BREASTFEEDING FRIENDLY HEALTHCARE: A MIXED METHODS EVALUATION OF THE IMPLEMENTATION AND OUTCOMES OF MATERNITY PRACTICES TO SUPPORT BREASTFEEDING

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A dissertation submitted to the faculty of the University of North Carolina at Chapel Hill in partial fulfillment of the requirements for the degree of Doctor of Philosophy in the Department of Maternal and Child Health

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DISSERTATION ABSTRACT

NATHAN CHRISTOPHER NICKEL: Breastfeeding Friendly Healthcare: A Mixed Methods Evaluation of the Implementation and Outcomes of Maternity Practices to Support Breastfeeding (Under the direction of Miriam H. Labbok, MD, MPH)

Background. The Ten Steps to Successful Breastfeeding are a set of hospital policies and practices, endorsed by the American Academy of Pediatrics, that support mothers in achieving recommended breastfeeding behaviors. Few hospitals in the United States practice the Ten Steps. This dissertation provides evidence to inform incremental implementation of the Ten Steps to improve breastfeeding practices.

Methods. Data are from the Breastfeeding Friendly Healthcare project and the Infant Feeding Practices Study II. A multi-site qualitative study of Breastfeeding Friendly Healthcare hospitals explores the theory of "Organizational Readiness to Change" vis-à- vis implementing the Ten Steps. A quasi-experimental design with multiple-case study methods is used to evaluate of the Breastfeeding Friendly Healthcare project. Data from the Infant Feeding Practices Study are used to examine whether the common practice of not providing the care outlined in the Ten Steps creates a barrier to achieving recommendations for breastfeeding duration. Inverse propensity score weights are used with a parametric survival model using a log-normal distribution to estimate the effects.

Results. Baseline factors that may influence a hospital's readiness to implement the Ten Steps organize under the two dimensions for "Organizational Readiness to Change," collective efficacy and collective commitment. The Breastfeeding Friendly Healthcare project resulted in increased achievement of certain Steps: 1 (Policy), 2 (Training),

5 (Teach breastfeeding), and 6 (No supplementation) and increased hospital breastfeeding rates. The Infant Feeding Practices Study II analyses showed that not providing the care in the combination of Steps 4 (Early initiation) and 9 (No pacifiers) resulted in the largest decrease in breastfeeding duration: 11.8 weeks. Not providing other combinations of Steps resulted in decreased duration: Steps 3 (Prenatal education) and 4 (Early initiation)--an 8.6-week decrease; and Steps 4 (Early initiation) and 8 (Hunger cues)--a 5.4-week decrease.

Conclusions. An incremental approach to implementing the Ten Steps informed by the theory "Organizational Readiness to Change" may result in increased Step achievement and hospital breastfeeding rates. Certain combinations of Steps may have significant impact on breastfeeding and may be achievable for a variety of hospitals. These findings may apply to hospitals with varying baseline levels of Step achievement.

CHAPTER II:

FACTORS THAT INFLUENCE READINESS TO IMPLEMENT THE TEN STEPS: A MULTI-SITE QUALITATIVE STUDY (PAPER 1)

Abstract

Background

Professional organizations and federal agencies recommend the Ten Steps to Successful Breastfeeding, a set of evidence-based hospital practices to support breastfeeding, as optimal care for maternity centers. However, national data show that even partial implementation of the Steps is not, as yet, the norm. Hospitals seeking to follow the Ten Steps are pursuing complex organization-level changes requiring the coordination of hospital staff members at multiple levels and across disciplines.

Successfully executing such complex changes requires organizational readiness. Health services experts suggest that before a beginning a change initiative, factors that influence a hospital's readiness to implement the change should be identified and addressed. This multi-site qualitative study identifies and discusses factors that may influence organizational readiness to implement the changes necessary to follow the practices outlined in the Ten Steps.

Methods

Thirty-four providers from eight North Carolina hospitals were interviewed during the preimplementation phase. Thematic analysis was conducted to identify factors that staff members reported might influence implementation of the Steps. Factors were arranged to reflect the theory of Organization Readiness to Change. Cross-case analyses were conducted to explore how factors varied across different hospitals.

Results and Conclusions

Key informants identified several factors that might influence organizational readiness to implement the Steps. An analysis of these identified factors suggest that increasing organizational readiness to implement the Steps will require efforts to increase staff members' commitment to providing breastfeeding supportive care and their perceived ability to provide breastfeeding supportive care.

Introduction

Breastfeeding initiation, exclusivity, and duration are protective of both maternal and child health. An extensive, systematic review of approximately 400 studies, published by the Agency for Healthcare Research and Quality (herein referred to as the AHRQ Review), documented that breastfeeding reduces risks of child morbidity and mortality in developed countries from, acute otitis media, atopic dermatitis, gastrointestinal infections, lower respiratory tract diseases, obesity, diabetes, and sudden infant death syndrome [1]. The AHRQ Review and subsequent studies additionally document that breastfeeding is associated with reduced risks of maternal morbidities: type 2 diabetes, adiposity, cardio vascular disease, postpartum depression, and breast and ovarian cancers [1-6]. Supporting exclusive breastfeeding and any breastfeeding are effective strategies for reducing healthcare costs and burdens of disease [1, 9, 60]. Therefore, to support and protect breastfeeding in maternity centers, UNICEF and WHO developed as set of health care practices known as the Ten Steps to Successful Breastfeeding (Table 2.1) [27, 61]. Studies on the impact of the Ten Steps show that they lead to improved breastfeeding initiation, exclusivity, and duration [29, 35, 38, 45, 47,62].

Step 1	Have a written breastfeeding policy that is routinely communicated to all health care staff.
Step 2	Train all health care staff in skills necessary to implement this policy.
Step 3	Inform all pregnant women about the benefits and management of breastfeeding.
Step 4	Help mothers initiate breastfeeding within the first hour of birth.
Step 5	Show mothers how to breastfeed, and how to maintain lactation even if they should be separated from their infants.
Step 6	Give newborn infants no food or drink other than human milk, unless medically indicated.
Step 7	Practice rooming-in – that is, allow mothers and infants to remain together – 24 hours a day.
Step 8	Encourage breastfeeding on demand.
Step 9	Give no artificial teats or pacifiers to breastfeeding infants.
Step 10	Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital or clinic.

 Table 2.1
 The Ten Steps to Successful Breastfeeding

The evidence both for breastfeeding and for the Ten Steps has led federal health offices and professional organizations, such as the US Surgeon General's offices and the American Academy of Pediatrics, to endorse adherence to and/or practice of the Ten Steps [59, 63]. Additionally, the Joint Commission, the largest US hospital accrediting body, added exclusive human milk feeding at hospital discharge as an optional Perinatal Care Core Measure in their assessment of quality of care [58]. There is considerable published evidence and professional support for the Ten Steps.

There remains a gap between recommended maternity care and the quality of care provided in most maternity centers across the country [41, 64]. Indeed, only about 100 facilities in the US have received Baby-Friendly USA Designation; that is, undergoing and passing external assessment that verified the facility's practice of all Ten Steps [40]. In response, state and federal health agencies as well as professional organizations are engaging in efforts to motivate and support hospitals to implement the Ten Steps [40, 50, 51].

Hospitals implementing the Ten Steps, as described by WHO, are engaging in a complex, multilevel organizational change [27].¹ Change experts state that successfully achieving a complex organizational change of this nature requires high levels of organizational readiness [65-68]. The theory of "Organizational Readiness to Change" (ORC) is one proposed framework for assessing

¹ Some of these many changes include (a) management at all levels need to be committed to practicing the Steps, (b) all hospital policies related to marketing, purchasing, anesthesiology and other pain medications, delivery practices, training, feeding, jaundice, *et cetera* need to reflect the Ten Steps as described in the Global Criteria (Steps 1 and 2), (c) the hospital needs to coordinate with prenatal care providers in the community to ensure that pregnant women are informed about the maternal and child health benefits of breastfeeding (Step 3), (c) policies and practices need to be coordinated between the operating room and the maternity center to allow for immediate skin-to-skin contact and initiation of breastfeeding within an hour or two for cesarean deliveries (Step 4), and (d) care needs to be coordinated across disciplines (e.g., nurses and providers) and across shifts to ensure consistent care.

and targeting factors that influence an institution's readiness to execute change [69]. While researchers have studied ORC in other settings, the theory has not been applied to identify factors influencing a hospital's readiness to implement the Ten Steps [69, 70]. Applying ORC to the study of the Ten

Steps, specifically, is important since factors influencing readiness are specific to each change effort. Factors influencing readiness for other change efforts may not influence readiness to implement the Ten Steps [69]. Successfully implementing the Steps requires targeting factors that directly relate to readiness vis-à-vis the Ten Steps.

Applying the theory of ORC to the implementation of the Steps is important for another reason--it helps advance theory-driven discussions on approaches to implement the Ten Steps. Theoretical frameworks are important for guiding quality improvement efforts [56, 57]. However, of those studies that examine the implementation of the Ten Steps in US hospitals, few incorporated or explored organization-level theoretical frameworks [34, 41-44, 71]. These studies did identify barriers that may inhibit Step implementation: (1) a lack of administrator commitment, 2) the view among providers that change is unnecessary, 3) the presence of formula marketing, and 4) the requirement that the hospital purchase formula). However, applying a theoretical framework to Step implementation. In the absence of theory-driven studies, efforts to implement the Steps may remain stalled.

This multi-site qualitative study seeks to fill this gap by identifying factors, prior to implementing the Steps, that may influence hospitals' readiness (both positively and negatively) to implement the organizational changes necessary to achieve the Ten Steps, using ORC as the guiding theoretical framework.²

Methods

Study Context: Breastfeeding Friendly Healthcare Project

This study was conducted within the framework of a larger project, the Carolina Global Breastfeeding Institute's Breastfeeding-Friendly Healthcare Project (CGBI/BFHC). CGBI/BFHC is an on-going operations research, quality improvement, intervention study, designed to support selected North Carolina hospitals to implement the Ten Steps. Eight hospitals are currently receiving intervention support as part of participating in CGBI/BFHC. The eight hospitals include four large, urban, teaching hospitals and four small, suburban, non-teaching hospitals. At the start of the project, each hospital formed a Breastfeeding Taskforce to serve as site-contacts. (A more complete description of CGBI/BFHC is provided in Chapter 3 of this dissertation.)

At CGBI/BFHC baseline, during the pre-implementation phase, a qualitative study was conducted to identify factors that might influence the hospital's readiness to implement changes necessary to achieve the Steps, using ORC as a guiding theoretical framework. This paper presents findings from this qualitative study. Interview data were collected from these eight hospitals at baseline. CGBI/BFHC's multi-site study design allows exploration of factors relating to ORC vis-à-vis implementing changes necessary to achieve the Ten Steps in differing contexts [52, 53]. Table 2.2

² I conceptualized the idea of studying an organization-level theory in the context of the Breastfeeding Friendly Healthcare Project. I developed the study design to carry out this study under the supervision of Dr. Miriam H. Labbok, Dr. Bryan J. Weiner and Dr. Nancy E. Williamson. I consulted with Ms. Emily C. Taylor, project director.

presents descriptive information about the eight participating hospitals.

			Urban/city	Percent Exclusively				
Hospital	Births / Annum ^A	Teaching Hospital		IBCLC ^B	Breastfeeding throughout hospital stay ^A	Percent Initiating Breastfeeding ^A		
A	500-1000	Nonteaching	Suburban	1	50	90		
В	2500-3000	Teaching	Suburban	3	30	60		
С	500-1000	Nonteaching	Suburban	1	10	60		
D	1000-1500	Nonteaching	Suburban	1	20	40		
E	3500-4000	Teaching	Urban	10+	50	90		
F	4500-5000	Teaching	Urban	1	60	70		
G	500-1000	Nonteaching	Suburban	0	20	50		
Н	5000-5500	Teaching	Urban	3	Data Not Available	, Data Not Available		

Table 2.2Descriptive characteristics of eight hospitals participating in the Carolina GlobalBreastfeeding-Friendly Healthcare Project.

^ADenotes that the data presented are rounded to protect hospitals' and respondents' identities.

^BIBCLC: International Board Certified Lactation Consultant

Theoretical Framework: Organizational Readiness to Change

Health services and organization scholars suggest that successful implementation of complex organizational change requires the assessment and creation of organizational readiness [65-68, 72]. Furthermore, the research states that higher levels of readiness lead to a greater likelihood for implementation success [65-68, 72]. Under the ORC theoretical framework, factors influencing readiness to implement a change should be identified and targeted to achieve greater organizational readiness to execute change. In the context of this study, this involves identifying factors that influence a hospital's organization-level readiness to implement changes necessary to achieve the Ten Steps.

This study draws on Weiner's definition of ORC [69]. ORC is a collective psychological state shared by organization members across hierarchical and professional levels (i.e., hospital staff members, administration, and providers) towards implementing a specific change effort [69].³ Weiner's definition raises two important points: (1) readiness is a collective state shared by organization members and (2) readiness is specific to a given change effort. Related to the first point, the phrase "collective psychological state shared by organization members" refers both to (a) an individual's perception of the group's readiness to implement a change and (b) the shared and collective perceptions of readiness among all group members together. Significantly differing perceptions of readiness among organization members (i.e., various hospital staff members,

³ It should be noted that a psychological approach does not ignore an organization's infrastructure. Weiner notes that an organization's infrastructure shapes organization members' readiness perceptions.

employees, and providers) may indicate a lack of shared-readiness. This construct of a collective psychological state is important to executing the complex hospital-level changes necessary to achieve the Ten Steps; that is, it reflects the multi- level, multi-disciplinary collaboration involved in implementing the changes necessary to achieve the Steps. Related to the second point, ORC is specific to each change effort; an organization may have a high readiness level regarding one change effort while possessing a low readiness level for another. The first point illustrates the need to identify factors that influence staff members' collaboration to achieve the change while the second emphasizes the need to apply ORC to a variety of change initiatives.

Organizational readiness has two dimensions: collective commitment and collective efficacy [69]. Collective commitment has two concepts: "collective" and "commitment." "Commitment" refers to whether organization members value the change; namely, do members perceive that the change is necessary? Important?

Beneficial? "Collective" reflects the shared nature of readiness and can be thought of, in this study, as asking two questions: (1) Do hospital staff members, employees, and providers perceive that everyone, as a group, is committed to implementing the changes necessary to achieve the Steps? (2) Are commitment levels homogenous within the hospital (that is, do all or most hospital staff members have the *same* or *similar* commitment for the change)? Likewise, collective efficacy also has two concepts: "collective" and "efficacy." "Efficacy" relates to organization members' perceived ability to mobilize the necessary resources and cognitive abilities to execute the proposed change; put simply, do organization members' believe they have the ability to implement the change [69, 73-75]? "Collective," again, reflects the shared nature of readiness.

Together, "collective efficacy" can be thought of as asking two questions: 1) Do hospital staff members perceive that they, as a group, are able to work together to successfully practice the Steps? 2) Are these perceptions of ability homogenous within the hospital (that is, do hospital staff members have similar perceptions of ability to practice the Steps)? Barriers and facilitators in the form of task demands, resource availability, situational factors, and the interactions between these three influence organization members' perceptions of collective commitment and collective efficacy [69].

Studies have applied ORC theory in various health services settings [76-80]; but not to identify factors that may influence successful implementation changes to achieve the Ten Steps. Since ORC is specific to each change effort, it is necessary to identify and explore factors influencing readiness that are specific to the Ten Steps.

Instrument Development

A semi-structured interview guide was developed including a set of main questions, follow-up questions, and probes (presented in Appendix A.1) [81]. The guide operationalized assessment of ORC's dimensions, asking respondents to discuss factors that might influence hospital staff members' (including nursing staff, mid-level providers, physicians, and administration) commitment, as a group, to implement the Steps and hospital staff members' ability, as a group, to implement the Steps. The guide was reviewed for face validity. The guide was pilot tested with two respondents from a local birth center to assess question clarity. It was modified based on these pilot interviews.

The final guide focused on four topics: 1) respondents' experiences with previous change efforts; 2) respondents' experience, attitudes, and practices regarding implementation of the Ten Steps; 3) perceived factors influencing collective commitment and collective efficacy to implement the

Steps; and 4) contextual factors influencing implementation.⁴⁴ The final version of this interview guide is presented in Appendix A.1

Study Sample

Purposeful sampling was used to ensure respondents reflected a variety of positions, shifts, and attitudes towards providing breastfeeding support [82]. Site Coordinators were instructed to select respondents to reflect these criteria; interviewers were not informed of respondents' views before the interviews.⁵⁵ Thirty-four respondents were interviewed from the eight hospitals. Respondents included five physicians, three nurse practitioners, six administrators, and twenty staff nurses.

Data Collection

Two interviewers visited each hospital to conduct the interviews during the period of May - July 2009. Site Coordinators approached selected respondents before the hospital visit. The two interviewers conducted the interviews over one or two days at each hospital; interviews lasted between 30 and 50 minutes. Interviewers informed respondents that the purpose of the interview was to explore staff-identified factors that might influence hospital staff members' ability and commitment to implement the Ten Steps.⁶ Interviews were digitally recorded; a professional transcriptionist created verbatim, typed transcripts of the recordings.⁷

Research Ethics

The Institutional Review Board (IRB) for the University of North Carolina at Chapel Hill and IRBs at participating hospitals, where such IRBs existed, approved this study. Interviewers obtained written informed consent from respondents before conducting interviews. Respondents had the option to turn off the recorder or terminate the interview at any point. Confidentiality was maintained by conducting the interviews in a private room and deleting all personal-identifiers from transcripts and reports.

Data Analysis

Member checking was conducted by providing each respondent with a copy of his or her typedtranscript. Ten interviewees replied to the member checking; all reported that the transcripts reflected their views and experiences. A codebook was developed, a priori, including a list of codes that captured the constructs of ORC under study, contextual factors, and decision rules for applying the codes (presented in Appendix A.2). Transcripts were coded in ATLAS.ti [83]. One research team member at CGBI assigned codes to the transcripts based on the decision rules outlined in the codebook. A second member used the codebook to independently code a random

⁴ I was responsible for developing the semi-structured interview guide in consultation with Dr. Labbok and Ms. Taylor. I pilot tested the interview guide. Dr. Weiner reviewed the final interview guide and provided suggestions to improve clarity and presentation.

⁵ Dr. Labbok, Ms. Taylor, and I together decided on the type of respondents to interview. Ms. Taylor, as project director, interacted with the Site coordinators to instruct them on how to create the sampling frame and how to select respondents to meet the specified criteria.

⁶ Ms. Taylor and I conducted the key informant interviews. I was the lead interviewer asking the questions. Ms. Taylor took notes and asked follow up questions where appropriate and/or necessary.

⁷ CGBI/BFHC hired a professional transcriptionist to create interview transcripts.

selection of 50% of the transcripts. The two authors reviewed this sample of transcripts. They discussed and reconciled the few existing discrepancies from this sample, then discussed the full selection of coded transcripts to strengthen and achieve consensual validation [82, 84].⁸

Aggregate-level and within-case analyses were conducted to identify factors influencing readiness to implement the Ten Steps. Factors were organized by whether respondents discussed them in terms of influencing the dimensions of collective efficacy, collective commitment, or both dimensions. Cross-case analyses were conducted to explore whether factors varied by organization. Findings from the within-case analyses were presented back to the Breastfeeding Taskforce at each hospital as a second form of member checking to further validate that the findings reflected staff experience with the

Ten Steps [82, 84]. The breastfeeding taskforce at each facility confirmed that the findings from the within-case analyses reflected their respective hospitals' experiences.⁹

⁸ I was responsible for creating the codebook. I coded the transcripts and Ms. Taylor coded a subset of transcripts of transcripts from the baseline assessment. Ms. Taylor and I participated in the consensual validation. I conducted the within-case, between-case, and aggregate-level analyses. I reviewed the findings with Ms. Taylor and Dr. Labbok.

⁹ I presented the findings to Dr. Labbok and Ms. Taylor. Together, we discussed findings and possible explanations. Ms. Taylor and I presented the findings back to the Breastfeeding Taskforces at each hospital. Together we participated in the member checking with the taskforces to discuss the findings and develop explanations that incorporated feedback from the taskforces

Results

Table 2.3 presents identified salient factors staff reported would impact readiness to implement the Steps arranged by ORC dimensions and hospitals.

Table 2.3	Perceived factors key informants identified that influence their hospital's readiness to
implement the	Fen Steps arranged by the two dimensions of ORC: Collective Efficacy and

	Hospita	l Hospital	Hospital	Hospital	Hospital	Hospital	Hospital	Hospital
	A	B	C	D	E	F	G	Н
Factors	Small	Large	Small	Small	Large	Large	Small	Large
Collective Efficacy and Collective Commitment								
Experience and Age of Nurses and Physicians	•	•		•	•	•	•	•
Perception the Steps Pressure Mothers to Exclusively Breastfeed Staff members'	•	•		*		*	*	♦
perceptions of patient cultural beliefs		•	•	•		•	•	•
Reliance on Lactation Consultants (IBCLCs)	•		•	♦		•	•	•
Collective Commitment								
Night vs. Day Shift	•	•	♦	•	♦	•	•	
Active Management Support					•	•	•	•
Influential Individuals	•				♦	♦		♦
Observing Mothers Utilizing Breastfeeding Support	*			•	•	•		
Collective Efficacy								
Staffing	•	•	•	•		•	•	
Mode of Training	♦			♦		♦	♦	
Presence of V1sitors in Hospital Room	•			♦			♦	

• Identifies factor identified by key informants at the specific hospital.

Factors Related to Both Collective Commitment and Collective Efficacy

Experience and age of nurses and physicians. Respondents suggested that providers' age and experience influenced readiness through collective commitment. Most respondents reported that younger, less experienced staff possessed higher commitment towards implementation efforts than older staff. Younger staff saw implementing the Steps as beneficial for both patients and staff; respondents also reported younger staff are eager to adopt the latest evidence-based practices. In contrast, older, more experienced staff saw adopting new methods as unnecessary, viewing traditional approaches as satisfactory. One nurse with more than 15 years of experience said, "The newer ones are ready to learn and they're ready to go. It's the older ones that are just kind of stuck in their own little, it's like they're happy where they're at, they're content." Nurses and physicians

reported that older physicians demonstrate lack of commitment by leaving standing orders that allow supplemental formula feedings. One nurse said, "older physicians [that] will tell the mom, 'it doesn't matter if you bottle feed your baby'" and would then leave standing orders to formula feed the breastfed infant.

The age and experience of staff were reported to influence readiness through collective efficacy; respondents reported decreased ability to implement the Steps in hospitals where older staff had large influence. Many nurses said they could not practice "rooming-in" because older pediatricians oppose going into the mothers' rooms for newborn assessments.

Perception that the Steps pressures mothers to exclusively breastfeed. Many respondents expressed the belief that the Steps require that they "pressure mothers into breastfeeding." A nurse manager said about implementing the Steps; "I think you have to adjust to the patient's needs and not force the patient to adjust to our [needs]- what we're wanting to do." Most respondents who stated the belief that the initiative forced mothers into breastfeeding said they would not infringe on mothers' feeding choices. Further, they would not "push" breastfeeding on women who had not yet decided whether they would breastfeed. One nurse stated, "If mom hasn't considered breastfeeding, I won't push it."

Interviews revealed a lack of collective efficacy to influence moms to breastfeed. Most respondents said they were limited in their ability to "get women to breastfeed" since mothers made their feeding decisions before admission. One pediatrician said his hospital could never implement the Steps because "[moms] have, prior to delivery, they've made the decision [to breastfeed] or they've not." Respondents who understood the Ten Steps as a set of policies and practices that support mothers in whichever feeding choice they make reported they were both more able and specifically more committed to implement the Steps. Respondents reported being committed to policies and practices they know support mothers' choices and goals.

Cultural beliefs. When respondents perceived that the Steps required all mothers to exclusively breastfeed, they concluded that it would interfere with patients' cultural beliefs, specifically for Latina patients. Respondents reported that Latina cultural feeding practices limited their ability to implement the "baby-friendly practice that all patients must exclusively breastfeed," demonstrating decreased collective efficacy. One nurse said her hospital could not implement the Steps because, "Hispanic patients do breast milk and bottle feeding just because they really don't think that their milk has come in-- no matter what you say to them."

Perceptions of culture also influenced collective commitment; respondents said hospital staff respected Latina culture and would not try to force Latina mothers to "go against their culture." For these respondents, the benefits associated with respecting what they perceived to be the patient's cultural preferences outweighed the benefits of implement the Steps and "forcing" Latinas to breastfeed.

Reliance on Lactation Consultants. Hospital staff members' and patients' reliance on the Internationally Board Certified Lactation Consultants (IBCLCs) influenced both collective commitment and collective efficacy for implementing the Ten Steps.

Collective commitment to implement varied by staff members' perception of the role of the IBCLC. Respondents reported higher staff commitment to implementation in hospitals where the IBCLC serves as a resource for exceptionally difficult cases; respondents noted that staff understood they were personally responsible for providing breastfeeding support to the typical mother-infant dyad. Respondents reported low staff commitment for these practices in hospitals

where the IBCLC is the sole provider of breastfeeding support. One nurse said she provides breastfeeding support but "others think the lactation consultant can. That's what she's hired for."

Reliance on the IBCLC as the sole provider of breastfeeding support also influenced collective efficacy. Respondents from hospitals relying on the IBCLC as the sole provider of breastfeeding support said implementing the Steps would require additional IBCLCs. Nurses often said their hospitals had too few IBCLCs to provide the support outlined by the Ten Steps. One nurse said staff could not implement the Ten Steps because "…we need more [IBCLCs]. The lactation consultant isn't always here.

It'll be hard to do Baby-friendly." IBCLCs and management reported nurses needed to take more responsibility for breastfeeding support.

Respondents reported that even when staff are capable of providing breastfeeding support, patients refuse their assistance; one respondent explained, "patients aren't receptive to you because you don't have the title 'Lactation Consultant'; they only want to see her."

Factors Related to Collective Commitment

Night vs. day shift. The data showed collective commitment varied across day and night shifts. Respondents from both day and night shifts said day staff members were more committed to providing the support outlined in the Ten Steps than night staff. A nurse explained, "On day shift, you can work and work and work with the mamma and not give it any formula and really work and she's breastfed all day. You give a report and you come in the next morning and they've had a bottle or formula during the night." A night nurse said, "The night shift just loves to give the babies a bottle." A second night nurse explained, "Night staff just don't want to take the time to help [moms]."

Respondents also reported night staff will suggest to the mother that, to allow her to rest, the night staff can take the infant to the nursery. Respondents explained that once in the nursery, the night staff often feed the infant formula regardless of maternal consent or medical indication.

Three reasons emerged from the data explaining why night staff did not provide breastfeeding support: 1) night staff perceived that providing the mother an opportunity to rest (by removing baby) benefits her and the baby more than ensuring that she breastfeeds; 2) the night staff perceived few if any negative consequences associated with supplemental formula feeds; and 3) night staff associated few true benefits with exclusive breastfeeding during the hospital stay.

Active management support. Respondents reported that management has an influence on collective commitment to implement the Steps. Commitment is a function of "active support from management." "Active support," respondents noted, is expressed in many ways: managers following up on nurses by inquiring about patients' experiences with breastfeeding support; requiring staff to participate in hands-on training at least once a year; and including breastfeeding support in staff members' annual performance reviews. Most respondents said staff would not be committed to the implementing the Ten Steps if management did not hold them accountable.

Influential individuals. Respondents noted that strong, influential staff members impacted collective commitment; influential members who support implementing the Steps act as advocates for change. These advocates obtained commitment from both upper administrators and clinical staff by highlighting the benefits of practicing the Ten Steps. With administrators, advocates pointed to facility-level benefits the hospital would receive such as the Steps' contribution to magnet status; with clinicians, advocates identified the benefits associated with these Steps for

both patients and clinicians.

Respondents explained these advocates secured external resources to facilitate adoption of practices in the Ten Steps.

Observing mothers utilizing breastfeeding support. Respondents reported that when staff saw mothers utilizing breastfeeding support, staff commitment to implementing the Ten Steps increased. Seeing mothers return for additional assistance from lactation services demonstrated to nurses that breastfeeding is important to new mothers. Respondents said nurses want to provide the best care. However, nurses do not always associate providing breastfeeding support with best care; seeing mothers return for lactation services helps staff make this connection. One nurse explained, "…when the staff sees these moms coming in and they say, 'oh you get those people coming back all the time?' then they see well it does make a difference."

Factors Related to Collective Efficacy

Staffing. Respondents reported staffing practices influence collective efficacy to implement the Ten Steps. Many respondents reported staff felt unable to perform the practices required by the Ten Steps due to inadequate staffing; shifts required more staff members in order to fully carry out the required practices. Some respondents also reported that scheduling additional IBCLCs for each shift would reduce staffing constraints leading to an increased ability to follow the practices in the Ten Steps.

Mode of training. The ability to implement the required practices varied by the mode of training staff receives for providing breastfeeding support. Reported ability to provide breastfeeding support depended on whether their training included hands-on instruction, meaning the staff had the opportunity to physically practice the support outlined in the Steps. One nurse said, "The hands-on I think is really, really important because you can read it a million times but if you haven't seen it done or done it yourself, I mean it makes it hard." Many respondents from hospitals that included hands-on training reported higher efficacy. One nurse explained that because of hands-on training staff "feel comfortable going, and at least trying to help the mom with this before they pick up the phone and call the lactation consultant."

Presence of visitors in hospital room. The presence of visitors in the room is a situational factor that influenced collective ability to implement the Ten Steps.

Respondents said that the presence of visitors often prevented moms from both initiating breastfeeding within the first hour and from breastfeeding throughout their hospital stays. Members of the staff report being unable to facilitate skin-to-skin because mothers and visitors "insist on passing the baby around the room." Nurses reported mothers do not breastfeed around visitors for fear of looking inadequate. One nurse said, "moms think they'll look like a bad mom if they can't get the baby to breastfeed." Respondents also said older visitors such as the infant's grandparents often encourage the mother to supplement with formula.

Factors by Hospital: Results from Cross-case Analyses

Organizational readiness to implement an innovation varies among organizations. The interviews revealed the distribution of factors varied by hospital characteristics; see Table 2. Seven factors impacting readiness were salient in both large and small hospitals: 'experience and age of staff'; 'perception that the Ten Steps pressure mothers to exclusively breastfeed'; 'cultural beliefs'; 'night vs. day shift'; 'observing mothers utilizing breastfeeding support'; 'reliance on the IBCLCs'; and 'staffing'. Two factors were more salient in small hospitals than in large hospitals: 'presence of

visitors in the room' and 'mode of staff training'. These factors influenced *collective* efficacy. Two factors were more salient in large hospitals than in small ones: 'active management support' and 'influential individuals'. These factors influenced collective commitment.

Respondents from the larger, teaching hospitals in the study discussed factors pertaining to collective efficacy using contextual factors that will facilitate implementation of the Ten Steps. Background data revealed each of the larger hospitals in the study have had more experiences with previous successful change efforts as compared to each of the smaller hospitals in the study. Respondents from smaller hospitals discussed commitment more often in terms of barriers than did respondents from larger hospitals.

Discussion

This study demonstrated that ORC's dimensions are useful for exploring and understanding factors that may influence successful implementation of changes necessary to achieve the Ten Steps. Although the two dimensions, collective efficacy and collective commitment, are conceptually distinct, Weiner suggests the two are empirically related; that is, individuals' commitment influences their efficacy and their efficacy influences their commitment [69]. The results reflect the connection between collective efficacy and collective commitment in that the two dimensions shared some common but not completely overlapping factors. For example, factors shared by both collective efficacy and collective commitment included the 'experience and age of nurses and physicians', 'forcing mothers to exclusively breastfeed', 'cultural beliefs', and 'reliance on IBCLCs'. Likewise, some factors were specific to each dimension, such as 'active management support' as a factor under collective commitment and 'staffing practices' as a factor under collective efficacy.

The identified factors influencing the two dimensions for ORC suggest readiness to implement the Steps is a collective construct. It is not enough that some individual staff members are "ready"; the data suggest that change will require cooperation among many staff members. Indeed, to implement the Steps, nearly all staff must be following the outlined practices. The data also suggest that staff may adjust their own commitment/efficacy based on other staff members' commitment/efficacy; for example, staff may be more committed if they perceive others are committed or they may feel able to implement changes because others appear able to do so.

Related to the second aim, the findings from the cross-case analyses suggest readiness interacts with facility-level characteristics such as hospital size and type. Weiner proposes that contextual factors may amplify or dampen "Organizational Readiness" to implement a specific innovation [69]. Cross-case analyses showed that the identified factors varied by hospital characteristics. Specifically, respondents from the smaller hospitals focused more on barriers to implementation of the Ten Steps, while respondents from larger, teaching hospitals focused on facilitators to implementation; this tendency may reflect that the teaching hospitals possess an organizational culture that more readily supports innovation and learning.

This qualitative study implies that achieving the Ten Steps and encouraging hospitals to implement the Steps in these hospitals is likely to be very challenging. The data indicate the philosophy, "the customer is always right," may be guiding practices related to infant feeding; this may be in conflict with actions that would offer the customer information and support to reach an informed decision. Findings also suggest that a strong intervention across all levels and shifts will be necessary to overcome identified barriers. For example, the misconception that implementing the Steps will require pressuring mothers into breastfeeding will need to be overcome; older clinicians will need to be brought on board to reduce the practice of standing orders for formula; management will need to make an effort to ensure breastfeeding support is available during both day and night shifts; and administration will need to be willing to provide staff with the time and support to receive hands-on training. These results demonstrate the factors relating to implementation vary across hospitals as context varies; understanding these variations would allow more targeted and, in principle, more successful interventions.

Implications for Research

While these results suggest the factors influencing implementation of the Ten Steps reflect the theoretical constructs of "Organizational Readiness to Change" (ORC), this is only the first step in exploring this theory's utility for modeling the implementation of the Ten Steps. Further research on ORC in the context of implementing the Steps will help validate ORC's ability to inform Ten Step implementation efforts. Specifically, subsequent research will be directed towards three efforts: 1) determining whether these and potentially others are present and reflect the dimensions of ORC in other settings; 2) using identified factors to develop a valid and reliable tool that both assesses readiness levels and identifies factors to target for increasing readiness to implement the Ten Steps; and 3) determining whether higher levels of readiness lead to increased implementation success.

Study Strengths and Limitations

This study has the strengths of using a novel, multi-site approach to studying the theory of ORC as it relates to implementing the Ten Steps; the study design allows for comparisons across hospitals with differing characteristics. This study also has limitations. First, the fact that there are only eight hospitals is a limitation on the ability to generalize these findings to other settings. The research team attempted to address this limitation by selecting a variety of hospitals representing various demographics. Second, those interviewed knew that the research team was part of an effort to implement the Ten Steps. Thus the data might have been subject to social desirability bias in that respondents may have provided information they perceived the interviewers would want to hear. On the other hand, many of the views reported differed from those of the study staff. Third, the hospitals involved had already considered Ten Step implementation to a greater or lesser degree; the findings may not be generalizable to hospitals not so engaged. Finally, while other hospitals may identify similar factors, their experiences may not be identical.

Conclusions

Practicing the Ten Steps requires collaboration among hospital staff members across multiple disciplines in various units and administrative levels. Efforts to increase the number of facilities that practice the Ten Steps will benefit from organization-level, theory-driven research on the factors that might influence Step achievement. In this article, factors influencing hospital's readiness to implement the Ten Steps were explored using ORC's dimensions of collective commitment and collective efficacy. The results suggest that efforts to implement the Steps will be influenced by hospital staff members' commitment to work together to achieve the Steps and perceived ability to work together to achieve the Steps. This study strongly suggests that future change initiatives that support hospitals in implementing the Ten Steps would benefit from engaging in preliminary work that targets these factors to increase readiness.

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