

## Research Paper

# The role of architecture in establishing social supports affecting mothers mental health after childbirth recovery process in the maternity wards of Tehran's general hospitals

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### Abstract

*In today's mechanized world, the need for a patient-friendly attitude in the hospitals and its psychological effects on the recovery time of patients has been proven. Considering the special pre and post-partum conditions of a pregnant woman, together with the fact that the mother and child cannot be treated as a patient case, makes these psychological effects more critical in this research, the mental state of pregnant women in association with the social support they receive, and its role on their stay and recovery, was considered. In this research we investigated the role of maternity ward architectural design on the quality of mothers social interactions. To achieve this, a survey has been conducted on the affect of maternity ward architectural design on the mothers social interactions with visitors, medical board, and other patients in maternity units of Tehran's General Hospitals.*

*It was found that the establishment of social communications with visitors, hospital staff, and other patients had significantly positive psychological effects on patients. Not only the mental health status of patients was improved, also their recovery time was reduced. This was concluded that the design of healthcare centers should provide maternity unit's patients effective communication opportunities by providing an appropriate space for patients companies, family members, and visitors.*

**Keywords:** Social factor, Maternity ward, Hospitals effective communication, Architecture.

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## 1. INTRODUCTION

Researches throughout the last decade indicates that there is a low level of satisfaction in regards to postnatal care compare to any other parts of the maternity care [1-4]. Providing an opportunity for the caregivers and patients to spend more time together in an environment that offers privacy and confidentiality (structuring care around individual needs), is an essential requirement for the healthcare professionals. This will enhance the possibility of early diagnosis of developing post-partum health problems in patients [5].

To improve the condition of the care facilities and treatment process considering standards and laws in design, essential human factors such as culture, habits, needs, and communication must be measured.

Design is seen as complementary to the healing effects of drugs, policies, and technology [6]. It is therefore important to identify factors in the physical environment and, through design and architecture, create meeting points that can promote spontaneous social interaction and social support [7]. Yelland et al. realized that the reliance of detecting and managing women with particular psychosocial issues during pregnancy results in this aspect of care being given less priority postnatally than may be ideal [5].

The maternity units are fundamentally the most complicated units in their environmental and care conditions compare to other units within a hospital. Since pregnant women are not considered sick, they move around and communicate with other people. Therefore, in designing spaces compatible with the identity, habits, and the culture of each country, appropriate accommodations for developing communication among the patients, clients, and the visitors must be taken into consideration. In doing so, a higher level of relaxation and a shorter recovery time is expected. Since Iranian women prefer being hospitalized

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in a unit which is totally separated from the others due to cultural and religious beliefs, in most of the hospitals in Iran, except those which have been designed specifically for women, such a separate unit exists.

Although, considerable researches have been focused on mental patients in asylums and the hospice care centers, little investigations has been done on how architects could improve the comfort level in maternity units. Rarity is due to the fact that the progress of these studies has been reported to be extremely slow. Furthermore, a separated branch of architecture called architectural therapy does not used up to date. In this regards, it should be note that the doctors are also not aware of the effects which designing facilities and spaces has on patients' recovery. Therefore, they do not fully cooperate with the field studies conducted on this subject. As a result, research progresses slowly in most of the healthcare environments.

On the other hand, Malkin points out that the main reason behind the slow progress of research is the experimental control problems [8]. He expresses that for many of the design questions which could inspire the designers and give them the necessary knowledge have not yet been conducted.

Parke and Chappe (2010) indicate that architectural features can contribute to older participants' stress, fear, anxiety, and worry. This will happen by interfering with independent way-finding, promoting deconditioning that limits recovery, and interfering with the family support by making visiting difficult [9]. Ultimately, lack of any scientific foundations leads to designing hospitals and care facilities based on mere hypothetical factors [10].

Moreover, social supports help to reduce the stress and speed up recovery of the patients [11]. This was proven in a research, conducted on the patients who had suffered from stroke. According to another research, social supports, do also; increase the life expectancy of the cancer patients [12, 13]. As a result, enhancing social support is very important and should be suitably addressed by healthcare design. Healthcare facilities are designed not only to support and facilitate state-of-the-art medicine and technology, patient safety, and quality patient care, but to also embrace the patient, family, and caregivers in a psycho-socially supportive therapeutic environment [14]. In this section, we demonstrate how social supports in hospital spaces effect on patients in their hospitalization period. We divide possible social communications in hospital in 3 groups. Each group needs what conditions and what problems do they have. Then we study these effects on mothers after childbirth in the maternity wards of Tehran's general hospitals.

### 1.1. Establishment of Social Support in Hospital

Social support is referred to the emotional supports that a patient receives from others during his/her stay in hospital. These supports help to reduce the patient's stress and shorten his/her recovery time [15, 16]. Moreover there exist references which place emphasis on the impact of social relationships on mental illness [17, 18]. It has been shown that Social communications with the family

members, friends, and healthcare staff have a great deal of benefits for the patients [19]. The studies of behavioral therapy, behavioral knowledge, and the clinical psychology in the health care and none - healthcare groups indicated that the patients who benefited from high levels of social communication experienced less stress, had faster recovery and better health state compared with those missing such supports [20]. Similar results were reported for patients hospitalized at home, receiving more social supports [21]. Some parameters to improve the quality of social behavior and communication in hospitals are: providing suitable over - night accommodation for the patient company equipped waiting room area, designing and building therapeutic gardens and outdoor facilities with suitable furniture, and convenient access to food, telephone, and rest-rooms.

In order to improve the social supports and patient communication, three social groups should be considered: (a) visitors (b) families (c) staff.

#### 1.1.1. Visitors' Communications in Hospital Wards

In line with increasing communication and social supports, creating areas such as public resting areas, day rooms and waiting rooms with comfortable and moveable furniture are influential factors. It has also been proven that proper arrangement and moveable furniture in food consumption areas leads to increased social communication and improved eating habits in patients. On the other hand, arranging the chairs along the walls next to each other in the waiting and day rooms lowers social communication. However, replacing the vinyl tiles with rugs in the patients' rooms increases social communication and encourages the visitors to stay longer with the patients [19]. Some studies were conducted on private rooms versus rooms which housed multiple patients. Private rooms were found to be more suitable for the visitors, because the multi-patient rooms lacked any personal space, and this made the visitors feel less comfortable [22, 23]. According to the nurses, one of the advantages of the private rooms over the public rooms was the more space provided for the visitors [24]. This is very important because the visitors, in fact, are visiting two people and the infants need a specific space of their own. In the study conducted on over two million patients, in 2003, it was found that the patients hospitalized in private rooms were more pleased with the comfort and accommodation of their family members than those who shared their rooms with other patients [25].

On top of the mentioned issues, there is a cultural dilemma (in Iranian culture) of sharing a room and the resulting stresses and the financial consideration from one side, and its positive effects in social communication establishment with roommates, on the other hand. The latter has not resulted in any final conclusion to rate better yet. Furthermore, the supporters of private rooms claim that when the roommates do not get along, it costs more for the hospitals to move the patients around, compared with what they initially save budget on building rooms which could keep more than one patient [11, 26, 27].

### 1.1.2. Communication (Relationship) of Patient with Family and Hospital Staff

Communication with family members is a critical type of social support which reduces the negative effects and stress of hospitalization in patients [28]. However, rather unfortunately, factors such as lacking enough visiting time, enough accommodation of parents and other companies makes them to spend less time with the hospitalized person. To increase the families' cooperation, enough and proper accommodation for the visitors must be provided. For the out of town visitors, there must be areas for food storage. Considering enough space for the families to rest and keep personal belongings and sleep, if over-night care is needed, is very important [29, 30]. Families who can control the temperature and lighting in their rooms, the amount of privacy they have, the number, frequency and length of visitation, the type and volume of music, and the timing and content of meals will experience less stress and will likely be more satisfied [31].

As it was mentioned before, there is a call for increased focus on the personal and social needs of hospitalized patients specifically in regards to social interaction and support, where an increased risk of experience loneliness, isolation and insecurity when hospitalized in these single bedrooms has been proven [32]. The more communication between the staff and the patients, lower the stress of the families and the patients. This communication leads to a more informed after-release care, faster recovery and pleased visitors. It was also found that poor social relationships between patients and hospital staff in psychological hospitals could have negative effects on the healing process [17, 33]. Since the women in the maternity units are not ill, the effect of such communication will be twofold and spending time at the hospital will be much easier for them. Private rooms are more suitable for the establishment of such communication compared with the multi-patient rooms. Because of the lack of private space in multi-patient rooms, the nurse may avoid talking about certain things [30, 34]. Another factor which creates problems in establishing verbal communication of the staff with the patients is the intercom system and the telephones when create noises and disturb the conversation [35].

### 1.2. Increasing Private Space in Ward Sections

Despite the fact that the desire of having personal space varies in different people and cultures, a need for private space is in the nature of human being. By creating different levels of personal space and privacy in hospital rooms, more options are provided for the patients, visitors and the healthcare staff. For instance, the possibility of doing personal stuff and praying at the hospital improves recovery and increases the positive effects of the treatment. The patients in private rooms have a better feeling about their personal spaces compared to those hospitalized in public rooms [36]. In multi patient rooms, private spaces of the patients may be violated by the doctors and the staff. In noisy rooms (patients and

equipment noise) has a negative effects on patients' sleep in the special care units.

However, an opposite behavior was observed in Tehran. The women in Tehran tend to be more inclined to communicate with the other pregnant women in the maternity ward (refer to table 4). In a research which was conducted on the degree of privacy of the patients' rooms, the results indicated that the patients whose beds were separated from one another partitioned, felt more audio privacy than those whose beds were separated from the other patients by only a curtain. Moreover, the latter group claimed that due to lack of privacy, they avoided talking about parts of their personal history. In other words, they were worried that other patients overhear their personal and intimate conversations with the healthcare staff [19, 37].

## 2. RESEARCH METHOD

In the process of this study, two research methods were used. The first part of the article deals with identifying the problem. In this section the effort was to identify the weaknesses of the system and offer solutions for elimination or improvement of them. The solutions seem to be systematic and it is tried to find a solution for a local problem. A quantitative survey method was adapted to the research. A representative sample of the pregnant women in general hospitals, architects, doctors and the nurses (statistical population) were randomly selected from general hospitals across Tehran (statistical sample) and studied. The question and answer technique (Q&A) was used during the inquiry, and the required information was collected using a questionnaire.

Processing the data made up the second part of this study. To this end, library research, Internet and interviews were used. For each group in the study, a separate questionnaire based upon their expertise and experience was designed. Since the goal of this study was to investigate the role of housing spaces of the treatment centers in creating social supports and communication for women clients, descriptive studies were conducted so that these features could be discussed and studied. Then, different aspects and features of the issues under study (the effect of social factors on women in the maternity wards and various perspectives) and the correlation among the variables were investigated using descriptive-analytical statistics. Independent variables were the hospital and the maternity ward and the dependent variables were communication with the other pregnant ladies, a day room and the presence of company with the patient. Since the present study is based on quantitative approach, the most suitable method for analyzing the data was using statistical methods, descriptive or analytical. Finally, after obtaining the results, an unbiased analysis was conducted and conclusion was drawn.

In this study, three groups, the architects, the doctors and the women who were referred to the maternity wards were asked to answer the questions on the three different questionnaires. 10 expert designers of the hospitals, 72 doctors, and 131 patients made up the population for this study. The information of the patients was as follows:

A) Age:

**Table 1** Shows frequency of the age groups of the hospitalized women

Percentage of Density	Valid Percentage	Percentage	Frequency	Age Groups of the Patients
23.6	23.6	22.9	30	15 to 23
60.6	37.0	35.9	47	24 to 32
89.8	29.1	28.2	37	33 to 41
100.0	10.2	9.9	13	42 and more
	100.0	96.9	127	total number
		3.1	4	no answer
		100.0	131	total number

B) Job:

**Table 2** Shows the frequency of the jobs of the hospitalized women

Percentage of Density	Valid Percentage	Percentage	Frequency	
62.0	62.0	61.1	80	housewives
88.4	26.4	26.0	34	employee
94.6	6.2	6.1	8	student
98.4	3.9	3.8	5	private earner
100.0	1.6	1.5	2	sundry
	100.0	98.5	129	total number
		1.5	2	no answer
		100.0	131	total number

C) The number of children:

**Table 3** Shows the frequency of number of children of the hospitalized women

percentage of density	valid percentage	percentage	frequency	
6.5	6.5	5.3	7	no child
45.4	38.9	32.1	42	1.00
70.4	25.0	20.6	27	2.00
86.1	15.7	13.0	17	3.00
97.2	11.1	9.2	12	4.00
100.0	2.8	2.3	3	5.00
	100.0	82.4	108	total number
		17.6	23	no answer
		100.0	131	total number

### 3. DATA ANALYSIS

#### 3.1. Preference of the Hospitalized Women with Respect to Establishing Communication with the Other Patients

There is a sample of tables, showing the result of the two-sentence questions, other tables could be presented if they are needed. As it can be seen in table 4, the results of

the two-sentence questions show, that most of the patients prefer communicating with others in the maternity ward. Seventy percent of the patients prefer communicating with the other patients in open spaces. Moreover, both the patients and the doctors mention that having gathering spaces during the day is preferable. Most of the patients and the doctors evaluate the preference of such spaces at medium to high.

**Table 4** The two-sentence test shows the preference of the hospitalized women with other patients show lack of inclination

level of significance	proportion of the test	Proportion of observed	the number observed	Category
.000	.50	.30	38	not prefer group 1
		.70	89	prefer group 2
		1.00	127	total number

With respect to the design of the two questions which were mentioned above, it could be said that establishing social communication is one of women's needs. This is much more important for the Iranian women, because they are very social and seek constant interaction with their kind. This leads to intensified pre and post-partum depression and anxieties during the stay at the maternity wards. However, these women would prefer to be housed in private rooms. Thus, these two factors must be considered by the designers of the maternity wards.

### 3.2. *The Effect of Hospital Stays on Hospitalized Women and Designing a Space for the Patient's Company*

The results indicate with 99% certainty that the majority of the doctors find presence of a company with the patient beneficial to the patient's recovery. 86% of the doctors believe this to be true. And the majority of the patients prefer having a space in their rooms for their companies.

95% of the patients find having a space for their companies to be of medium to high importance.

Presence of companies, besides having social and cultural roots, which were studied, makes the patients feel stronger and emotionally secure when the going gets tough. This, ultimately, helps their recovery. Designing a small space for the patients' companies could be very beneficial to their recovery.

### 3.3. *Possibility of Meeting in Separate and Private Areas from Patients, Doctors and Architects' Point of View*

Based on the results which were discussed above, the importance of creating a suitable space for the visitors and the companies of the patients next to the patients' rooms becomes obvious. The best case scenario would be having a space which is separate from the patients' rooms and is flexible. Another option would be designing a space in the treatment facility, just for the visitors, so that the patient could, when she has fairly recovered, visit with the loved ones away from her room. This would help the patient to get away from the boring environment of her room for a while and spend some time in a different and pleasant setting next to natural green spaces. This would speed up the patient's recovery.

## 4. DISCUSSION

In line with the literature review on the social issues at the hospitals, the study has considered a set of practical steps towards understanding the issues which women, as the clients of the maternity wards, are concerned with. Moreover, by combining these two, the literature review and the results of the current research, it has been tried to introduce factors which could be taken into consideration for making the treatment centers more patient-friendly. This would result in taking care of women's mental and emotional needs and gaining their satisfaction and speedy recovery. To achieve these goals, the questions in the questionnaire were designed having the architectural

science in mind, so that the best design for the hospitals, space-wise, could be determined. Now, after carrying out the statistical calculations and analysis of the results, an overall conclusion related to the social supports in clinical and hospitalization areas could be offered. Based on the inquiry conducted, the effectiveness of the influential factors on the psychological aspect of the hospitalization area in Tehran's general hospitals was obtained. Using content analysis, these factors were selected based on their importance and frequency in the related literature. The questions were designed in three areas related to the effect of presence of a company, visitors and establishing communication with the other patients.

### 4.1. *Preference of the Hospitalized Women with Respect to Establishing Communication with the other Patients*

Based on the research, it could be said that establishing connection is proper for the patient, but, at the same time, the patient wants to have her privacy. In other words, during her loneliness, she would prefer to communicate with others.

Patients' need for having a place to gather during the day for social activities is the indication of their social needs and establishing communication with others. This issue should be kept in mind by the architects and interior designers when designing hospital buildings.

Overall, based on this survey, designing rooms with lower capacities is recommended by the experts. However, considering the high cost of private rooms and designing consequences, it would be better to employ diversity in designing the rooms. Thus, based on the patient's needs, the most suitable room should be assigned to her, despite the fact that the patients prefer to have social activities while having their privacy.

### 4.2. *Doctors' Point of View on the Effect of the Presence of Company on Women's Recovery Time*

When talking about the socio-cultural roots, which were mentioned before, considering the mental effects of having a company in the hospitalization area should not be forgotten. Considering spaces for presence of the company would help the mental safety of the patient and her comfort in times of her need. Furthermore, it would help her to get back to her regular life much sooner.

As it was mentioned, presence of the company plays an important role in cutting the patient's recovery time down. Based on this fact, designing a space for the company is highly recommended. Many recommendations have been made on social communication at the hospitals, especially in the hospitalization areas and the maternity wards. For instance, having places for the family in the patient's room with suitable furniture and bedding, Internet and telephone access, proper lighting with its intensity being adjustable for reading, places in which the patients could communicate and interact with their family members and the healthcare staff, such as kitchens for families in the maternity ward where the families could prepare meals for the patient and themselves.

#### 4.3. The Doctors, the Architects and the Patients' Point of View on Possibility of Visitation in Private and Separate Spaces

One of the issues that designers should consider in the design process is how to place spaces for visitors in the hospitalization area. Based on the above extracted results, the importance of having separate spaces for visiting could be emphasized upon. However, the important point for the architects, here, is paying attention to the dimensions of the space required for this purpose and its design. One of the options is creating separate spaces for the visitors next to the patient's bed (for during total bed-rest period) and/or designing open spaces for the visitors (for during the time the patient could move around).

Designing the visitation rooms could be flexible; in other words, this space, as a general hospitalization area, could be divided into various separate spaces. Most of the hospitalized women in the maternity wards prefer to visit their husbands and relatives in a separate area next to their beds, in a quiet environment, or in an open space. The majority of the hospitalized women and doctors find visitation in separate and private areas more suitable. Moreover, suitability of such visitation areas has been investigated by the architects and they, too, agree with the patients and the doctors. 70% of the hospitalized women prefer communicating with the other patients in the maternity ward. The majority of the doctors believe in visitation space inside the patient's room. Most of the architects seem to agree with the doctors' opinions. 86% of the doctors believe that having a company affects patient's recovery time. 95% of the hospitalized patients agree with having a space inside their rooms for their companies. Architects, also, believe that such a space is necessary.

## 5. CONCLUSION

In the present research, the effect of communication and the social supports on the hospitalized women's recovery process and satisfaction, especially the pregnant women were investigated. To achieve the goals, scientifically, the doctors, the architects and the pregnant women's opinions were obtained using a questionnaire. This study was carried out in Tehran, Iran, and considering the Iranian women's special characteristics. The result of the discussions in the maternity ward about how to establishing communication and social activities depends on architecture of the hospital could be summed up in a few sentences. It was found that there is a preference for establishing communication and social activities with other patient and visitors. A Practical implication of these findings is designing flexible spatial dividers for using in the maternity wards which are multi-purpose. In addition, patients can gather in groups and communicate in a suitable environment, so that they do not violate the privacy of other patients. Moreover, designing and having areas to accommodate family members in the patient's room during the entire treatment process improves mental safety of patients.

Development of a separate space in patient's room, an open space for visitors has a mental positive impact on the healing process. However single occupancy rooms are preferred versus the multi occupancy rooms, to improve communication with the roommates, different capacities should be considered.

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## CONFLICT OF INTEREST

The authors declare that there are no conflicts of interest regarding the publication of this manuscript.

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