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The Critical Incident Technique as a Method to Understand the Impact of Healthscapes on Patient Experience

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Abstract: This article aims to explore the Critical Incident Technique as a useful method to understand the impact of healthscapes on patient experience in maternity contexts. In this respect, 39 in-depth interviews were conducted with various maternity stakeholders—mothers, midwives, heads of midwives, and senior managers. As the journey of (soon-to-be) mothers is technically and emotionally complex, and as many critical touchpoints must be managed carefully to ensure a smooth experience, the key challenge during the interviews was to find a way to directly and indirectly discuss healthscape elements influencing the patient journey with the interviewees. Therefore, the authors explore the potential gains of the Critical Incident Technique for architectural research.

Keywords: Healthscape; Patient experience; Critical Incident Technique; Maternity

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1. Introduction

Patient experience is at the forefront of healthcare delivery research (e.g., Harvey et al., 2021), with the recognition that “In no other service is managing the customer experience more important than in healthcare” (Berry, 2019, p. 79). The quality of the physical environments in healthcare facilities (i.e., healthscapes) can affect patient medical outcomes and the quality of care (e.g., promote quicker recovery, reduce stress; Berry & Parish, 2008; Ulrich et al., 2010; Ulrich et al., 2020). Moreover, better patient experiences, due to enhanced service and pleasing environments, contribute to enhanced evaluations by patients, including greater satisfaction ratings, which in turn can enable hospitals to gain market share, increase profitability, and improve outcomes (Feirn et al., 2009; Suess & Mody, 2017). Thus, a focus on the patient experience is critical—but also challenging.

In particular, in maternity departments, patients engage in complex and emotionally charged experiences, involving deep emotions, pain, and various other actors. Labor, birth, and the early postpartum period also are life-changing, memorable times. Accordingly, there are vast numbers of critical touchpoints (i.e. contacts between the service provider and patient; Homburg et al., 2017) to manage to ensure a smooth service experience. These touchpoint might be human (e.g., interaction with medical staff), digital (e.g., information gathering through a website), physical (e.g., impact of the healthscape on the patient), or some combination thereof. Doing so can lead to favorable outcomes for mothers and their families (e.g., well-being; Colley et al., 2020), and the hospital (e.g., patient loyalty, word of mouth, engagement; Homburg et al., 2017).

In research into the overall experience of childbirth, previously identified influences include the course of labour, complications, pain, support, sense of control, and birth expectations (Aune et al., 2015; Lundgren, 2005; Nielsen & Overgaard, 2020; Setola et al.,

2019). Although, the healthscape is also critical to patient experiences (Sadek & Willis, 2020), more research is needed to address the role of the physical environment in determining the patient experience in maternity departments (e.g., see Setola et al., 2022).

This paper is part of a larger research project¹, in which we applied the Critical Incident Technique (CIT) (Flanagan, 1954; Gremler, 2004) as a methodological approach to understand the challenges patients are facing during their patient journey in the hospital and what the possible architectural antecedents and patient outcomes of these experiences may be. CIT is a research method in which the research participant is asked to recall and describe a time when a behavior, action, or occurrence impacted (either positively or negatively) a specified outcome. Since Bitner et al. (1990), an extensive list of CIT studies have appeared in service and marketing management literatures (Gremler, 2004). CIT is also frequently used in health services research to explore what helps or hinders in providing good quality care or achieving satisfaction with care provision (e.g., Amati et al., 2018). However, to date, less research has examined the use of this technique in architectural research.

We implemented this technique during 39 in-depth interviews with various stakeholders of maternity wards in Belgium: mothers, midwives, heads of midwives, and senior managers. In the next section, we establish our theoretical foundations. After we present our application of the method, and we conclude with some implications and limitations of the technique.

2. Theories

2.1. Maternity Healthscape (MHS)

The growing interest in and efforts to improve healthcare facility customers' experiences has led to various design studies, including research that has examined the role of the environment on the enhancement of patient experience. The relationship between humans and the design of the physical environment is discussed in the management literature by Bitner (1992), who first coined the term 'servicescape' referencing to the design of the physical environment, which affects both customers and employees in service organizations. The servicescape model by Bitner (1992) drew the origin from the term 'atmospherics' defined by Kotler (1973) as the effort to design buying environments to produce buyer specific emotional effects that enhance his purchase probability. Similar to what customers do in other services, patients may compare hospitals and select providers on the basis of their reputation. It is therefore important for healthcare providers to build and nurture their reputation, also regarding keeping a proactive, loyal and co-creating customer base. While other service industries such as hospitality and retail have appreciated the role of the design of the physical environment on customer satisfaction and even try to enhance the environment to exceed the customer's expectations, it was only later that the healthcare industry recognized its importance (Fotller et al., 2000). Hutton and Richardson (1995) coined the term 'healthscape', by modifying Bitner (1992) servicescape framework and deepening Kotler (1973) atmospherics. In their view, 'healthscape' refers to the servicescape specific to any healthcare service, which concerns the 'tangibles' (i.e. the design of the physical environment) captured through our senses of sight, smell, sound, taste, and touch (Hutton & Richardson, 1995).

As little research has examined the concept of healthscapes within maternity wards, our objective was to (1) conceptualize maternity healthscape (MHS) and (2) to understand the impact of the MHS on mothers' experiences. Within our larger research project, we conceptualize the maternity healthscape as *the design of the maternity healthcare built environment, including the architecture of a facility, its implementation in its surroundings, and all tangible elements. In particular, the maternity healthscape includes specific aspects such as exterior, interior design, ambient factors, functionality, technology, tangibles of the service personnel, communal spaces, and additional tangible services*. All those healthscape aspects are likely to influence mothers and their family to, ultimately, ensure a smooth childbirth experience (Martens et al., 2022).

MHS deserves specific attention for several reasons. First, MHSs play a key role in shaping the childbirth experiences of mothers and families (Nilsson et al., 2020; Setola et al., 2019). Positive birth experiences offer long-lasting benefits, including improved self-

¹ See Martens, C., Delcourt, C., & Petermans, A. (2022). Maternity Healthscapes: Conceptualization and Index Development *HERD: Health Environments Research & Design Journal*, forthcoming. for further details

esteem and empowerment that sustain patients' maternal roles (Aune et al., 2015). Negative birth experiences can impose troubling, lasting psychological impacts, including enhanced risk of post-partum depression, post-traumatic stress disorder, fear of childbirth, difficulty breastfeeding, and problematic parental relationships (e.g., Bell & Andersson, 2016). Second, patients from maternity services have features that differentiate them from patients from other departments. Because of the time that generally passes between their first knowledge of the (possible) need for hospital services and their actual provision, expectant mothers—who are usually not sick contrary to other patients—have more time than most patients to search for a hospital that meet their needs. Third, maternity services are evolving at a rapid pace. There is an international trend of providing fewer but more comprehensive maternity services, and in Western countries, length of stay is shortening (Lefevre et al., 2020). Fourth, MHSs are crucial to the wealth and reputation of hospitals (Van de Voorde et al., 2017). For most first-time mothers, childbirth is their first (long) encounter with a hospital environment. Thus, creating favorable impressions among mothers and their family is key to ensure that families will consider the same hospital services in case of health issues. In general, all those specificities in MHSs strengthen the need to design efficient maternity facilities.

2.2. Critical Incident Technique (CIT)

To answer our second objective (i.e. to understand the impact of the MHS on mothers' experiences). We searched for a method to communicate in a proper and in-depth way with various users of the healthscape, to understand the impact of the MHS on patient experiences. Therefore, we used CIT, which is a method that relies on a set of procedures to collect content, analyze, and classify observations of human behavior. CIT was first described scientifically by Flanagan (1954) as a tool for formulating the critical requirements of an activity. That is, the CIT helps to understand the key things people in a certain profession or activity should do—or not do—in order for them to have the best chance of achieving their goals.

Since its introduction, the CIT method has been used in a wide range of disciplines, such as marketing literature (e.g. sources of satisfaction and dissatisfaction in service encounters; Bitner et al., 1990), including that of health services research (FitzGerald et al., 2008). Bitner et al. (1990) defined an incident as an observable human activity that is complete enough to allow inferences and predictions to be made about the person performing the act. A critical incident is described as one that makes a significant contribution, either positively or negatively, to an activity or phenomenon (Bitner et al., 1990; Grove & Fisk, 1997). Critical incidents can be gathered in various ways, but in service research, the approach generally asks respondents to tell a story about an experience they have had. Once the stories (critical incidents) have been collected, content analysis of the stories takes place. Generally, the goal of the content analysis is a classification system to provide insights regarding the frequency and patterns of factors that affect the phenomenon of interest.

Today, the tool has been used in a large variety of qualitative studies in nursing sciences (e.g., Clark et al., 2018), hospital care (e.g., Stålberg et al., 2018), and to research challenges in conducting health research (e.g., Getrich et al., 2016). It has been used to explore both the views of patients (Peltola et al., 2018) and of service providers on the quality of provided care (Amati et al., 2018).

Gremler (2004) highlights the apparent soundness of the method in his influential article and argues to consider it in studying a broader range of issues and for use in other disciplines beyond services marketing. Most of the CIT studies deal with interpersonal interactions or the service delivery process. Issues relating to physical evidence, have received minimal attention from those using the CIT method (Gremler, 2004). However, the environment where the service is delivered (i.e., servicescape), can also influence the service customer's experience. For example, in a study using the CIT method, Hoffman et al. (2003) suggested that a significant percentage of service failures are related specifically to the servicescape. As these studies illustrate, the CIT method can be valuable in examining the impact that the servicescape, as well as other types of physical evidence, has on a customer's service experiences and should be considered for usage in future studies. Thus, the CIT method is also an interesting method to be used in contexts such as healthcare design and architecture.

3. Method

3.1. Multi-Stakeholder Perspective

For our research purposes, there was much (more) value in exploring multi-stakeholder perspectives, as input from different stakeholders impacts on experiences in a maternity healthscape. As a consequence, a multi-stakeholder perspective was applied by conducting qualitative, in-depth interviews with three different samples collected in a Belgian context. Sample 1 includes 15 mothers who delivered their babies at a hospital; Sample 2 includes 16 midwives; and Sample 3 includes 8 senior managers (i.e., 6 heads of midwives and 2 chief executives) working in 12 different hospitals.

In developing our three samples, we sought to maximize diversity among the respondents. Mothers (Sample 1) differ in their demographic characteristics, medical states, choices of hospital, and degree of hospital familiarity. The midwives (Sample 2), heads of midwives, and chief executives (Sample 3) vary in their demographic and professional characteristics.

The first author conducted the interviews for Sample 1 and Sample 3, using CIT to reflect the exploratory nature of the study (Gremler, 2004). Ten undergraduate students enrolled in a human-sciences course at a public university in Belgium conducted the interviews for Sample 2 (midwives); the students participated as data collectors as part of a class assignment. This technique has been used successfully in a variety of studies, especially in CIT research (Gremler, 2004). Prior to data collection, students received training in interviewing techniques, particularly the CIT method.

3.2. Interview Guide

The interview guides consisted of open questions related to the influence of the design of the maternity healthcare built environment, including the architecture of the facility, its implementation in its surroundings, and all tangible elements experienced by maternity users²—along with prompts and follow-ups (McCracken, 1988). Interviews began with general questions to establish rapport while putting the respondents at ease. The semi-structured guide contained three main parts. In the first part interviewees were asked to draw a timeline visualizing the patient journey (see Simonse et al., 2019) (from the moment mothers entered hospital until they left it) with information about the various touchpoints (i.e. rooms and timing), from their own perspective. Patient journey mapping depicts the order of events through which customers interact with a service organization during the overall service process (Rosenbaum et al., 2017). For services that involve multiple encounters, this ongoing process reveals how each touchpoint flows into the next. Eventually, the sum of all experiences during touchpoint interactions define customers' opinions of the service and its provider. In addition, they were asked to draw the floorplans of the most important spaces (i.e. monitor room, delivery room, bedroom). This formed the basis for the next questions and made it easier for both the interviewer and interviewee to understand the situation holistically.

Considering the exploratory nature of the study, the CIT was then used for the second part of the interview guide. In this part, interviewees were encouraged to discuss generally negative and generally positive experiences during their patient journeys; *“Can you give me an example of a positive/negative incident you experienced during your stay at the hospital?”* This qualitative interview procedure facilitates the investigation of significant occurrences identified by the respondent, the way they are triggered (i.e. antecedents), and the outcomes in terms of perceived effects. This methodology offers significant benefits as it collects data from the respondent's perspective and in his or her own words (Gremler, 2004). It therefore provides a rich source of data by allowing respondents to determine which incidents are the most relevant to them for the phenomenon of interest.

Finally, the last part asked them to reflect on their choices of hospitals and gynecologists and overall satisfaction with their journeys. Additional questions were raised concerning home birth and their perception on giving birth in hospital. The last question invited the respondents to share additional information that they thought important but was not raised during the interview.

4. Discussion

4.1. Potential gains of the CIT Method in Healthcare and architectural Research

The CIT method has been described by Gremler (2004) as offering a number of benefits. First, the data collected are from the respondent's perspective and in his or her own

² See *ibid.* for further details

words (Edvardsson, 1992). The CIT method thus provides a rich source of data by allowing respondents to determine which incidents are the most relevant to them. In so doing, the CIT is a research method that allows respondents as free a range of responses as possible within an overall research framework (Gabbott & Hogg, 1996). As we wanted to understand the critical moments in the overall patient journey, the CIT is a useful method because it produces very in-depth information as respondents have the opportunity to give a detailed account of their own experiences. In addition, it does not restrict observations to a limited set of variables or activities (Walker & Truly, 1992). As we noticed during our pilot interviews, interviewees found it very difficult to answer direct questions on the impact of the healthscape on their experiences. By using the CIT method, interviewees provided us with a story in which direct and indirect relations between architectural elements and patient experiences were mentioned. For example, a positive incident involving privacy protection due to the organization of the room's layout:

“I had the large room and the couch was here [back of the couch toward the bed of the mother], because if I was breastfeeding here [in bed], and there were many visitors, then they would settle here in such a way that they saw nothing, so that was always nice when the midwife came then we had a bit of our own privacy because the people sat in that other part of the room, I did not feel watched.” [Wenke, mother]

A sample negative incident recounted:

I was in a double room. So we had to share everything, and I was on the side of the hallway so it was super dark. There was a curtain between us, and she closed the window and the curtain all the time, but M. [baby] had jaundice so he needed a lot of daylight, but that was not possible... I complained to the midwives many times, but at one point, I really gave up ... [Elise, mother]

Second, this type of research is inductive in nature (Edvardsson, 1992). The CIT method does not consist of a rigid set of principles to follow, but it can be thought of as having a rather flexible set of rules that can be modified to meet the requirements of the topic being studied (Hopkinson & Hogarth-Scott, 2001). During our literature review, we made a list of architectural elements of the healthscape that were identified in prior research. During the in-depth interviews it was clear that the provided list was not at all exhaustive. The CIT was therefore useful, as it does not rely on a small number of predetermined components and allows for interaction among all possible components in the service (Koelemeijer, 1995) and it is effective in studying phenomena for which it is hard to specify all variables a priori (De Ruyter et al., 1995).

Third, the CIT method can be used to generate an accurate and in-depth record of events (Grove & Fisk, 1997). It can also provide an empirical starting point for generating new research evidence about the phenomenon of interest and has the potential to be used as a companion research method in multimethod studies (Kolbe & Burnett, 1991). In our study, the combination of CIT and customer journey mapping worked very well to precisely indicate at what moment, in which place and during which action patients experienced positive or negative moments, and what the impact of the healthscape was³.

Fourth, the information gathered when using this approach provides rich details of firsthand experiences (Bitner et al., 1994). The verbatim stories generated can provide powerful and vivid insight into a phenomenon (Zeithaml, 2013), it can create a strong memorable impression and can suggest practical areas for improvement (Odekerken - Schröder et al., 2000). The next quote highlights how bad acoustics and little unpracticalities can have a huge impact on mothers:

Oh my god, intimacy and acoustics is missing there anyway! If I had to go to the toilet I also had to rinse vaginally. Defecation and so on, because I had my enema. Then I had to say to J. [father of the baby]: “chat a bit louder [to the visitors],” how embarrassing.... I found it very humiliating! You always have to open up and expose everything to all those people sitting there. And then the door of the bathroom opened when I was still on the toilet, oh my god embarrassing. [Veronique, mother]

³ We developed a mother journey map, including the influence of MHS dimensions, in the following forthcoming study: Martens, Delcourt, Petermans (2022) Mamma Mia! Uncovering Critical Touchpoints to Enhance Complex Maternity Patient Journeys.

Critical incidents can also be easily communicated, particularly when describing what behaviors to do and not do in order to satisfy customers (Zeithaml, 2013). This helped us to in-depth discuss with the medical staff some issues that arose from the patient interviews (e.g. how to better position the delivery bed).

4.2. Potential limitations of the CIT Method in Healthcare and architectural Research

Although the benefits of using the CIT method are considerable, the method has also received some criticism by scholars (Gremler, 2004). First, the CIT method has been criticized on issues of reliability and validity (Chell & Pittaway, 1998). In particular, respondent stories reported in incidents can be misinterpreted or misunderstood (Edvardsson, 1992; Gabbott & Hogg, 1996). Therefore, two researchers coded all the identified experiences independent from each other in our research study.

Second, CIT is a naturally retrospective research method. Thus, the CIT method has been criticized as having a design that may be flawed by recall bias (Michel, 2001). Indeed, the CIT method relies on events being remembered by respondents and requires the accurate and truthful reporting of them. An incident may have taken place some time before the collection of the data; thus, the subsequent description may lead the respondent to reinterpret the incident (Johnston, 1995). To minimize this drawback, we aimed to interview mothers not more than 6 months after they delivered a baby.

The nature of the CIT data collection process requires respondents to provide a detailed description of what they consider to be critical incidents. However, respondents may not be accustomed to or willing to take the time to tell a complete story when describing a critical incident (Edvardsson & Roos, 2001). As we wanted the respondents to take time and effort to describe situations in sufficient detail, we prepared a long list of prompt and follow-up questions. In addition, luckily, we also noticed that mothers were very engaged interviewees who most of the time enjoyed talking about this life-changing event.

Finally, the CIT method is particularly well suited for use in assessing perceptions of customers from different cultures (Stauss & Mang, 1999). In their study, De Ruyter et al. (1995) characterized the CIT method as a “culturally neutral method” that invites consumers to share their perceptions on an issue, rather than indicate their perceptions to researcher-initiated questions. Our study focused on delivering mothers, which can be seen as a homogeneous sample. Future research could therefore focus more on this culturally neutral method.

5. Conclusions

The intent of this research synthesis is to describe the state of practice in the use of the Critical Incident Method (CIT) for our research purposes and to provide some suggestions for future use of the method in related healthcare contexts. It is hoped that this research synthesis will motivate architectural researchers employing the CIT method in future studies to carefully examine their methodological decisions and to provide sufficient detail in discussing their use of this method.

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