

Expectant mothers' value drivers at the maternity hospital: evidences from a monocentric study.

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Research Article

Keywords: healthcare marketing, patient experience, expectant women, patient satisfaction, hospital brand value

Posted Date: December 9th, 2020

DOI: <https://doi.org/10.21203/rs.3.rs-110113/v1>

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Abstract

Background – Patient experience is recognized as one of the key elements of quality control within healthcare organizations, becoming crucial for a competitive growth strategy. In fact, delivering patient-centered healthcare experiences is seen as one of the basic requirements of good quality care. Women have been largely invisible in patient centered satisfaction research, especially if considering women needs during pregnancy and labor. The aim of this paper is to understand the experiential value drivers of expectant mothers through a holistic experiential marketing perspective. This paper enlightens the elements of in-hospital stays from different perspectives, contributing to a better and more exhaustive understanding of the patient's needs and preferences.

Methods – Three studies were designed and conducted referring to a maternal and child health hospital: two focus groups involving expectant and new mothers (study 1), a qualitative analysis to understand the online overall sentiment regarding hospital experiences during pregnancy (study 2) and a survey with collected data analyzed through SEM to identify the most influential and significant factors affecting women's overall satisfaction in the in-hospital stay (study 3).

Results – The qualitative research returned some valuable insights on the role of interaction with staff, information quality and brand. Sentiment analysis revealed the relevance of online patient experience. Finally, the quantitative SEM analysis confirmed that the relationship between patients and staff and patient empowerment impact the most on the overall satisfaction. Furthermore, the brand value plays a mediating role in this positive relationship.

Conclusions – Results suggest to prioritize the establishment of strong human relationships between clinical staff and patients, based on the availability of high quality clinical information. The conducted studies through their main finding, could support an improvement in the process of care based on expectant mothers' needs and behaviours.

Background

Patients' Needs and Experience

Scientific literature clearly highlights the emerging value drivers of patients as follows: easy and direct access to certified and high quality health information (1); new opportunities for managing their own personal health conditions (2–4); new direct channels to interact with healthcare providers (5, 6); an active role in patients' communities aimed to share clinical experiences (7–11). In fact, patient experience is recognized as one of the key elements of quality control within healthcare organizations (12), becoming crucial for a competitive growth strategy (13).

These emerging needs have become clear priorities for healthcare providers who are now supposed to adopt new strategic and operational marketing perspectives. Also regulatory agencies have acknowledged that the accurate measurement of the patient experience can complement existing

measurements of safety and efficacy in regulatory decision making (14). In fact, delivering patient-centered healthcare experiences is seen as one of the basic requirements of good quality care (15, 16).

Needham (13) uses the term “roller-coaster” to synthetize the alternation of different emotional and physical status that patient experiences during the healthcare treatments. Other authors (17) define the patient experience as the representation of the so called “patient journey”. Different studies relate the patient experience to two main domains: the physical ambience and the human interactions (18). It is also common to consider patient experiences as an indicator of the quality of a specific hospital (19, 20) as experience evaluation is a fundamental instrument to be able to reach expectations (21, 22): “bright and beautiful lobbies, rooms with big windows and access to outdoor gardens, dining options and innovative hospital designs have changed patients’ experiences and expectations of what a hospital should be” (23). Research has shown new designs and amenities in a hospitals positively affect patient satisfaction (24), improve therapeutic benefits (25), reduce pain and allow a shorter hospital stay (26). With the term “satisfaction” it is common to refer to all patient opinions with regards to the received assistance (20, 27–29). Studies in the healthcare setting have provided some evidence that hospitals’ service quality has a positive influence on patient satisfaction (30–36), it means that healthcare providers should adopt a marketing approach to deeply understand patients’ needs and expectations in order to meet them (37). In fact, it is argued that patients’ opinions should supplement traditional indicators of quality in the healthcare domain (19, 20) because they provide information on the ability to meet expectations (21). Scientific literature highlights several elements of patient experience, which largely influence the perceived quality of care. Those elements and their measurements vary depending on the study considered (20). Researchers have proposed various instruments as the “Customer Quality Index Cataract Questionnaire” (38), the “Picker Patient Experience Questionnaire” (39), the “Hospital Consumer Assessment of Healthcare Providers and Systems” (40). Furthermore, the manner in which a patient’s experience can be captured is also developing, in terms of the types of data sources available as online data availability (14). Both qualitative and quantitative approaches are utilized. It is hard to find comparative studies about the pros and cons of each different method and measure and only a combination appears to be the best decision.

Addressing the Research Gap: the Need of a Focus on Female Patients at Maternity

Weisman CS et al. (41) stated that women have been largely invisible in patient centered satisfaction research. In their study they investigate the relationship between gender and satisfaction with primary care visits and identify issues of particular concern to women such as informational content, continuity of care, and multidisciplinary. Moreover, it is important to take into account the differences among female patients, considering the fact that during maternity they reveal several different needs and peculiarities that differ from all the other kind of patient. Hundely’s study (42) tried to measure women’s satisfaction in a midwife-managed delivery unit and identified issues related to continuity of care, choice and control as important aspects of maternity care. Proctor (43) identified ten categories (or dimensions) of service quality in maternity care. Communication between expecting mothers and clinical staff has always been considered as one of the most critical issues according to several studies (44–47) which state that it

represents a necessary condition for practicing good care. The role of midwives is particularly relevant as they are supposed to understand expectant mothers' needs and to establish positive relations by offering support and encouragement (48, 49). According to Heatley et al. (50) more research is needed on women's communication with their care providers during pregnancy and there is a lack of studies on the views of pregnant women, in order to understand their needs to provide them with value. What seems to be missing is a deep analysis of the overall experience of women during maternity and an assessment of the factors that highly affect their satisfaction and their perceptions of the hospital brand value.

Methods

The aim of this paper is to understand the experiential value drivers of the expectant mother through a holistic experiential marketing perspective. To this extent, three different studies have been conducted in order to provide detailed and useful information about the hospital experience of women during pregnancy. The studies have been developed at Burlo Garofolo Hospital, a highly specialized Italian hospital based in Trieste, with national relevance in pediatric care, in women's health and maternity.

Study 1 (qualitative approach): two focus groups.

Two focus groups were organized in order to deeply examine the experience lived at Burlo Garofolo Hospital by patients.

The first focus group involved 7 women between 22 and 39 years of age; 5 were pregnant, 2 had already delivered their baby while the second focus group involved 10 women between 26 and 36 years of age; 7 of them were pregnant while 3 had already delivered their babies.

Study 2 (qualitative approach): a web sentiment analysis.

Using a multimethod, mixed-models approach, the major Italian websites discussing the prenatal diagnostic path were examined. Afterwards, using the Scrapebox (51) software communities were identified, by means of search (on URLs, headlines and texts) of keywords and boolean operators (i.e. "Burlo Garofolo AND Maternity", "Burlo Garofolo AND Pregnancy" or "Trieste AND Amniocentesis"). Moreover, implementing HTML parsing techniques the textual corpus from forum threads was extracted. Posts and comments from Facebook pages and groups were collected via the Facebook application Netvizz (52), that provides two types of data: the network and the tabular files. Posts and texts were retrieved in a one year period.

To analyze sentiment orientation, the lexicon-based method was adopted. A digital ethnography (53) was conducted, by in deep observation of the dialogues and interactions. The textual corpus was analyzed by means of computer-assisted content analysis and computer-assisted quali-quantitative text analysis and the sentences expressing a sentiment were labeled. A manual coding of the whole corpus was done.

The sentiment was determined by comparing sentences against the expert-defined entry in the dictionary. It has been used an accurate classifier to construct indicators of sentiment. The collected sentences were

compared thorough search in the WordNet (54).

The following step was to run a supervised, computer-assisted lexicographic analysis, looking for both frequently used terms and relevant expressions (noun-phrases), on affects and feelings.

To conduct the qualitative part of this study QDA Miner 5.0 software package (55, 56) for coding textual data on forums or on Facebook was used.

In order to analyze consumer sentiments towards brands, the frequency of “positive” and “negative” code labeling was counted continuing then by generating relative frequency word counts: analyzing frequency of appearance of particular words or phrases might provide insights into a particular topic.

Online platforms can be used effectively to identify consumers’ preferences or to detect dissatisfaction

Study 3 (quantitative analysis): data collected through survey and analysed adopting a structural equation model (SEM).

The research methodology was a survey through a paper based questionnaire submitted at Burlo Garofolo Hospital to 255 women during their uncomplicated pregnancy clinical pathway. Data were collected during: day-hospital visits, ultrasound exams, in-hospital stay for delivery. The questionnaires were administered by the authors and by hospital staff members of the customer care service after been instructed by the authors. Participants were those patients who chose to collaborate. More in details, patients were free to decide whether to collaborate or not in the study and the opportunity was made available to all women in the three mentioned touchpoints at Burlo Garofolo Hospital.

The questionnaires were administered in Italian and both socio-demographic information and experiential information were gathered. The questionnaire included multiple choice questions and Likert scale questions (scale 1–7 where the successive Likert category represents a “better” response than the preceding value).

The questionnaire began with a cover letter explaining the purpose of the study and underlining that no medical data was collected, furthermore that it was completely anonymous and data would be treated strictly confidentially (in accordance with privacy laws).

A Structural Equation Model (SEM) statistical analysis was conducted using the Statistical Package for the Social Sciences Program (SPSS) version 24 and Amos. Structural Equation Modelling adopts an hypothesis testing approach to the analysis of theories based on causal relations among multiple variables in order to assess the consistency of a hypothesized theoretical model with the data collected (57, 58).

Results

Study 1: Focus Groups

The insights collected during the focus groups can be grouped in the following topics:

- Staff;
- Information;
- Brand;
- Atmosphere and Comfort;
- Institutional communication (offline and online);
- Usage of online tools.

Staff: the hospital's staff is meant to be the key driver of the experience. When having to define it, adjectives such as "*enviable, always available and sunny*" are used.

- Women emphasize the role of midwives as fundamental for the entire pregnancy ("*the key figure in the maternity path*").
- The ultrasound scan is also considered a delicate moment in which women clearly express the willingness to "*constantly see the monitor*" because "*it is reassuring*".
- People working in a hospital need to be "*full of humanity*".
- Patients want someone who answers to all their questions/doubts/fears; "*even when I realize that I am really asking too much*".
- An interesting topic was the easy recognition of the role of health staff members. Some women appreciate when "*staff members introduce themselves*". The alternative option of "*reading the badge*" is not perceived in a positive way.

Information: the topic of obtaining information emerged while talking about the characteristics needed in the personnel, but was also further discussed thoroughly.

- In fact, the general need is of "*receiving complete information*".
- Furthermore, the terminology used is described as a "*guarantee of technical professionalism*", but also as a cause of a difficulty in understanding.
- The best for the staff to express themselves would be in a "*clear, concise and simple manner*".

Brand: during the focus group several informants have declared their reasons for choosing Burlo Garofolo Hospital, mentioning its value as a brand.

- In order to evaluate the excellence of a maternal and child health hospital women look at its specializations.
- The water birth is considered a plus by some new mothers, but in general everyone agrees about the importance of having intensive care first.
- "Trust" is often mentioned as one of the main needs and is perceived as strictly linked to "quality".

- The attention provided to children is considered obvious but the support to the mother is considered an underestimated need.
- The value of a hospital is high when it is “*reassuring*”.

Atmosphere and Comfort: the ambience is perceived highly important in order to complete the experience.

- No specific architectural solution is mentioned in order to improve the stay at the hospital.
- Cleanliness is often emphasized.
- Visiting hours are described as noisy, overcrowded, and not very serene. Women suggest they should be regularized in such a way as to avoid the overcrowding of spaces and excessive confusion.

Institutional Communication (Offline and Online): while no specific suggestions emerged about the design of spaces, details about how services provision and administrative procedures could be managed were discussed.

- Bureaucracy is perceived as the main obstacle in any health procedure/issue.
- The need of a good link and communication between medical and administrative staff and among departments is stressed possibly “*using digitized tools that can overcome the existing limits of the administrative procedures*”.
- Online institutional communication channels are considered fundamental in order to obtain correct and accurate information (the main needs are registered on the hospital’s facilities, the offered therapies and practices, pre-birth courses, check-in times, waiting lists and medical exemptions).
- The hospital’s official website is seen as the online touch point and should be “*very intuitive and easy to be understood*”.

Usage of Online Tools: the discussion emphasized the role of the web and of social media tools.

- The Internet was not perceived as the main information source on pregnancy and childbirth. What hampers its use is mainly “*the danger of self-diagnosis*”.
- There was broad agreement on social networks’ help to promote a sharing of ideas among mothers. Despite this, only a couple of participants used forums and communities. Even Facebook as a means of discussing pregnancy is used in a limited manner, while all participants confirm to be part of a Whatsapp group of expectant women/new mothers, and to find it extremely useful “*to receive an answer to any doubt, anxiety, problem or need by obtaining immediate support at any time of the day*”. Some women also underline the importance of Youtube channels.

Study 2: Explorative Qualitative Analysis Text Mining for Maternity Patients Content Analysis

The most relevant or active online communities found using the Scrapebox software were those reported in table 1.

Table 1 Features of the communities selected for the study

Type of community	Community Name	Nº of unique URLs related to Burlo Garofolo
Online Forum	"Periodo Fertile"	400
Online Forum	"Forum Al Femminile"	115
Online Forum	"Mammole del Burlo Garofolo"	28
Online Forum	"Cerco un bimbo"	17*
Online Forum	"Sopravvissute al Burlo Garofolo"	1*
Facebook group	"Le Supermamme di Trieste"	55
Facebook page	"Mamme alla pari di Trieste"	367
Facebook page	"Mammole del reparto Burlo Garofolo"	958

*despite of low number of discussions, these forums were chosen because of the importance and the length of the dialogues

A similar research in other social media platforms with no relevant results was also performed.

Thanks to the analysis obtained through QDA Miner 5.0 software it was possible to code textual data from Facebook forums which were organized using relative frequency in order to analyze consumer sentiments towards brands (Table 2).

Table 2 Frequencies and consumer sentiment

WORDS	FREQUENCY	% SHOWN	% PROCESSED	%TOTAL
To experience	39	11.71%	3.28%	1.22%
Midwife/midwives	20	6%	1.68%	0.62%
Delivery	18	5.41%	1.51%	0.56%
Very pleasant	16	4.8%	1.33%	0.51%
Hospital unit	12	3.6%	1.01%	0.37%
Hospital staff	12	3.6%	1.01%	0.37%
Super	12	3.6%	1.01%	0.37%
Hospital	9	2.7%	0.76%	0.28%
Breastfeeding	9	2.7%	0.76%	0.28%
Very competent	9	2.7%	0.76%	0.28%
Nursery	7	2.1%	0.59%	0.22%
Delivery room	6	1.8%	0.5%	0.19%
Available	5	1.5%	0.42%	0.16%
Care about me	5	1.5%	0.42%	0.16%
Pregnancy	5	1.5%	0.42%	0.16%
Physician	5	1.5%	0.42%	0.16%
Medical examination	5	1.5%	0.42%	0.16%
Shift change	5	1.5%	0.42%	0.16%

These words or phrases might provide insights on a certain topic, in particular, it is possible to recognize specific places, professional figures or pregnancy moments that had some relevance for the users participating to the debate about Burlo Garofolo. The correlations of different categories can help identifying pairs of brand-related topics that are associated with each other by users on social media (figure 1).

Observing the overall sentiment expressed on social media platforms, the authors found that positive comments represent the majority of all comments with a 55.9% while negative comments represented the 44.1% (figure 2).

In this paper a traditional method for user experience assessment with a qualitative social science approach were combined, to process a large amount of text data obtained from forums and Facebook pages. In these contexts, mothers express their feelings and a judgment about their experience of health care. The outcome of online conversations analysis reinforces the results from satisfaction and patients experiences surveys. And this is in keeping with previous work (59, 60).

With the text analysis, hot topics of interest and sentiment expression were identified. In particular, some places (delivery room, hospital unit, nursery), people (midwives versus physicians or interns), and pregnancy phases (breastfeeding, delivery, recovery), frequently equipped with the expression of sentiments and opinion were identified.

The overall experience is positive, even during a painful moment as delivery. Midwives are largely responsible for this opinion since they are described as “fantastic”, “available” and “very pleasant”. The most frequent words associated with positive feelings are adjectives referred to midwives or the overall personal experience in the Burlo Garofolo hospital context. Otherwise, the negative words are referred to actions and they are represented by verbs. Actions considered negative are those associated with a poor assistance, with rude manners or lack of dialogue. When an adjective is used to express a negative feeling, it refers to the management of medical exams or hospital units spatial or operative organization. The tagcloud shown in figure 3 provides a visual representation of the most frequently used words based on the results of text analysis.

This first study demonstrates that it is possible to evaluate patients experience and satisfaction online. Online platforms represent a possibility to understand health care system performance. It is clear that the experience at Burlo Garofolo is widely discussed and mentioned online even if the online institutional presence is limited. Moreover, a positive sentiment related to the experience is enlightened. Specifically, the most positive statements are connected to the personnel of the hospital, revealing their massive importance. Instead, the highest negative sentiment is about breastfeeding, due to the scarce information given at parents during mothers' in-hospital stay.

Study 3: Quantitative Analysis

The insights collected through the first two qualitative studies allowed to focus on variables which seemed to be relevant in the overall experience and therefore inspired a deeper quantitative analysis aimed to assess their impacts on patients' satisfaction.

Literature

Online patient experience. Consumer expectations for healthcare have no difference than in the retail context. It is then critical for healthcare organizations to deliver a digital experience that meets consumer standards.

This means thinking at the online experience of users in order to understand the perceived quality of the web contents and the journey, through the accessed pages, with the objective of reaching high-quality advice (61), allowing to share experiences and to find support as well as information.

The Internet is a primary source for health information and advice (62) but several authors present their findings showing that health information quality online is a problem (63, 64). Some argue that trust reflects the perceived competence, integrity, predictability and/or benevolence of a site (65). A few authors also highlight the importance of personalization in the formation of trust judgments (66) or the notion of good relationship management with the need to improve accessibility and usability of portals (67) in other cases, the link between patient experiences and the characteristics of various generational cohorts, which affect perceived ease of use and usefulness of healthcare online portals and services, is studied (68).

The reality is that today patients have changed: they are better informed and empowered than ever before plus medicine has become technological. Patients, who in past times might have relied blindly on doctors, now attend an appointment having already lived an experience as patients on online platforms. The healthcare marketer's role is to meet patients' needs by providing useful information, and by using new tools to improve both the access and the quality of healthcare.

Given this reality of new patients' behaviours, physicians and healthcare units have made many improvements in their use of ICT changing the experiences patients can live online by fully computerizing processes and applying technology in all phases of patient care.

Perceived clinical quality. Clinical quality of care relates to the interaction between health-care providers and patients and the ways in which inputs from the health system are transformed into health outcomes (69, 70). Clinical quality is important for patient outcomes but perceptions of the quality of care may not correlate with actual quality (71, 72) since perceptions of the quality of care are based on a mix of individual experience, processed information and rumour. Perceptions of the quality of care may relate entirely to non-clinical factors. Although quality is a construct largely based on individual subjective perceptions, such perceptions are shaped by collective and traditional beliefs and peer influences. In fact, the patients' inability to evaluate technical aspects of care means that most of them base their evaluation of medical care processes on the manner in which the healthcare service is delivered to them (73).

Arguments that question the validity of consumer information on quality of care all presume that the information reflects something other than attributes of medical care (74). They argue that data from consumers:(1) reveal more about the consumer than about the quality of care; (2) reflect how much was done, not how well it was done; (3) disagree with physicians' judgment regarding quality; and (4) simply reflect whether the provider was nice to them.

While improving or, at least, maintaining the actual quality of the provided care, health should address the gap between perceived and actual quality (69).

Hospital atmosphere. A key component of customer experience is related to aesthetic sensory and physical aspects of the offer (75). Research has highlighted how physical environmental elements directly affect customers (76, 77), evoking internal responses (78), and indirectly influencing their behaviors (79, 80) and satisfaction (81). Literature (see table 3) suggests that environmental aspects of the experience can include variables such as ambience/atmosphere, color (82, 83), shape, sound, cleanliness, waiting time, comfort & services, food quality, lighting and smell (76, 80, 84-88).

Table 3 Atmosphere and comfort elements

Color & shape	(Conti A., 2006, Lupi G., 1999, Bellizzi J. A. and Hite R. E., 1992, Gorn G. J. et al., 1997, Zhang Y. et al., 2006, Ugolini M. et al., 2014).
Cleanliness	(Finzi G. et al., 2009, Bitner M. J. et al., 2000, Gardner M. P. and Siomkos G. J., 1986).
Smell	(Webb K., 2007, Bitner M. J. et al., 2000, Bitner M. J., 1992, Chebat J. C. and Michon R., 2003, Joy A. and Sherry J. F., 2003, Baker J. et al., 1992, Baraban R. S. and Durocher J. F., 2001, Donovan R. J. and Rossiter J. R., 1982, Ugolini M. et al., 2014).
Lighting	(Philips Luminaires, 2007, Bitner M. J. et al., 2000, Bitner M. J., 1992, Chebat J. C. and Michon R., 2003, Joy A. and Sherry J. F., 2003, Baker J. et al., 1992, Baraban R. S. and Durocher J. F., 2001, Donovan R. J. and Rossiter J. R., 1982).
Sound	(Burt, May/June 2006, Lichtle M. C. et al., 2002, Yalch R and Spangenberg E., 1990, Dube' L. et al., 1995, Ugolini M. et al., 2014).
Waiting times	(Burt T., 2006).
Services	(Reese S., 2009, Meyers S., 2009, Beccari S., 2010).
Food quality	(Lichtle M. C. et al., 2002, Yalch R and Spangenberg E., 1990, Dube' L. et al., 1995).\\

Although some of the above described elements are recurring in patient experience research, they have been analyzed separately so far. Hence, it appears difficult to find studies that jointly examine those items and provide a unique classification of the key experience components related to the environment.

Relationship with clinical staff and patient empowerment. Web channels are reshaping a wide range of relationships in the healthcare industry (89), where, traditionally, information exchanges between patients and providers used to be significantly "asymmetric" and "formal" as for their nature. This resulted in increased opportunities of empowerment (90-98), which may refer to:

- Patients who take an active role in healthcare choices (99): “*Patients are empowered when they have the knowledge, skills, attitudes and self-awareness necessary to influence their own behaviour and that of others (...) to improve the quality of their lives*” (100);
- Caregivers and family members who become involved in care processes (101);
- Medical staff who gains control on both the content and context of their practice (102) and extend their role along the patient journey (103).

A number of studies suggest that empowered people are healthier than non-empowered ones; lack of empowerment is therefore a disease risk factor (104, 105). It may be argued (106) that the final objective of patient empowerment is the achievement of better compliance in patient’s behaviour: “*Patient empowerment is therefore most often defined as a process of behaviour change, with a focus on how to help patients become more knowledgeable and take control over their bodies, disease and treatment. In this definition, empowerment is viewed as a process of “activating” patients, who as a result of “rejecting the passivity of sick role behaviour and assuming responsibility for their care (...) are more knowledgeable about, satisfied with, and committed to their treatment regimen*” (107).

A recurring issue is the new balance of roles and responsibilities between the patient and the health provider. Despite this evidence, a thoroughgoing critical analysis of patient empowerment challenge has not been extensively developed so far (108).

The World Health Organization (109) introduced the definition of “patients’ respect”, articulating it in three dimensions: respect for the patients’ dignity; privacy with regards to medical information; autonomy of the patient in deciding about his own healthcare.

Patients’ respect is mainly related to how the hospital staff interacts with patients, specifically with regards to the level of empathy, relationship skills, listening skills and the interest toward the patient as a person (34, 110-113). Other important elements are represented by spiritual care, staff’s willingness to listen to patients’ fears (114), the focus on pain management (115) and the privacy that a patient experiences through the different phases of his medical treatments (27, 112, 116-118). The concept of empowerment means inclusion of patients in the decision-making process, as well as the degree of such participation (119, 120) by considering it a bricolage of tactical interactions with social environments rather than as the consequence of an external strategic process (121). Contradicting the traditional paternalistic approach, today it is important to give patients the ability to get information about their disease, understand and rationally analyze all of their data, apply their well developed personal beliefs to this input and make a medical decision for themselves (122). As a result, patients are nowadays more involved in the healthcare decision making process while having to decide which medical treatments to undergo (123, 124).

Communication between clinical staff members and patients is one of the most complex relationships among inter-personal ones, and is thus attracting more attention within health care studies (125). A traditional approach with regards to this relationship usually involved high physician control compared to

patients' one, and can thus be described as a model where the doctor is the one who decides the care process on patients' behalf. However, nowadays medical consultations are becoming increasingly based on mutuality, meaning that patients are gaining a greater control over that relationship with a clear link between physician relationship and patient involvement determining satisfying patient empowerment (126). In the context of the above mentioned trends of patient empowerment, patient loyalty to a medical doctor does not seem to be guaranteed and it is thus becoming more important to change the traditional agency relationship into a more collaborative one (127, 128). In that direction moves the consumerist approach, based on the active role of the patient and on a more passive behaviour of the doctor (129).

Doctor-patient communication seems to be linked to patients' behavior and well-being and even state of health (130-132). The need of more detailed information is arising (133), patients are becoming less reliant on doctors as Internet acts as an alternative source of information (134-136).

The quality of the relationship can be improved by perceiving the staff team as a harmonious group (137) where the professional role of each member can be easily identified by the patient. This is normally obtained by the use of different colours in employees uniforms. Courtesy, attention, empathy capabilities, professionalism of staff members and their ability to establish and maintain a positive relation with their patients affect patients' satisfaction (111, 113).

Hospital brand. The new profile of the empowered patient and the increasing competition in the industry require healthcare organizations to develop strong and distinctive brand identities aimed to build trust, loyalty and satisfaction (138-140).

A brand is *a promise to consumers that the hospital will deliver the kind of care needed.* (141). This promise is necessary in order to create an emotional connection and relationship between the patient and the provider during the health care service experience.

Kemp et al (141) indicate that trust, referent influence and corporate social responsibility are key variables in establishing an affective commitment which favours advocacy and positive word of mouth.

As Keller (23) suggests, it has become a necessity to have a brand identity in order to find a position in the market and consumer's mind, for products and services. As it is now recognised, the healthcare sector is facing unique challenges in creating brand identity among customers (40). Brand identity strategies provide a way to create it; representing how a hospital seeks to identify itself. A well-built brand identity will effectively communicate a hospital personality and its value to potential customers, and will help in building brand recognition, association and loyalty.

Brand Identity deals with:

- Hospital internal perceptions;
- Expected quality or a promise defined within the hospital;
- Functional and emotional relationship with patient.

Brand identity is the promise that a hospital makes to people along with the mission, personality and competitive advantages. It includes the thinking, belief and expectations of the target customers. It is a means of identifying and distinguishing an association from another. A brand image is a way for hospital to reinforce its market position by being able to influence the patient decision-making process (34, 38).

The Model in Study 3

Starting from the above mentioned literature and considering the main insights from the qualitative analysis, an exploratory factor analysis was conducted setting the number of latent factors equal to 6. Later, a confirmatory factor analyses (CFAs) was performed in order to get evidence of convergent and discriminant validity of the measurement scales. Consequently, as suggested from the exploratory and confirmatory factor analysis, the following model in figure 4 seems to be the best way to proceed with the analysis.

The following hypotheses were formulated:

H1: Online experience perceived quality is positively related to the overall patients' satisfaction.

H2: Perceived clinical quality, is positively related to the overall patients' satisfaction.

H3: Cleanliness' perception is positively related to the overall patients' satisfaction.

H4: Atmosphere's perception is positively related to the overall patients' satisfaction.

H5: Perceived relationship & empowerment quality is positively related to the overall patients' satisfaction.

H6: Perceived relationship & empowerment quality is positively related to the perceived brand value.

H7: The perceived brand value is positively related to the overall patients' satisfaction.

In this analysis we choose to test as mediator brand value in the relationship between the variables relationship & empowerment quality and patients' satisfaction:

H8: Perceived brand value is a mediator between perceived relationship & empowerment quality and patients' satisfaction.

Measurements of Variables in Study 3

The measures employed in the empirical analysis are summarized in table 4 and are described below.

Online Experience: Kelly, Ziebland and Jenkinson (142) through their paper, document the development of a tool to compare the potential consequences and experiences a person may encounter when using

health-related websites. Five themes were identified and labelled: (1) Information, (2) Feeling supported, (3) Relationships with others (4) Experiencing Health Services and; (5) Affecting behavior. In their work the e-Health Impact Questionnaire is validated. This questionnaire is used as our main source in order to evaluate the experiential perceptions of those who have used Burlo Garofolo's official web site. Through this variable we are interested in understanding the sources of information used online for supporting pregnancy and the personal perceptions about Burlo Garofolo's website.

Clinical Quality: it must be noticed that when considering this variable, the objective is not to judge the clinical level of the hospital but to understand the perception according to the experience lived hypothesizing that it can have an impact on the overall satisfaction. The clinical quality is measured starting from the scales used in the Patient Satisfaction Questionnaire - PSQ (143) and in the Neonatal Instrument of Patients Satisfaction - NIPS (144, 145) placing specific attention to diagnose procedures and integration among departments which appeared disappointing during the qualitative phase of the analysis.

Cleanliness: concern over perceived inadequacies in-hospital cleaning has always been a relevant topic due to the huge negative impacts it can bring. In fact, a lot of literature focuses on proposals for the assessment of hygiene in medical contexts. Cleanliness - especially of the hospital rooms and bathrooms - is one of the most noted items for quality of hospital in several findings (146). We assess this variable adapting the Total Quality Service Indicator in healthcare - TQS (147).

Atmosphere: this variable refers to the ambience and comfort offered by the hospital. It is evaluated starting from the Total Quality Service Indicator in healthcare - TQS (147) adapting the assessed items to the Burlo Garofolo's structure. Some questions are common to all the respondents while others are addressed only to in-hospital patients.

Relationship & Empowerment: communication between doctors and patients is one of the most complex relationships among inter-personal ones. The quality of the relationship can be improved by perceiving the staff team as a harmonious group (137) where the professional role of each member can be easily identified by the patient. Courtesy, attention, empathy capabilities, professionalism of staff members and their ability to establish and maintain a positive relation with their patients are expected to affect patients' satisfaction always keeping in mind their need of involvement in the care process and the perceived importance of receiving complete and clear information (111, 113). In order to measure this variable Total Quality Service Indicator in healthcare - TQS (147), Patient Satisfaction Questionnaire - PSQ (143) and Neonatal Instrument of Patients Satisfaction - NIPS (144, 145) are used.

Brand Value: the objective was to measure the perceived value of Burlo Garofolo Hospital as a brand. The main source of measurement was the optimization of the items proposed by Aaker (148). It was in fact possible to assess the perception about the brand as a whole but also by combining the hospital with specific adjectives such as trustworthy, reassuring, cheerful, professional. We used the adjectives which came to light during the two previous studies.

Patients' Satisfaction: in order to test patient overall satisfaction of pregnant women treated at Burlo Garofolo Hospital, two main scale sources were used: Patient Satisfaction Questionnaire - PSQ (143) and Neonatal Instrument of Patients Satisfaction - NIPS (144) which was developed to distinguish between parents who are satisfied and parents who are dissatisfied specifically within the medical neonatal intensive care (144, 145). Furthermore, for the overall satisfaction also Aaker's variables were considered (148) and the Total Quality Service Indicator in healthcare - TQS (147).

Table 4 Adopted measuring scales

VARIABLES	ADOPTED SCALES: SOURCES
Online Experience:	(Kelly, Ziebland et al. 2015)
Clinical Quality:	(Ware 1976, Mitchell-Dicenso, Guyatt et al. 1996, Conner and Nelson 1999)
Atmosphere:	(Duggirala, Rajendran et al. 2008)
Cleanliness:	(Sofaer, Crofton et al. 2005, Duggirala, Rajendran et al. 2008)
Relationship & Empowerment:	(Ware 1976, Mitchell-Dicenso, Guyatt et al. 1996, Duggirala, Rajendran et al. 2008)
Brand Value:	(Aaker 1996)
Patients' Satisfaction:	(Ware 1976, Aaker 1996, Mitchell-Dicenso, Guyatt et al. 1996, Conner and Nelson 1999, Duggirala, Rajendran et al. 2008)

SEM Hypotheses Testing in Study 3

As previously stated, a Structural Equation Model was applied to the research. According to McDonald and Ho (149), absolute fit indices were calculated in order to determine how well an a priori model fits the sample data and to demonstrate that the proposed model has a good fit. These measures provide the most fundamental indication of how well the proposed theory fits the data. Unlike incremental fit indices, their calculation does not rely on comparison with a baseline model but is instead a measure of how well the model fits in comparison to no model at all (150). Included in this category are the Chi-Squared test, RMSEA, GFI, AGFI, the RMR and the SRMR (151). Thus, according to Hu and Bentler (152), first it was necessary to assess the properties of the measurement model. The principal model fit measures are shown in table 5 and they result adequate.

Table 5 Model fit measures

	Chi square (df)	CFI	RMSEA	PCLOSE
Model Fit measures	4.3 (5)	1.000	0.000	0.782

At this stage, factor scores were computed for the constructs that are error free and can be used for further analyses.

To test the hypotheses, a multiple regression model was estimated. Error-free factor scores were used as input data for constricts. Resulting parameter estimates are shown table 6.

Table 6 Parameter estimates

Significant Regressions	Estimates	p-value
Brand Value β Relationship & Empowerment	0.446	<0.001
Patients' Satisfaction β Brand Value	0.704	<0.001
Patients' Satisfaction β Relationship & Empowerment	0.195	<0.001
Patients' Satisfaction β Atmosphere	0.059	0.201
Patients' Satisfaction β Cleanliness	-0.039	0.385
Patients' Satisfaction β Clinical Quality	0.012	0.761
Patients' Satisfaction β Online Experience Quality	-0.055	0.151

***= <0.001

Results support hypotheses H5, H6, and H7, while H1, H2, H3 and H4 are rejected.

A positive relationship is registered between:

- Relationship & Empowerment Quality and Patients' Satisfaction (H5);
- Relationship & Empowerment Quality and Brand Value (H6);
- Brand Value and Patients' Satisfaction (H7).

Moreover, the variable "Brand" has a significant mediating effect on the relationship between "Relationship & Empowerment Quality" and "Patients' Satisfaction" (Ax B estimate: -1.237; 90% Confidence Interval: 0.927, 1.638; p: 0.001). Therefore, H8 is confirmed.

Discussion

Study 1, based on a qualitative analysis through focus groups, returned key insights on the following issues:

- Personnel: it is the key driver of the experience;
- Information: the need for the patient to be empowered by receiving complete information is a priority;
- Brand: it is one of the key element in influencing the hospital choice;
- Atmosphere and Comfort: it is defined as important, with a specific emphasis on cleanliness;
- Institutional communication (offline and online): is expected throughout the different stages of the patient's journey;
- Online tools: the role of social media and communities is underlined, despite the fear of finding non authoritative information. The positive role of non-institutional communication systems is recognized when it allows the direct interaction between mothers who are living the same experiences.

Other significant evidences resulted from study 2, through the text mining for patient content analysis it was possible to recognize the role of midwives in affecting the overall experience and the need for timely and precise information (e.g. information about breastfeeding).

The insights collected in the two previous studies resulted in a survey aimed to further highlight which elements mostly affect the in-hospital experience.

The performed SEM analysis showed that the quality of the online experience, the perceived clinical quality, the cleanliness and the atmosphere are taken for granted in the overall hospital experience and their presence does not impact on Patient's Satisfaction. Indeed, their absence would cause dissatisfaction. The value of the hospital brand for the patients is positively affected by the appraisal of the relationship with clinical staff and the overall empowerment, which also impacts on patients' satisfaction. The value of the Brand as a mediator also emphasizes the effect of the relationships with clinical staff on satisfaction.

Authors developed their studies focusing on a single organization. Future research should further investigate the same topic in different contexts, in order to increase the degree of generalizability.

Conclusions

This paper enlightens the elements of in-hospital stays from different perspectives, contributing to a better and more exhaustive understanding of the expectant mother needs and preferences. Results suggest to prioritize the establishment of strong human relationships between clinical staff and patients, based on the availability of high quality clinical information. Information must be provided using all the possible channels in the different touchpoint of the patient journey.

Declarations

Ethics approval and consent to participate - The authors declare that, given the nature of collected and analyzed data, the Hospitals Directors and the Hospital Ethics Committee authorized data collection and research publication according to the Italian Law (Legislative details: Law N.211 24/06/2003, Ministry of Health Decree N.45 08/02/2013). This project is not based on clinical trials of investigational medicinal products, medical devices, drug/device combination, clinical investigation and is merely a service/satisfaction evaluation. Given the nature of the study, no sensitive data was collected or analyzed. An informed consent to participate was collected (the original form is available in the "related files" section).

Consent for publication - Not applicable

Availability of data and materials - The datasets used and analyzed during the current study are available from the corresponding author on reasonable request

Competing interests - The authors declare that they have no competing interests

Funding - No Funding

Authors' contributions - The authors agree to be accountable for all sections of the work. Each of them contributed significantly to the conception, design, execution, and/or analysis and interpretation of data that was performed by the research team as a whole.

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Acknowledgements - Not applicable

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Figures

Most frequent words and sentiment analysis (%)

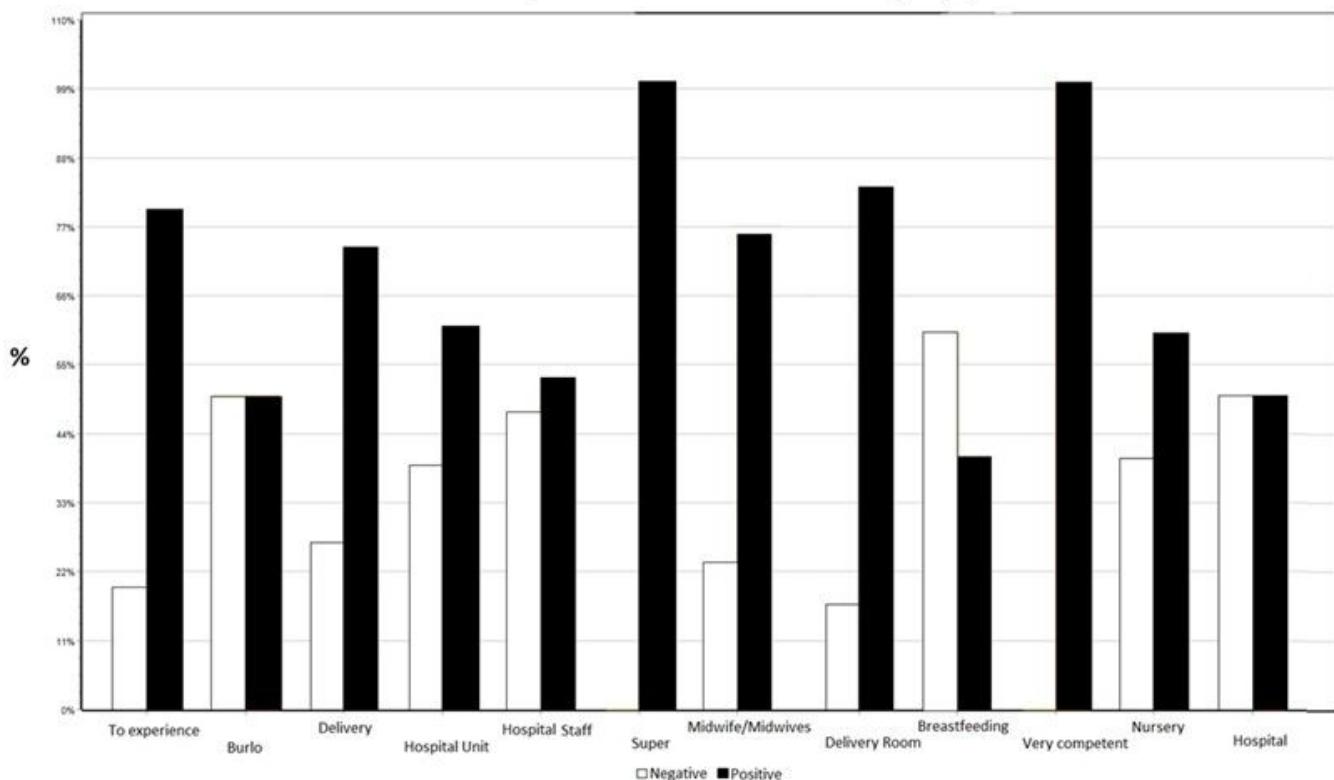


Figure 1

brand-related topics that are associated with each other by users on social media

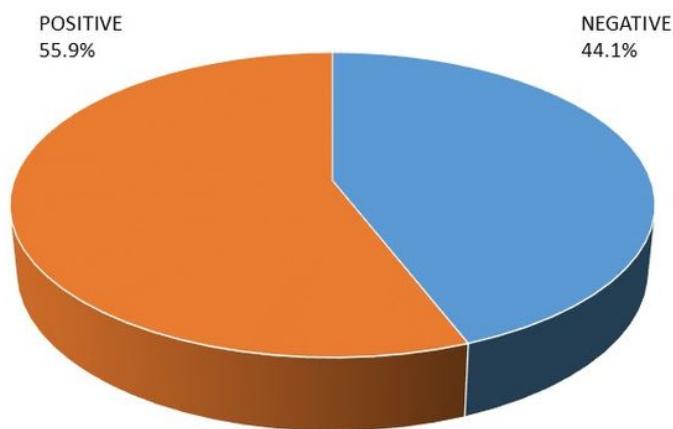


Figure 2

positive comments represent the majority of all comments with a 55.9% while negative comments represented the 44.1%



Figure 3

most frequently used words

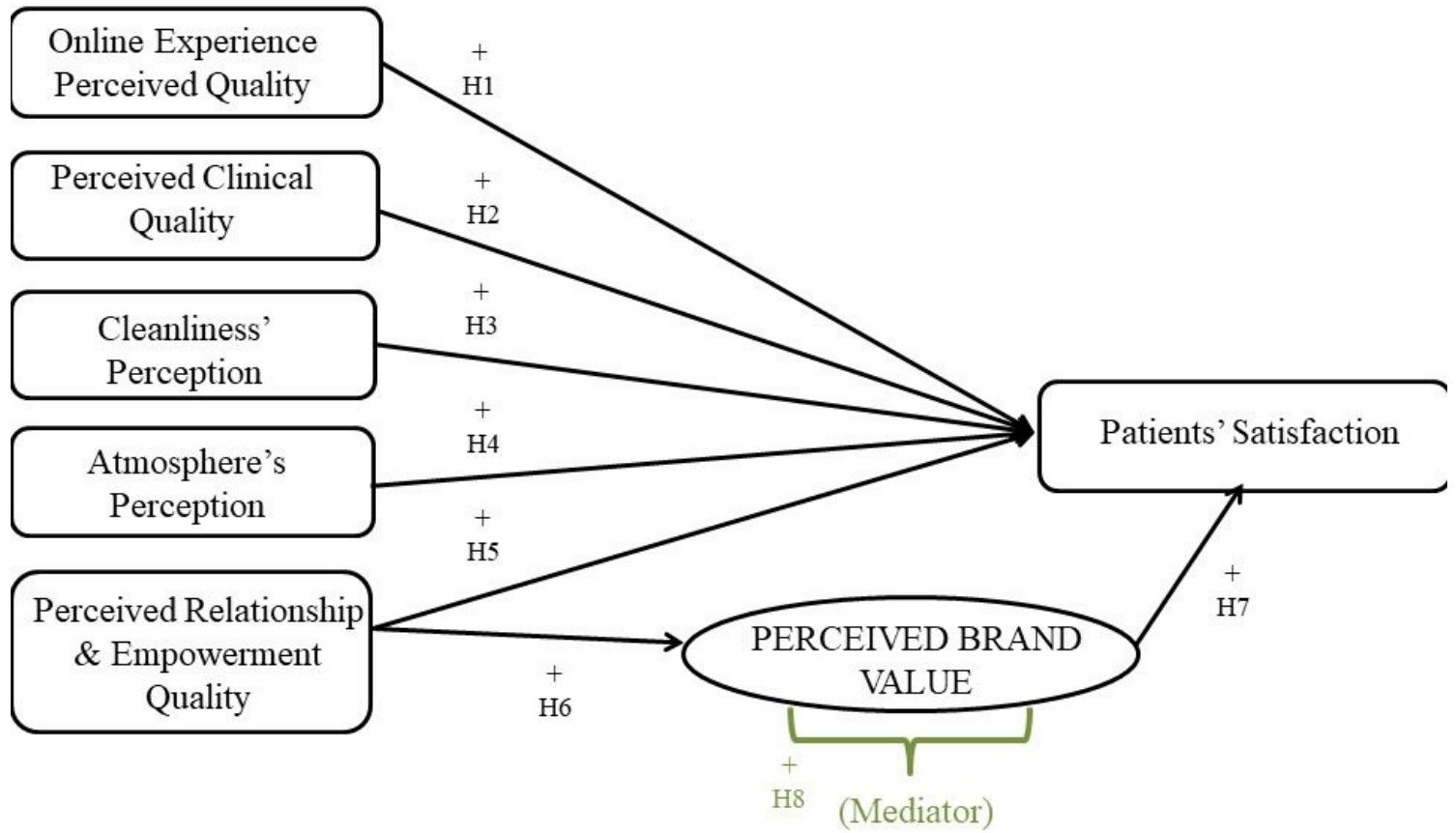


Figure 4

exploratory and confirmatory factor analysis