

# THE ROLE OF SPACE IN PATIENTS' EXPERIENCE OF AN EMERGENCY DEPARTMENT: A QUALITATIVE STUDY

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## Contribution to Emergency Nursing Practice

- Raising awareness regarding patients' altered experience of the (built) environment when being admitted to the emergency department.
- Providing an improved understanding of how adaptations to the built environment affect patients and can improve their experience, thus impacting on the functioning of the department.
- Better preparing nurses for the role of design team members they are increasingly expected to play.

## Abstract

**Introduction:** Nurses are increasingly involved in the design of health care facilities. Although their experience differs from that of patients, they are often expected to represent patients in design processes. Especially in the context of an emergency department, patients' states of mind alter their experiences. Knowledge about the role of space in ED patients' experience is limited. Our study aims to gain insight into this role and thus provide ED nurses with information to better represent ED patients' perspectives in design.

**Methods:** We conducted qualitative interviews with 22 patients. The interviews were supported by visual material collected through ethnographic methods to facilitate participants' reflections on the role of space in their experience. Participants were selected during their stays at the emergency department by convenience sampling. Interviews were audio-recorded, transcribed, and analyzed in combination with the visual material through open and axial coding.

**Results:** We found that the role of space in ED patients' experiences is affected by their altered sensory awareness and shaped by material, social, and time-related aspects. These aspects are intertwined and influenced by the transient character of the emergency department.

**Discussion:** The study indicates that paying attention to the role of space yields a nuanced understanding of ED patients' experiences. The challenge for hospital designers and staff lies in taking into account patients' altered sensory awareness and in designing interventions that support staff in emphasizing a human approach without counteracting the medical-technical aspect of emergency care.

**Key words:** Material aspects; Patient experience; Semistructured interviews; Social interaction; Spatial experience; Waiting time

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In the next several years, the health care sector will face the challenge of significant renovation, expansion, and construction of new facilities.<sup>1</sup> Involvement of nursing staff in designing these facilities is increasing. Nurses are expected to speak for themselves and are asked to give a voice to patients and their relatives.<sup>2</sup> Often, nurses' perspectives do not coincide with those of patients and their families.<sup>3-5</sup> To have an informed voice, nurses need evidence of the effect of specific design features on patient, staff, and organizational outcomes.<sup>1,6</sup>

If one considers the role of space in patients' experiences, concepts such as healing environment and its hard-core counterpart, evidence-based design (EBD), come forward.<sup>7</sup> The term "EBD" was originally introduced to denote the design of environments that support patients, relatives, and staff.<sup>8</sup> Later it was adapted to evidence-based practice: that is,

design practice based on reliable evidence with clinical outcomes.<sup>9</sup> Until recently, EBD studies rarely addressed the confounding of parameters and failed to consider the impact of outcomes in a holistic way.<sup>7</sup> Most EBD studies focus on patients' primary (clinical) reactions that provide hard objective data and barely address their opinions, ideas, and views.<sup>10</sup> In an ED context, however, patients' altered states of mind have impact on the role space plays in their experiences.<sup>4</sup> Collecting this nonclinical evidence requires a more general understanding of this role, which is what this article aims to provide.

ED patients' experiences are often characterized by vulnerability, anxiety, stress, and fear.<sup>4</sup> Most important to them are the waiting time, provision of information, interaction with staff, but also the ED space.<sup>4,11,12</sup> Patients' experiences are rooted in their personal situations. Their past, present, and prospect shape their encounters with the emergency department.<sup>3</sup> The degree of urgency influences whether they perceive a visit positively or negatively.<sup>12</sup>

For ED patients' satisfaction, actual waiting time and length of stay seem relatively unimportant; what counts is their subjective experience of it.<sup>11</sup> Unoccupied time feels longer than occupied time; planned time differs from unplanned time,<sup>13</sup> and anxiety and uncertainty make waiting less endurable.<sup>11</sup> This might explain why staff members consider waiting far less important than patients do.<sup>14</sup> Patients' experience in waiting is unpleasant because of the typical ED environment, the seemingly unnecessary nature of the wait, and the uncertainty caused by a lack of information.<sup>15</sup>

ED patients' experiences are also shaped by interpersonal relations with staff and their own relatives.<sup>16,17</sup> Visiting the emergency department alters how patients experience their bodies and interact with others. Their connection with nurses is often motivated by the quality of care they desire. To avoid being regarded as unpopular, they show understanding for busy staff and often feel guilty about complaining.<sup>16</sup> They appreciate staff paying attention to them and providing information on expected waiting time or ongoing medical procedures.<sup>11,18</sup> Human care—such as staff members using humor displaying positive attitudes—is highly valued.<sup>16,19</sup> Complaints are directed seldom to staff; mostly, patients complain to relatives.<sup>16</sup> Because relatives complement staff members' roles, they are encouraged to stay with patients, which colors patients' experiences of the emergency department.<sup>20,21</sup>

Typical interior objects have impact on ED patients' experiences, as well. The stretchers on which patients are wheeled from the ambulance into the emergency department and on which patients lie in wait, feel hard and cold when no blankets are provided; this creates discomfort, especially for the older patient.<sup>22</sup> Examination rooms look sterile and dull, offering little relief or distraction.<sup>3</sup> At busy moments, patients and stretchers are parked in hallways, under bright lights, amid noise and bustle,<sup>16</sup> where privacy and, thus, patient

dignity are hard to find.<sup>15</sup> Noise can be disturbing<sup>22</sup> or can raise expectations and create disappointment.<sup>3</sup>

Patients value experiential aspects more than clinical elements.<sup>14</sup> If emergency departments are to become truly patient centered, hospital designers and nursing staff need a keen understanding of the role of space in patients' experiences.

## Methods

### STUDY DESIGN

To investigate the role of space in ED patients' experiences, we adopted a qualitative approach based on open interviews and supported by visual material.<sup>23</sup> As many people lack the vocabulary to express their spatial experiences,<sup>23</sup> we used photographs and videos as foundations for reflection during the interviews.<sup>24,25</sup> This material was collected through visual ethnographic methods,<sup>26,27</sup> permitting to address the complex interaction among different aspects of the built environment. The diversity and flexibility of the approach made it appealing to a diverse group of patients admitted to the emergency department, allowing them to feel comfortable in participating.

### SAMPLE

The first author (henceforth, the researcher) was present at the emergency department for 2 days a week during 4 weeks in April and May of 2013. The staff knew the purpose of her presence. The nurses selected participants based on their medical conditions and ability to participate in interviews (convenience sampling). All patients admitted at the time of the study were considered, without differentiating among specific groups. Seriously ill or injured patients were excluded, as they could not be interviewed during their stay in the emergency department.

Twenty-four patients agreed to partake in the study; 22 actually did (9 men, 14 women). The other 2 never finished the interview because of interruptions for medical treatment. Participants were aged between 18 and 91; half of them were older than 65 and accompanied by relatives. Fifteen stayed in cubicles, and 7 were assigned to rooms.

### SETTING

The study was conducted at the emergency department of a suburban middle-scale hospital (610 beds) in a Belgian city, which was finalizing a refurbishment at that time. Most of the spaces were finished and looked clean and tidy.

### HUMAN SUBJECTS PROTECTION

Approval for the study was given by the hospital's ethical committee. Before each interview, the researcher identified

herself as being independent from the hospital and explained the study's aim and setup. Participants were informed that they could withdraw at any time without jeopardizing their treatment or care, as was described in the informed-consent form. To guarantee participants' anonymity, each form was given a code, which was used throughout all further data processing. Consent forms and data were stored separately.

## DATA COLLECTION

Before the interviews, the researcher was guided through the emergency department by the head nurse and photographed all spaces patients could encounter. The most common routes (eg, from ambulance station to emergency department or from waiting room to triage to cubicle) were video-recorded from patients' perspectives: walking, in a wheelchair, or on a stretcher. These recordings were used to support the interviews when needed.

To capture the role of space in ED patients' experiences as adequately as possible, data were collected at the department itself. Throughout her stay, the researcher made observations to obtain a better understanding of the department's (spatial) context. Participating patients were interviewed while waiting in cubicles or rooms for further treatment or admittance to wards. The interviews taken into consideration took between 7 and 30 minutes; 1 interview was too short to consider. When possible, the researcher kept patients company when they were being wheeled to examinations.

The researcher started each interview by asking: "Could you describe the spaces you came through today?" This purposely broad question allowed participants to bring up the spatial aspects most relevant to their experiences without being steered in a particular direction. Follow-up questions asked for clarification or addressed certain aspects regarding sensory perception and motion. All patients were invited to watch video-recordings of the routes they had taken and were asked to comment on it. Seven did so; the others preferred to answer the question from memory. Finally, participants were asked what they would change at the emergency department. All interviews were audio-recorded and conducted in Dutch. Quotes used below are translated by the authors.

## DATA ANALYSIS PROCEDURE

The data were analyzed in several rounds of coding, starting during the data collection and bringing forward more abstract themes at each round. The final themes were verified with the results of studies conducted in other hospital departments.<sup>28</sup>

Data analysis started during the fieldwork. Following each interview, the researcher made notes about the

participant, social context, and spatial environment in which the interview took place. This served to frame the later transcription and analysis of the data.

All interviews were transcribed verbatim in Microsoft Word, and analyzed thematically, using qualitative data analysis software (QSR NVivo 11.1.0). NVivo supports qualitative methods research: in particular, organizing, analyzing, and finding insights in unstructured, qualitative data.<sup>29</sup> Data were coded in three rounds<sup>30</sup> First, the description of patients' situations, transcripts, and field notes made during the observations were reread, and relevant passages were analogously coded with codes from the data to understand fully the cohesion between patients' reflections and spatial aspects (open coding). Thereafter, these passages were combined and assigned codes in NVivo (axial coding). In a third round, relations among topics addressed by participants and the ED space were explored; more selective codes were assigned and compared with results from studies in other hospital departments.<sup>30</sup>

Triangulation was obtained in 2 ways.<sup>31</sup> First, using multiple kinds of data balanced strengths and weaknesses of each; combining interview transcripts, photographs, video-recordings, and observation notes allowed deepening insight into the role of space in patients' experiences beyond what they expressed verbally. Second, the third coding round, which put the insights gained against the results from studies in other hospital departments, broadened the analysis.

## Results

How the participants experienced the ED environment largely depends on their states of mind at various moments during their admittance. Most participants mention that the building is the least of their concerns. Some patients did not notice the spaces they came through. Others judged that, given the circumstances, it is not the time to be discussing such trivial matters as the building. The point at which the space starts to gain importance varies from person to person. Some participants claimed that their altered state of mind made them more sensitive to their environment as soon as they were assigned a cubicle or room because of the unfamiliar situation. Others referred to previous hospital stays to illustrate the increased relevance after a few days. These past experiences and corresponding expectations seemed to have had a considerable effect on their current ED experiences.

## MATERIAL ASPECTS

To start with, the role of space in participants' experience of the emergency department relates to material aspects—

building elements such as walls, ceilings, floors, doors, and windows—but also the interior and the objects it contains, including specific ED equipment. What patients see, hear, smell, and feel adds to how they experience their ED visits. Their awareness of these material aspects seems to increase because of unoccupied time. Although many participants claim not to be in the mood to attend to them, many others argue that because they have the time, they start looking around and judging what they see. Cleanliness is a key concern.

Patient 22: *What strikes me most, when you lie down everything is striking: little papers on the floor, streaks. You see it much more than you'd notice otherwise, just because you have nothing else to do.*

Wear and tear on corner protectors and baseboards are interpreted as reflecting the emergency department's level of care and attention. The walls' colors or decoration are mentioned, but also more structural aspects.

Patient 22: *You indeed have a window to the outside, but it's blinded so you have very little...it's very much the feeling of a basement: low ceiling and little light.*

Patient 16: *[When being wheeled] You're always cold in the hallways. [...] When you're walking there, it's not like that; it's not so cold. I think it's the wind you make [when being wheeled], the air movement.*

This quote illustrates that when patients are moving, their entire perception of the built environment changes. Visually, participants often recall only key elements: a red door or sequence of lights. Moving—walking or being wheeled on a stretcher or in a wheelchair—is pre-eminently an embodied experience. For patients walking into the emergency department, fluency and speed are determined by their physical shape. Older participants especially mention material aspects that complicate their route: a staircase between parking lot and entrance, a long corridor, poor signage.

Unfamiliar objects, such as medical equipment, catch participants' attention and raise questions. Using a stretcher or wheelchair alters their perspective on space. One participant described a typical hospital ceiling as white, suspended, with many gratings and unpleasant light; at least 2 others highlighted the contrast between experiencing the room standing up and lying down.

Patient 9: *When you're walking upright, it seems smaller. When you're lying down, it becomes larger. Suddenly you see the entire ceiling.*

Patient 17: *When you enter standing up, walking, then, yes, it's a small room, and then, when you lie down, it becomes a relaxed and quiet room. The ceiling is peacefully white. When you look down, it's much more crowded; when you look up it is more peaceful.*

Besides having altered perspectives, patients on stretchers need to let go of control. We observed patients being put in the middle of the corridor to wait. Participants described this situation as feeling that they were in the way and being unable to do anything about it. Also frequently mentioned was how smoothly the journey went and whether or not walls or doorways were hit as they passed through.

## SOCIAL ASPECTS

Apart from material aspects, the role of space in how participants experience an ED visit also relates to social aspects. Because of the continuous flow of people that patients meet, they experience the department as a transient space. Each space seems populated by someone else: secretary at the registration desk, triage nurse at the first examination, physicians and nurses coming and leaving once assigned a room or cubicle, and others when going to examinations. Patients never know what and whom to expect and when to expect them. They lie waiting in their rooms or cubicles, ears pricked to collect sounds of upcoming interventions.

Patient 24: *I'm just staring. I can't do anything else. I'm hanging here [attached to some medical equipment]. I hear people walking around. Sometimes you just have a cautious attitude, like are they entering now to tell me something or not?*

Fellow patients' presence is an undeniable fact. Participants are aware that cubicles or rooms are transient spaces and that others came before them and will come after them. One participant considered fingerprints on a cabinet as a sign of being just another person in the row of room occupants.

Space in the emergency department is constantly shared with others: staff, fellow patients, and relatives. Sounds easily travel between rooms. People tend to stare at patients on stretchers or in beds or try to catch a glimpse from the corridor to find out what staff is up to. For patients, nurses and physicians are those who are in charge. They know what is going on and what to expect. They can provide information about people, places, and procedures.

Patient 17: *They [staff] accompany you the entire time. That's very important, of course. They come in; they tell you what they're going to do; they accompany you there, and then you have to wait there, in that area.*

Participants attribute high importance to spaces' functionality so staff can do their jobs, even if this means that their own comfort is reduced.

Patient 16: *I think it's logical that [the nurses] should be able to do their job. They have to run around, especially when it's crowded. If you want, you can close your door. [...] It's difficult to make it different [...], then they might*

*have to make a detour to get here, only not to bother [the patients], but it's not good for doctors and nurses, so that's not good.*

According to the participants, space should be designed so that it supports staff in improving patients' well-being. Some cubicles have windows, allowing daylight in, yet the spatial organization allows patients to enjoy the advantages only partially.

*Patient 22: You can't experience anything from outside since you're lying in the wrong direction. Obviously, they can't be occupied with these things, I understand; you have to make sure that the space stimulates that. You can't expect it from the staff.*

When patients are accompanied by relatives, ED visits become collective experiences. Relatives' use of, and reflections on, the emergency department influence how participants experience space. Patients are concerned with whether the environment allows their relatives to be with them and they can spend the time in comfortable circumstances. Relatives' presence emphasizes different aspects of the emergency department.

*Relative 10: You know what I miss? A coffee machine, actually [...]*

*Patient 10: Yes, I think so, too [...]*

*Relative 10: I think when you have to wait for a long time, isn't it [name]. We're sitting here since half past 1; we're longing for some coffee.*

#### TIME-RELATED ASPECTS

Finally, the role of space in ED patients' experiences also seems to relate to time. Participants contend that they wait throughout their time at the emergency department. Designating the waiting area as "waiting room" may thus be somewhat misleading. A patient who was wheeled directly from the ambulance to the cubicle testified:

*Interviewer: So you didn't have to wait, you could come here straight away*

*Patient 15: But here I have to wait [...]. This, for me, is the waiting room.*

Some places are more suited to waiting than others. A changing room at the radiology department is not intended for unoccupied time, yet it happens:

*Patient 8: Yes, those spaces are all small. That, I find scary. Like the little hutch where you have to wait before they take x-rays. That's all so—I'm not claustrophobic—but when you have to wait long, that's just scary.*

Most participants show understanding for the waiting time because of staff's busy schedule and time needed to run

tests. Still, magazines or a television facilitating the waiting are largely appreciated. Without them, patients feel neglected.

Throughout their time in emergency departments, participants seem fully aware of its transient character. As only limited time is spent here, patients' expectations of the emergency department differ significantly from their expectations of other departments.

*Patient 13: You can't compare this with a room, another room [at a ward]. [...] This is just a passage.*

Patients see the emergency department as a transition zone before going to a ward or home again.

#### Discussion

Our study confirmed most findings concerning the role of space mentioned in studies on ED patient experience. The emergency department is indeed a dull environment; patients feel cold, and it could be quieter.<sup>6</sup> However, our study added nuance to most of these findings. Apart from discussions on the interiors' colors or look, participants addressed more structural matters. Their lying-down perspective highlighted the value of an "empty," nondisturbed ceiling, creating spaciousness and the need for adequate lighting: aspects that could easily be taken into account by ED designers. While waiting in the cubicle, only 1 participant mentioned feeling cold. When being moved, various others blamed the air movement. Noises from the corridor raise expectations that staff is approaching, but can—as a participant mentioned—also distract patients from their worries.

The role of space in patients' experiences is affected by how people act. Accompanying relatives can distract patients<sup>20</sup> while they are waiting or, alternatively, attract their attention to spatial defects or misfits. As patients and relatives cannot control what happens around them, and do not know what staff members are up to, they tend to evaluate the emergency department based on the small details they can observe, such as fingerprints on a cabinet or wear and tear. These aspects are not easily communicated to staff. Participants showed understanding for staff members and emphasized the importance of a functional environment, which might be explained by the desire to be a good patient.<sup>16</sup> The emergency department's transient character seems to affect patients' expectations. Patients prefer an environment that is supportive to staff rather than one that is pleasant for them.

Unoccupied time is important in participants' experiences of their ED visits. Waiting without having anything to

do increases their sensitivity to environmental defects. Most of the time spent in emergency departments is perceived by patients as waiting time; staff and management usually do not consider it as such. Not only the waiting room and room or cubicle should be suited to wait; all spaces where patients stay during an unknown period of time should be suitable for waiting time. Although the impact of space on actual waiting time could not be derived from this study, it definitely seems to affect the perception of waiting time.<sup>32</sup>

### Limitations

The choice to undertake research in a working emergency department—with real patients, in real circumstances—carried certain limitations. Interviews were sometimes cut off or interrupted by nursing staff, resulting in very short interactions that could not be taken into consideration for the analysis. Also, regarding space, we had to deal with the daily reality of a hospital environment. As the department was undergoing a refurbishment at the time of the research, and the entrance and waiting room were still under construction, remarks on arriving and entering the building were not taken into consideration. A follow-up study comparing the situation under construction and the permanent one could offer interesting insights concerning these spaces.

Partaking in the study might have changed participants' perspectives. During the interview, unoccupied time became occupied, altering their perceptions of the wait. Moreover, the researcher's role was not always clear. As stressed or anxious participants seemed to appreciate someone to talk to, giving emotional support often became part of the deal.

### Implications for Emergency Nurses

Design requires a balance between the needs of health care professionals and those of patients and their relatives. Well-informed nurses could take a lead in user involvement groups aiming to enhance all these parties' experiences.<sup>2</sup> Deep insight into patients' experiences is expected to assist nurses representing patients and their relatives. Our findings can raise ED nurses' awareness of the fact that, regardless of how well they seem to know their patients, actually being admitted to an emergency department profoundly alters people's experiences. The nuance this study adds to most of the findings from literature could allow nurses to go beyond the commonplace when informing design.

Nurses' perspectives on the built environment can be broadened by showing how patients' experiences are affected by small changes in how they are moved or positioned. Space should thus not be considered a given, but a variable. This insight may allow nursing staff to envision future developments better and engage in dialogue with designers about how ED nursing could be improved.<sup>2,6</sup>

Besides being involved in design and building processes, nurses are also confronted with organizational changes, expansion, and reduction of hospital departments due to evolutions in care, practice, and technology. Small changes are often accomplished by staff members. Here, too, an improved understanding of how their adaptations to the built environment affects patients could improve patients' experiences and thus the functioning of the department.

Pointing out the need to improve nurses' understanding of patients' experiences, has implications for education and for research, as well. Few nursing education programs address spatial aspects, leaving nurses unprepared for the role they are increasingly expected to play as design team members.<sup>1</sup> To be an equal partner in a design process, nurses need evidence of the effect of design on patient, staff, and organizational outcomes.<sup>1,6</sup> The challenge for research lies in providing this evidence.

### Conclusions

Studies on ED patients' experiences from a nursing perspective stressed the importance of certain material aspects, interaction with staff, relatives' presence, and waiting time. Studying their experiences from a spatial perspective confirms and connects these aspects. The presented evidence indicates that adopting a spatial angle yields a more nuanced understanding of ED patients' experiences. When nurses realize that space is a variable, rather than a given, in dealing with situations and patients, they may become active partners in health care design and improve patient experiences, even within an existing situation.

ED patients do not only sense their hurt bodies; their awareness of their bodily perception alters, which—combined with stress and anxiety—makes them relate differently to aspects of the environment. Harsh light and noises—but also inadequate positioning of stretchers—have impact on their experiences. Both designers and ED nurses have roles to play in improving this. The challenge lies in designing a spatial organization that supports patient–staff interaction; room dimensions and door locations have impact on how the space accommodates stretchers and whether relatives can be

comfortable. Allowing a view to what staff is doing reduces patients' perceptions of feeling neglected, and providing additional "over-flow-space" may help to reduce the amount of randomly placed medical equipment in the hallways or separate waiting patients from ongoing actions when all cubicles or rooms are in use.

Judging from our findings, the challenge for staff and hospital designers lies in collaboratively identifying and realizing interventions that support staff in emphasizing a human approach, without counteracting the medical-technical aspect of emergency care. With this study, we scrutinized the role of space in patients' experiences of ED visits. By identifying the aspects to take into account, we contributed to nursing staff's understanding of how space is variable and has impact on patients' experiences. This should enable both staff and patients to benefit from an improved ED environment.

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