140-6736\(14\)60789-3](https://doi.org/10.1016/s0140-6736(14)60789-3)
- Rockart, J. F. (1979). Critical success factors. *Harvard Business Review*, 57(2), 81–91.
- Rogers, M. E. (1994). The science of unitary human beings: Current perspectives. *Nursing Science Quarterly*, 7(1), 33–35. <https://doi.org/10.1177/089431849400700111>
- Sinha, I. P., Smyth, R. L., & Williamson, P. R. (2011). Using the Delphi technique to determine which outcomes to measure in clinical trials: Recommendations for the future based on a systematic review of existing studies. *PLoS Medicine*, 8(1), e1000393.
- ten Hoop-Bender, P., de Bernis, L., Campbell, J., Downe, S., Fauveau, V., Fogstad, H., ... Van Lerberghe, W. (2014). Improvement of maternal and newborn health through midwifery. *The Lancet*, 384(9949), 1226–1235. [https://doi.org/10.1016/s0140-6736\(14\)60930-2](https://doi.org/10.1016/s0140-6736(14)60930-2)
- UN. (2015). United Nations Sustainable Development Goals. Retrieved from <https://sustainabledevelopment.un.org/topics>
- United Nations Population Fund, U. (2014). The state of the world's midwifery, a universal pathway. A woman's right to health. Retrieved from <http://www.unfpa.org/sowmy>
- Van Lerberghe, W., Matthews, Z., Achadi, E., Ancona, C., Campbell, J., Channon, A., ... Turkmani, S. (2014). Country experience with strengthening of health systems and deployment of midwives in countries with high maternal mortality. *The Lancet*, 384(9949), 1215–1225. [https://doi.org/10.1016/s0140-6736\(14\)60919-3](https://doi.org/10.1016/s0140-6736(14)60919-3)
- Wallerstein, N. (2002). Empowerment to reduce health disparities. *Scandinavian Journal of Public Health*, 30(59 suppl), 72–77. <https://doi.org/10.1177/14034948020300031201>
- WHO. (2015a). *World Health Organization. Global strategy for women's, children's and adolescents' health 2016–2030*. Geneva: WHO.
- WHO. (2015b). World Health Organization. Strategies towards ending preventable maternal mortality (EPM).
- World-Bank. (2017). New country classifications by income level: 2017–2018. Retrieved from <https://blogs.worldbank.org/opendata/new-country-classifications-income-level-2017-2018>

How to cite this article: Cadée F, Nieuwenhuijze MJ, Lagro-Janssen ALM, de Vries R. From equity to power: Critical Success Factors for Twinning between midwives, a Delphi study. *J Adv Nurs*. 2018;74:1573–1582. <https://doi.org/10.1111/jan.13560>

The *Journal of Advanced Nursing (JAN)* is an international, peer-reviewed, scientific journal. *JAN* contributes to the advancement of evidence-based nursing, midwifery and health care by disseminating high quality research and scholarship of contemporary relevance and with potential to advance knowledge for practice, education, management or policy. *JAN* publishes research reviews, original research reports and methodological and theoretical papers.

For further information, please visit *JAN* on the Wiley Online Library website: www.wileyonlinelibrary.com/journal/jan

Reasons to publish your work in *JAN*:

- **High-impact forum:** the world's most cited nursing journal, with an Impact Factor of 1.998 – ranked 12/114 in the 2016 ISI Journal Citation Reports © (Nursing (Social Science)).
- **Most read nursing journal in the world:** over 3 million articles downloaded online per year and accessible in over 10,000 libraries worldwide (including over 3,500 in developing countries with free or low cost access).
- **Fast and easy online submission:** online submission at <http://mc.manuscriptcentral.com/jan>.
- **Positive publishing experience:** rapid double-blind peer review with constructive feedback.
- **Rapid online publication in five weeks:** average time from final manuscript arriving in production to online publication.
- **Online Open:** the option to pay to make your article freely and openly accessible to non-subscribers upon publication on Wiley Online Library, as well as the option to deposit the article in your own or your funding agency's preferred archive (e.g. PubMed).