



Factors of Patient's Privacy Perception in Nursing Units: A Case Study with Nursing Units of a Private Hospital in Dhaka, Bangladesh

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ABSTRACT

Hospital design generates a multitude of policies and guidelines for architects that vary in their scope, organization, and clarity. When it comes to abstract criteria like patients' perceptions of their privacy, the challenge of advocating for, comprehending, and responding to design requirements becomes even more difficult. It is commonly acknowledged that privacy is a fundamental human right that influences people's expectations, attitudes, behavior, and preferences. Privacy is a crucial concern in healthcare settings, particularly for nursing units where patients are often frail and in a vulnerable position with little control over their surroundings. In multi-bed wards, the situation is even more severe. In light of various research findings indicate that how patients' feelings of privacy in nursing homes are influenced by architectural design in various contexts, this study. Different dimensions of privacy suggested by Literature, the study is focusing only on physical privacy with two included dimensions that are personal space and interactional space followed by other variables. The study also considers age as one of the demographic factors ensuing literature that the demand of privacy depends on existing mode or level of living, on upbringing, on age, and on natural sensitivity. Ad-Din Women's Medical College and Hospital, a private hospital in Dhaka, Bangladesh, provided a physical assessment to 35 patients from various wards as part of the study. The survey documents their privacy perception through a simple questionnaire within the four different nursing unit. Finally, the research will give an understanding of design factors that affect privacy perception in the context of Dhaka city.

1. Introduction

Since the Hippocratic Oath's creation in the fourth century BC, which has been upholding medical ethics for millennia, privacy has grown in importance in the field of medicine (Moskop et al., 2005). It is commonly acknowledged that people's behavior, values, expectations, and preferences all reflect the fundamental human need for privacy (Altman, 1976; Pedersen, 1999; Gifford, 2002). A range of experiences, including personal control over oneself, information, living space, access to bodies and places, self-concealment, and regulating interpersonal boundaries, have historically been linked to the concept of

privacy (Altman, 1975; Introna, 1997; Jourard, 1966; Leibman, 1970; Petronio, 2002; Rawnsley, 1980; Solove, 2002; Warren and Brandeis, 1890). Every country has the same needs when it comes to privacy (Kemp and Moore, 2007).

While there are three main functional divisions of general hospitals—diagnostic and treatment, support, and inpatient—the inpatient section seems to receive the most public attention because patients spend the majority of their hospital stay in wards. The majority of patients on the ward are frail and fragile, with little control over their surroundings. This increases the impact of the ward layout on their quality of life and recuperation period. When

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privacy is essential for psychological well-being, Ulrich and colleagues demonstrated that well-designed architectural spaces have an impact on patients' recovery times, wellbeing, and satisfaction (R. Ulrich et al.) (Altman, 1976; Pedersen, 1999; Gifford, 2002). Patients anticipate some privacy throughout their care, even if they are aware that caregivers must have adequate access to them.

Therefore, the challenging job for the designer is to create a space that balances accessibility and privacy just perfectly. Patients felt that hearing about someone else's medical information in a multi-bed ward violated their right to privacy, which caused additional stress for those who were already managing their own health issues. Privacy in multi-bed wards that adversely impacts patients' comfort with their hospital stay has long been a source of concern (Harris et al., 2002; Ulrich et al., 2004). Patients have expressed that during their hospital stays, privacy is a crucial concern (Schultz, 1977; Back and Wikblad, 1998). Additionally, it appears that one of the primary factors motivating patients to choose single-bed rooms over multi-bed wards is the ability to have a higher degree of seclusion (Kirk, 2002). The patients' views of privacy during doctor visits in a separate multi-bed ward are the main subject of this study.

The purpose of this study is to find out how patients in various inpatient wards perceive privacy after being admitted to the hospital and put in a room with other patients. The study addresses two objectives:

To understand the design factors that affect the patient's privacy in multi-bed wards in a private hospital at the context of Dhaka.

To examine the correlation between privacy factors in a different type of ward.

The study carried out using several case studies. At a private hospital in Dhaka, Bangladesh called Ad-Din Women's Medical College and Hospital, 35 patients are observed, documented, and interviewed in four distinct female wards. The software SPSS facilitates data analysis.

2. Theoretical Background:

In the healthcare industry, patient privacy is a critical concern. It is still a relatively new field of study, though. This section explores the different perspective of privacy from researchers' point of view and summaries key factors that affect patient perceived privacy.

2.1 Perspectives of privacy

In their work, Serenko, N.; Fan, L. (2013) theoretically and empirically suggested that using a multidimensional approach is the best way to address the conceptual definition and measurement of patients' perceptions of privacy. Serenko, N.; Fan, L. (2013) limit their analysis to the informational, physical, and psychological dimensions of privacy (Table 2.1), despite Leino-Kilpi et al. (2001) proposing that there are at least four dimensions of privacy: social, physical, informational, and psychological. Ultimately, they came to the conclusion that patients' creation of privacy perceptions is primarily influenced by

informational privacy, which is followed by physical privacy. However, contrary to earlier assumptions, psychological privacy has little bearing on the overall privacy construct.

The physical aspect of privacy is the sole subject of this investigation. "The degree to which one is physically accessible to others" is the definition of physical privacy. (P. 665 in Lino-Kilpi et al., 2001). Physical seclusion during a hospital stay has been shown to reduce stress and improve overall happiness for a variety of patient types (Ba'ck & Wikblad, 1998; Leino-Kilpi et al., 2001). Patients' physical, mental, emotional, and spiritual well-being can all be enhanced by maintaining their right to physical privacy (Whitehead & Wheeler, 2008; Woogara, 2001). Conversely, patients may get stressed and take longer to recover if they are denied privacy (Ulrich et al., 2008).

2.1.1 Forms of privacy

In healthcare settings, there mainly exist two forms of privacy that are visual privacy and auditory privacy.

Lack of visual privacy is added to by some ward activities done by the patient, their family members, and staffs. Another form of privacy, auditory privacy that is important and it has been said, a good medical history from a patient in an open ward is impossible because the patient is always aware that the patient in the next bed (FRCP and ARIBA, 1964). It was clear that patients' connections with one another and their capacity to engage in an open discussion with medical experts could be negatively impacted by their inability to control their personal information. Given that those sharing the patient's room won't be able to overhear the conversation, creating a private atmosphere might encourage more candid communication between medical staff, patients, and their families (Malcolm, 2015).

Leino-Kilpi et al. (2001) reviewed the literature and found that the majority of studies on patients' privacy focus on physical privacy, such as visual and audio privacy, with a particular focus on hospital settings. Archea (1977) demonstrated how the visual features of privacy are closely related to the physical environment's spatial patterns. Visual privacy appears to be more influenced by how hospital ward areas are designed by architects, whereas acoustic privacy can be managed by technological requirements and engineering solutions.

Table 2.1: Second-Order Privacy Dimensions Dimension Definition

Privacy dimensions	Definition	Included Dimensions
Informational privacy	Patients' impressions on their level of control over personal data. People desire the autonomy to choose when, how, and how much of their data is shared with third	Information acquisition and information ownership.

	parties. Patients' control over the gathering, storing, sharing, and using of their personal data is reflected in it.	
Physical Privacy (visual and auditory privacy)	The degree of physical inaccessibility as perceived by the patients. It entails avoiding unwelcome behaviors from other people, including as physically entering someone's space, touching bodily parts, watching or observing movements, using video surveillance, hearing noises, or smelling an odor.	personal space and interactional space.
Psychological privacy	Patients' impressions of how much the doctor respects their cultural ideas, private thoughts, feelings, and religious customs, as well as their freedom to make their own decisions.	personal values and decisional autonomy.

2.2 Some Issues of Privacy in a shared room

In healthcare settings, the issues of privacy or demand of privacy sometimes different than other built-environments.

2.2.1 Lack of privacy is conditionally accepted

Though it has been said that lack of privacy is one of the major faults of the open ward or shared ward, an advantage is the maintenance of morale in the ward community (FRCP and ARIBA, 1964). Malcolm (2015) was focused on shared hospital and he finds out through the shared room is a subject to loss of privacy but, there also some positive aspect. The assistance and company provided in shared rooms was noted as a plus. Participants mentioned being aware that other patients and their families or medical personnel may be speaking in the shared rooms, so they may overhear what they were saying. Having other people around to chat to and realize you don't have to worry about yourself wasn't always a bad thing. (Malcolm, 2015).

2.2.2 Temporary physical barrier within space

The purpose of using curtains to partition off sections of multi-bed hospital rooms is to provide patients who might be having surgery a little privacy. Curtains do not offer aural seclusion; they only act as a visual barrier to keep others from seeing patients in an exposed state. Participants believed that hearing someone else's personal information violated their right to privacy and caused additional stress for those who were already managing their own health issues (Malcolm, 2015).

2.3 Design Factors

According to Lu Y. et al. (2006), a patient's bed location and the spatial linkages it has with other design components in a nursing unit may have an impact on the patient's physical privacy. taking into account caregivers' appropriate access when novice groups perceive the nursing station to be overcrowded. Finally, studies indicate that by using well-thought-out windows or doors, patient rooms may be situated near a workstation while yet offering sufficient visual and acoustic seclusion.

2.3.1 Room level variables

Variables at the room level, such as the number of beds in the nursing unit and the area allocated to each bed, have a substantial impact on bed selection when considering privacy criteria (Lu Y., et. al., 2006). Given that a patient's visual and auditory privacy may be violated by the presence and physical proximity of other patients in the same room, both elements may have an impact on how privacy is perceived. His Results also show More space per bed and fewer patient beds per room are specifically linked to higher levels of felt seclusion. Due to a lack of physical boundaries that safeguard privacy, the presence of additional patients and increased physical proximity to other patients may compromise the patient's auditory and visual privacy.

2.3.2 Locational Factors

Additionally, research indicates that a patient's perception of their privacy may be influenced by the relationship between their room and the care team's workstation. The outcome reveals divergent opinions between the participant with inpatient experience and those who have not. The view of non-experienced groups is that the nursing station is overcrowded, whereas the experienced group finds that being closer to the station by foot is a better placement given appropriate caregiver access. Finally, studies indicate that by using well-thought-out windows or doors, patient rooms may be situated near a workstation while yet offering sufficient visual and acoustic seclusion.

2.3.3 Demographic Factors

Psychologically speaking, privacy is recognized as a universal demand that cuts beyond age, gender, and cultural boundaries (Altman, 1975; Altman, 1977; Harris et al., 1995; Newell, 1998; Gifford, 2002). The growing amount of research that examines the variations across a range of variables that may affect privacy rules appears to

be motivated by the complexity of the privacy issue. The privacy literature does appear to be following a more recent trend, though, which emphasizes the similarities rather than the differences (Newell, 1994; Harris et al., 1995; Newell, 1998). While cultural differences may be attributed to learning social and environmental variables, cultural similarities may have greater biological or physiological roots (Poortinga, 1990; referenced in Newell, 1998).

In their study on locational preferences for privacy in hospital wards, Alalouch et al. (2009) investigated preferences for privacy across age groups, genders, cultures, and prior spatial experience. The findings did not reveal a significant relationship between locational preference for privacy and cultural background, age, or gender.

2.4 Summary

Hospital ward architecture has a significant impact on privacy as a design criterion (Alalouch, et al., 2016). A vast array of standards, guidelines, and requirements—the quantity and focus of which vary from nation to nation—must be taken into account by architects during the hospital design process, in addition to the functional complexity of healthcare buildings, which is widely acknowledged.

The majority of the literature emphasizes how crucial it is to provide a sufficient amount of privacy, although it is unclear how the physical arrangement fits into this criterion. In order to better understand a patient's feeling of privacy in the context of Dhaka, specifically during the case building process, this study has compiled certain factors for analysis from the literature that affect physical privacy (Table 2.2).

Dimensions	Factors	Variables	
Personal space	Room level factors	Number of beds in a room	The use of appropriate space standards and guidance
		Area per bed	
	Locational factors	Walking distance from the nurse station	Accessibility of caregivers
		Distance from toilet & washing area	Crowding at the washing area
Interactional space	Patient room environment	Location of doors and windows	Privacy from the corridor or outside of the room.
		Company and dignity	The ability of patients to maintain their privacy and their interaction with others.
	Family space		Patients have places where they can be with family or visitors.
			Patients can have private conversation.

Table 2.2: Design Factors For Physical Privacy

3. Methodology

The methodology used in the study was a case study and a qualitative approach. The goal of comprehending intricate social phenomena is well-suited for case study research, as noted by Eisenhardt and Graebner (2007) and Yin (2014). According to Miles, Huberman, and Saldaña (2013) and Flick (2014), case studies are a useful instrument for gaining access to real-life experiences.

Case study: Ad-din Women's Medical College and Hospital is chosen as a case study and is surveyed.

Four open multiple bed female wards with three different types of location for nurse station (Fig. 3.1 and Fig. 3.2) are selected for surveying when each of them is varying in patient type, bed capacity and quality of service. The number of beds in the chosen multi-bed wards ranged between 16 beds to 28 beds. Some of these wards consisted of curtain area within two beds. The case study layouts depicted in Figure 1 lack direct patient visibility and the medicine ward nurse station is situated in a secluded area. In gynecology ward nurse station is centrally located and nurse station is at an end of the room for other two wards and for both of these position at a level, all patient beds are visible from nurse station although there exist curtain facility within two beds differing from the medicine ward with the isolated nurse station.



Figure 3.1: (a) Medicine ward; (b) Surgery ward; (c) Gynecology ward; (d) Post-operative ward



Figure 3.2: Internal Views Of The Different Ward

Table 3.1: The Design Characteristics of Four Nursing Units In The Study

Unit no.	Department type	Number of Beds per room.	Total Area (m ²)	Total number of Beds.	Gross Area per Bed (m ²)
a.	Medicine ward	1,3,4,5 and 6	340	27	12.59
b.	Surgery ward	2 beds in one curtain area	172	20	8.6
c.	Gynecology ward	2 beds in one curtain area	264.6	22	12
d.	Post-operative ward	2 beds in one curtain area	160	18	8.8

The two components of the current study's design are the theoretical portion, which is based on a review of pertinent theories and studies on privacy perception, and the investigative empirical portion, which is based on fieldwork and interviews conducted in the area. The following three interconnected phases are discussed in regard to the research approach used in these two segments;

3.1.1 First, literature review:

In order to determine the degree of privacy perception in healthcare settings across the globe, the research begins with a review of the literature, which is done on published data (such as research papers, standards, codes, and websites). Next, certain factors influencing privacy inpatient rooms are identified.

3.1.2 Second, data collection:

Observation, documentation, questionnaire surveys, and interviews are all included in physical surveys.

- Questionnaire_ Using a targeted literature review, the study created an interview guide (questionnaire) (see Additional file 1). The questionnaire was divided into two sections: a first section that asked respondents to select from a list of possibilities, and a second section that used a 5-point numerical scale to gauge their level of privacy.

- The Sample_ Since anyone can be a patient in an open ward, the sample was as diverse as possible in terms of gender, age, educational attainment, and cultural background. Its representativeness for the entire population, however, is not asserted. 35 people in all answered the questionnaire. All responders are female; 71.6 percent are between the ages of 20 and 45, while the remaining 28.4% are over 45.

3.1.3 Third, data analysis:

Each patient bed serves as the analysis's unit of measurement. For each respondent's bed in the four nursing units, we examine physical elements, or independent variables, and describe them using eight variables divided into two groups. These consist of two areas: (1) personal space and (2) interactional space (table 2.2 displays the included factors). Finally, IBM SPSS Statics data Editor examines correlation within the variables.

4. Result

Personal Space

For the issues of personal space related to two sets of factors that is room level factors and locational factors included with seven variables (see table 2.2).

The total number of beds in a patient room is indicated by the number of beds per room. There are four to twenty-two in the range. Since each patient's visual and auditory privacy may be violated by the presence of numerous patients, this measure may have an impact on how privacy is perceived. This study demonstrates a negative association (-.292) with area per bed and a modest correlation (.209) with patients' eligibility for privacy within the number of beds.

From a demographic point of view, the study considers participant age toward privacy perceptions. The study wants to know how much time and what amount of time people use curtain because there was flexibility within the use. The result shows there was a negative correlation (-.850) between the age of the participant and time of using a curtain around the bed area. Observation shows there was a relationship within the time of the day and use of a curtain. At the morning hour when people woke up and doctors' round start then most of the people like to open the curtain area while at in time to take food and sleeping time most of the people use the curtain to achieve privacy.

Research also indicates that patients' perceptions of their privacy are influenced by the arrangement of a patient

room and the workstation of the care team. In a nursing unit, patients prefer beds that are farther away from the care team workstation.

Care staff and other people's presence probably lessens patients' perception of privacy, and care team workstations

are notoriously noisy, frequently disturbing patients' sleep. This research shows a positive correlation (.390) between visibility toward nurse station and preferences for a distant place from nurse station and the mean value for the preference to locate bed at a distant place is 2.40 (see Table 4.1) indicate that crowding at nurse station violate privacy

Table 4.1: Perceived Privacy Regarding The Location Of The Nurse Station (Descriptive Statistics For The Overall Environment.)

Locational factors	N	Minimum	Maximum	Mean	Std. Deviation
Nurse station is visible from patient bed.	35	1.00	5.00	3.1429	1.11521
Sometimes there is a crowd at the nurse station.	35	1.00	4.00	2.6571	.87255
My privacy is hampered because of crowding at the nurse station.	35	1.00	5.00	2.3429	.87255
I prefer to locate my bed at a distant place from the nurse station.	35	1.00	4.00	2.4000	.81168
My privacy is hampered because of crowding at the toilet	35	1.00	5.00	2.7143	1.17752
Often there is a crowd near the toilet door.	35	2.00	5.00	3.3714	.68966
I prefer the bed with a longer distance from the toilet door.	35	2.00	5.00	3.4000	1.00587
I prefer the bed with less view from the entry door.	35	2.00	5.00	3.6000	.97619
Valid N (listwise)	35				

Table 4.2: Descriptive Statistics For Individual Departments.

Departments	Medicine department		Gynecology department		Post-operative & Surgery department	
Layout Description	Small patient room with 3-4 beds when the nurse station is at outside space for multiple patient rooms without curtain facility		nurse station is centrally located at a large patient room with curtain facility		nurse station is located at the end of the medium size patient room with curtain facility	
Locational factors	N	Mean	N	Mean	N	Mean
Nurse station is visible from patient bed.	16	1.7500	8	4.5000	11	4.2000
Sometimes there is a crowd at the nurse station.	16	2.3750	8	3.6667	11	2.5385
My privacy is hampered because of crowding at the nurse station.	16	2.0625	8	3.5000	11	2.1538
I prefer to locate my bed at a distant place from the nurse station.	16	2.1875	6	3.1667	13	2.3077

Table 4.3: Descriptive Statistics of Interactional Factors.

Interactional factors	N	Minimum	Maximum	Mean	Std. Deviation
Sometimes I like to talk with other patients and their family members	35	2.00	5.00	3.6286	.84316
Often privacy is hampered within other patient's activity.	35	2.00	4.00	2.9143	.70174
Often privacy is hampered because of staff activity.	35	2.00	4.00	2.5714	.60807
Most of the time privacy hampered within visitors crowding at the other patients	35	3.00	5.00	3.5714	.60807
Most of the time I like to use the curtain as a barrier from others.	19	3.00	5.00	3.9474	.62126
Curtains not protect my hearing privacy.	19	2.00	4.00	3.2632	.73349
Often I like to talk with my family alone.	35	3.00	5.00	3.8286	.70651

when visibility of nurse station is high. Considering individual department (see Table 4.2), it has shown that at medicine ward with outside nurse station the mean value for hampering privacy because of nurse station is lower (2.06) than gynecology ward (3.5) where nurse station is located at the central place of a patient room.

Including the locational factor, the study also considers the location of the toilet door and location of the entry door of the ward. It has shown that at all of the studying ward toilet is placed at the end of the room. so, the mean value (2.71) for hampering privacy for crowding at the toilet is lower but the mean value (3.37) for preference to locate bed at a distant place from the toilet is upper than average. Similarly, maximum patient (mean value 3.6) prefer to locate bed with less view from the entry door and its an issue for hampering privacy.

Interactional space

The issue of Interactional space is focused on the social environment of the ward rather than personal bed related factors. At this point, the study analyzes overall activities at the patient room including activities of the patient, staff members, and family members. The result has shown that activities or presence of family members or visitors of other patient is noticeable for hindering privacy (mean value 3.57) rather than activities of other patient and staff members.

5. Discussion

Larger areas per bed and fewer patient beds per room are linked to increased privacy, according to Lu Y. et al. (2006), yet our investigation finds only a weak, negative correlation between the two. This difference may be because of curtain facility. In this studying hospital, patient room with an increased number of beds (more than ten beds) are facilitated with curtaining within every two beds and for that reason, visual privacy is less hampered than other patient room with fewer beds (four to five beds) without curtaining.

Although Alalouch et al. (2009) found no evidence of a

significant relationship between age, gender, or cultural background and locational preference for privacy, the findings of this study indicate that younger participants are more likely to utilize curtains most of the time, suggesting a larger demand for privacy. At the studying hospital most of the participants' age between 20-45 and so that effect of curtain is noticeable.

Following literature (Lu Y., et. al., 2006), this study also shows locational factors including nurse station location, location of toilet and views from entry has effects on privacy perceptions in the multi-bed ward.

Findings from Lu Y., et. al., (2006) suggests there was an impact of previous hospitalization experience on locational factors regarding privacy. They found fewer directional change (i.e visual privacy) considering safety issue and longer walking distance (i.e auditory privacy) from care team workstation is preferable for the participant with hospitalization experience when this issue did not affect participant with no hospitalization experience. Although this study does not consider hospitalization experience of the participant, findings show that at an average patient do not wants to stay at a distant place from nurse station but patients who are experiencing direct visibility at a near place from nurse station, wants to locate bed at distant place considering visual and auditory privacy.

At the studying wards around 30% bed (i.e medicine ward) is isolated from the nurse station and so that the location of the nurse station has minimum effects on these participants. Similarly, a participant at a distant place from crowds in a nurse station or at the toilet has a minimum perception about that cause.

One of the benefits of the multibed ward is companionship and support (FRCP and ARIBA, 1964). The study is also supporting this view considering privacy.

Literature showed that the different type of activities at ward is one of the main causes of hampering privacy (FRCP and ARIBA, 1964). Considering privacy this study has shown people in multi-bed ward accepted at a level of loss of privacy regarding other patient and staff activities, but another patients' family member or visitor presence often are not accepted.

Finally, the study points out some key factors, i.e.,

- Although Malcolm (2015) suggest using curtain for privacy is not provide auditory privacy, provide only visual privacy, the study wants to say curtain is very important at the multibed ward to achieve user satisfaction regarding privacy. The number of beds has minimum effects on privacy perception with the presence of curtain facility.
- Less patient beds per room and a greater area per bed in a multi-bed hospital are linked to higher aural privacy, but not visual privacy; some kind of physical barrier is required to achieve visual privacy.
- In order to ensure adequate visual and auditory privacy, the patient bed should be placed a safe distance from the nurse station, but yet allowing for adequate privacy. This can be achieved by careful layout design.
- It is beneficial to have family members and guests

present in a multi-bed ward family area in order to achieve seclusion.

6. Conclusion

In the healthcare industry, patient privacy is a critical concern. It is still a relatively new field of study, though. This study proposes and empirically validates that a multi-dimensional approach is the most effective way to define and quantify patients' perceptions of privacy conceptually. The study is considered only physical privacy and concluded with some key factors. Because of time constraint and limited resource, the study considers only four departments in one hospital. As an intangible criterion, the demand of privacy varies within different demography such as age, culture, gender, mode or level of living, on upbringing, etc. but the study considers only age variation within all female participant. There is a further scope of research with multiple wards in a different hospital with maximum variations of culture, social status, gender, etc.

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