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Comparison of Patient Satisfaction with Single Patient Rooms Versus Shared Patient Rooms

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Abstract

Objectives: According to the current evidence, the effectiveness of using single patient rooms heavily depends on the cultural characteristics of each country, yet to this date no independent study has been conducted on this issue in Iran. Therefore, in the present study, factors affecting the satisfaction of individuals with single patient rooms versus shared patient rooms was investigated in hospitals of Iran.

Methods: In this cross-sectional analytical study, which was conducted during year 2017, the satisfaction of 132 patients admitted in single patient and shared patient rooms was investigated. The subjects of this study were randomly selected from patients admitted to two different hospitals in the city of Tehran. The data were collected using a two-part questionnaire. All the obtained data were analyzed by Student T-test, using SPSS version 17. The significance level was 0.05.

Results: The mean total satisfaction scores were 75.1 ± 7.83 and 56.19 ± 10.16 in single type and shared type accommodation, respectively. The difference seen in total satisfaction score was statistically significant.

Conclusions: Single occupancy is an independent factor that can increase the level of patient satisfaction. The most important advantages of single patient rooms are improved quality of sleep, preserving patients' privacy and autonomy in order to achieve greater control over their environment, and better communication with staff and healthcare workers. These results can help health system policy makers improve their services.

Keywords: Single Patient Room, Hospital, Privacy, Human Factors, Patient Safety, Patient Satisfaction

1. Background

Nowadays, the architecture and design of hospitals are shifting from pure functionalism to creation of a "healing environment" (1). Creating a healing environment means designing an environment that has a positive effect on patients' treatment (2). One of the important strategies for creating a healing environment in hospitals is to change the type of hospital rooms to single patient rooms (3). Over the past few decades, the issue of single patient rooms and the conversion and replacement of shared patient rooms has been much debated; today, in developed countries, there is a high tendency towards single patient rooms (4). For example, in the UK national health system, it is recommended that 50% to 100% of the patient rooms are designed and constructed as single patient rooms (5).

Abundant studies have been carried out on comparing and investigating the design, construction and management of hospitals, operational costs, efficacy of staff, therapeutic results, hospital-acquired infections (or nosocomial infection), and patients and staff satisfaction with single and shared patient rooms (5, 6); A lot of scientific evidence has demonstrated the following advantages for single patient rooms (7-10):

- Improved patients' safety and decreased hospital-acquired infections
- Flexibility in planning and design of new hospitals
- Increased percentage of bed occupancy and lower operating expenses
- Improved staff efficacy and increased satisfaction
- Improved quality of the learning environment in educational hospitals
- Increased patients' satisfaction, etc.

According to the nature of this issue and the research method, many of these advantages, such as decreased hospital-acquired infections, can be generalized to other countries and different conditions; however, the issue of patient satisfaction varies depending on cultural charac-

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teristics and local features and therefore, the related results cannot be easily generalized (4, 11).

Due to the importance of this issue, a large number of studies have dealt with different aspects of single patient rooms from 2000 to 2018. In a review in 2018, the lack of credible scientific evidence for deciding whether or not to use single patient rooms for non-acute hospitalization wards was emphasized (12).

In another review in 2018, more advantages were reported for single patient rooms than disadvantages, such as isolation and loneliness (9). In Morgan's study (2018), multi-patient and crowded wards were mentioned as one of the weaknesses in hospital design, which has an adverse effect on patients and staff (13). There has also been a lot of research on the reduction of hospital-acquired infections due to the use of single patient rooms (8, 10). However, a study by Mabon et al. (2016) showed that it is not logical and cost-effective to construct all the rooms in a hospital as single patient rooms (14). Single patient rooms provide a more appropriate space for family-centered care (15). Also, patients in single patient rooms ask more questions from the medical staff and make better communication with them compared to shared patient rooms (16). Independence and privacy of patients have been more commonly reported for single patient rooms compared to shared patient rooms, which is due to factors, such as the patient's greater control over the environment, the privacy of the patients and the confidentiality of their conversations with the medical staff or companions, and the specific use of the bathroom (2, 11). Overall, satisfaction with single patient rooms has been emphasized in a large number of studies (5, 17). However, the most important factor in satisfaction and preferences of patients for single patient rooms has been reported to be different in various countries and cultures. In a study conducted by Lason et al. in England, the most important advantage of single patient rooms compared to shared patient rooms, included privacy and independence; however, the absence of sleep disturbance and improved quality of sleep were considered as the second most important factor. In a study by Bloomer et al. in Australia, infection control and concern for pollution were the most important reasons for choosing single patient rooms (18, 19). In some other studies, loneliness and perceived isolation, as well as reduction of social support and contacts in single patient rooms were expressed as undeniable disadvantages (6, 20).

According to what was mentioned above as well as the current policy-making adopted in the Iranian health system to compensate for the shortage of treatment beds, many hospitals are now being rebuilt and constructed and this will be continued until the time when the needs are completely met and desirable quality is achieved. Therefore, conducting research on the provision of appropriate solutions, such as single patient rooms, in order to improve the quality of therapeutic environments is necessary and it is also considered as one of the objectives in the country's prospect for year 2025.

Thus, the current study aimed at investigating and comparing patient satisfaction considering single patient rooms versus shared patient rooms in the hospitals of the country. The obtained results can be applied in the following areas:

- Allow policy makers and health care practitioners to adopt solutions for improving patient satisfaction

- Helping designers and architects of therapeutic buildings design user-centered and more efficient admission wards

In summary, it can be argued that according to the existing evidence, the effectiveness of using single patient rooms depends on the cultural characteristics of each country to a large extent. However, no independent study has been conducted in Iran to this date. Therefore, in the current research, factors influencing the satisfaction of individuals with single patient rooms versus shared patient rooms in Iranian hospitals were investigated.

2. Methods

In this study, which is a cross-sectional descriptive-analytical research, 132 patients admitted to two hospitals of Tehran from May to August 2017 were randomly selected as the participants of the study. Those adult patients (above 16 years old) whose admission in internal or surgical wards lasted more than 24 hours were included in the study. The exclusion criteria were serious illness, unconsciousness, inability to make verbal communication, and unwillingness to participate in the research (21, 22). The sample size was selected based on previous studies and the Cochran formula.

The data were collected using adjusted questionnaire of Florey et al. (22). This questionnaire consists of two parts. The first part includes patient specifications (age and gender), type of admission (internal medicine or surgical wards), type of patient room (single or shared), and the number of times and duration of each patient's admission to hospitals. The second part includes six items related to the degree of patients' satisfaction; and the content of these items was as follows: perceived loneliness, sleep disorder, access to nurses, convenience during the visit time, sufficient privacy, and ease in contacting the medical and nursing staffs to express their personal problems and treatment processes. A five-point Likert scale (ranging from very low = 1 to very high = 5) was used for

scoring, and the total satisfaction score was obtained using the following formula, and was expressed as a percentage:

The highest score for each item (5) * number of items (6)/total obtained score * 100

The validity of the questionnaire was confirmed by two experts. Twenty volunteers filled out the questionnaire twice with an interval of two weeks and the obtained reliability index was 0.92. After explaining the research objectives to the patients and assuring them that their responses would not have any effect on providing the current health care services, their oral consent to take part in the study was obtained and finally the patients participated in the study. Moreover, to ensure the patients' perfect comprehension of the items, the questionnaire was described for them before being completed. In cases where a patient was not able to complete the questionnaire, a person, who was not informed about the research hypothesis read the items loud for him/her and completed it according to the patient's answers.

2.1. Statistical Analysis

All the data were analyzed using SPSS (version 18). Descriptive statistics were applied to describe the quantitative and qualitative variables. The relationship between two types of patient rooms (single and shared) and the degree of patient satisfaction as wells as the factors affecting it were evaluated using the student T test. All the tests were two-tailed, and P values smaller than 0.01 were considered significant.

3. Results

The final analysis was conducted on the demographic characteristics of 125 patients (Table 1), and the information of seven patients was excluded from the results as their questionnaires were incomplete.

Both groups were similar in terms of their age and gender. The mean lengths of admission in both groups (admission in single and shared rooms) were 4.98 ± 3.67 and 5.62 ± 3.83, which were not significantly different (P value: 0.34). The results gained from comparing the items of the questionnaire are presented in Table 2.

The mean total scores for the patients' satisfaction, obtained by adding all items, were significantly different in the two groups (mean of the first group= 75.51, mean of the second group = 56.19, P value < 0.001).

From among the items, the score gained for sleep disorder indicated the highest difference in both groups (mean of the first group: 4.11 and mean of the second group: 2.07, P value < 0.001).

The item related to perceived loneliness had the lowest score in single patient room group; and the difference observed between these two groups was significant (mean of the first group: 2.93 and mean of the second group: 4.04, P value < 0.001).

The difference between the item of patients' access to the medical staff was not significant in both groups (mean of the first group: 3.34, mean of the second group: 3.10, and P value = 0.19). According to the fact that the age of patients and their admission to internal ward or surgical ward can affect the overall satisfaction after controlling these factors, the analysis was repeated; however, the obtained results did not change.

4. Discussion

Results of the present study indicate that patient's satisfaction in single patient rooms was significantly higher than in shared patient rooms and this difference was significant (19.32 was the score difference for the satisfaction score). Since age, type of illness, admission ward, gender, and duration of admission, which can influence the overall satisfaction, were controlled in this research, the obtained results were independent of the effect of these factors.

The patients' higher satisfaction in single patient rooms can be attributed to the following factors:

- Higher quality of patients' sleep as a result of lower noise pollution in single patient rooms due to factors, such as decreased number of people attending to the room, decreased TV noise, and elimination of noises made by snoring or groaning of the critically ill patients. The absence of strangers in the patient room was also effective in this regard.

- In single patient rooms, patients' caregivers spent more time beside their patient and the facilities and independence of patients' caregivers in single rooms were more than in shared rooms. This issue along with patients' improved social support can result in their increased satisfaction (2). According to the religious culture of people in Iran, privacy can also affect the convenience of patients and their caregivers while staying in a single patient room.

- Patients have better and more comfortable relationship with medical and nursing staffs in single patient rooms. In their study, van de Glind et al. indicated that patients in single patient rooms asked more questions from the medical staff and had better relationships with them compared to those, who were in shared patient rooms (16).

- Patients' independence and privacy in single patient rooms were much greater compared to shared patient rooms due to factors, such as the individual's control over the environment (the possibility of looking at the desired

Table 1. Patients' Demographic Characteristics[a]

Variables	Single Patient Room	Shared Patient Room
Patient's sex		
Male	27 (21.6)	30 (24)
Female	34 (27.2)	34 (27.2)
Total (n = 125)	61 (48.8)	64 (51.2)
Patients by admission wards		
Internal medical ward	30 (24)	31 (24.8)
Surgical ward	31 (24.8)	33 (26.4)
Patients' age < y		
< 35	12 (9.6)	10 (8)
35 - 55	24 (19.2)	23 (18.4)
> 55	25 (20)	31 (24.8)
Mean length of admission	4.98 ± 3.67	5.62 ± 3.83
Frequency of admission		
First time	21 (16.8)	22 (17.6)
More than one time	40 (32)	42 (33.6)

[a]Values are expressed as No. (%) or mean ± SD.

Table 2. Mean and Standard Deviation of the Scores for Factors Affecting Patient Satisfaction with Single Versus Shared Patient Rooms

Variables	Single Patient Room	Shared Patient Room	P Value
Perceived loneliness	2.3 ± 1.10	4.04 ± 0.89	< 0.001
Sleep disorder	4.11 ± 0.89	2.07 ± 0.98	< 0.001
Access to nurses	3.34 ± 0.99	3.10 ± 0.99	0.19
Convenience of family and friends at visit time	4.21 ± 0.63	2.31 ± 0.81	< 0.001
Feeling comfortable with staff to express personal problems and ease of treatment process	3.77 ± 0.86	2.93 ± 0.97	< 0.001
Enough privacy	4.27 ± 0.63	2.37 ± 0.91	< 0.001
Total satisfaction score	75.51 ± 7.83	56.19 ± 10.16	< 0.001

television channel or turning off the television, having control over the room light, situation of the windows and etc.), patients' audio privacy and confidentiality of their communications with the medical staff and their caregivers, and finally the private use of bathrooms existing in the room (2, 6, 19).

This finding has been supported by many studies (patient's higher satisfaction with single patient rooms compared to shared patient rooms). In two studies by Chaudhuri et al. (5, 17), conducted with the aim of comparing patients' satisfaction and their preference for single patient rooms compared to shared patent rooms, 100% of the patients expressed having a very high degree of convenience in single patient rooms, while 58% of the patients in shared patient rooms reported to have very low levels of convenience in shared patient rooms. In another study that evaluated patient satisfaction after their discharge, 49.5% of the patients admitted to single patient rooms expressed their full satisfaction, while only 29% of the patients in shared patient rooms (two- and four-patient rooms) had full satisfaction (23). In a study that compared the patients' situation, two years before and three years after changing the patients' rooms of a hospital from shared patient rooms to single patient rooms, Hendrich et al. reported improved and enhanced satisfaction of patients with the patient rooms after this change (24). Findings of other studies are also in agreement with the results of the present research (i.e. patients' higher satisfaction with single patient rooms compared to shared patient rooms) (9, 18, 25).

According to the present data, the most important advantage of single patient rooms for patients is the effect that this type of room can have on their sleep. The re-

search performed by Florey et al. confirmed this result (22). Also, in another study, it was reported that the most important factor for patients' satisfaction and their preference for single patient rooms was privacy and independence, and absence of sleep disturbance as well as enhanced sleep quality had the second degree of importance (7, 18).

In the current study, loneliness in single patient rooms had the lowest score and it can be considered as the most significant disadvantage of single patient rooms or the most important superiority of shared patient rooms over single patient rooms in this study. Findings of the studies by Florey et al. (22), Sharma et al. (26), and Pease NJ et al. (21) are in accordance with the current findings, while in another study, 82% of the patients admitted to single patient rooms provided a negative answer to the item of loneliness or isolation (25). This difference can be explained with reference to the possibility for the presence of patients' families in their room. If the full-time presence of patients' caregivers becomes possible and a space is considered for this purpose, this may resolve patients' loneliness. The only factor in the questionnaire, which did not show any significant difference was access to nurses. The reason for this could be the similar situation for both single and shared patient rooms in the investigated wards and the same nursing staff working in single and shared patient rooms.

This study also had some limitations. In several similar studies, patients' preferences for being admitted to single or shared patient rooms have been investigated (18, 22), while in the questionnaire applied in the current study, there was no item related to patients' preferences. The reason for this was the fact that it was actually impossible for the patients to simultaneously experience attendance at single and shared rooms. Also, in this study, the effect of economy on patient satisfaction with patient rooms was studied.

4.1. Conclusion

According to this study, in general, it can be argued that singleness of patient rooms is an independent factor affecting the degree of patient satisfaction and leads to an increase in patient satisfaction. Age, gender, type, and length of admission did not have any effects on the findings of this study. Single occupancy is an independent factor that can increase the level of patient satisfaction. The most important advantages of single patient rooms are the improved quality of sleep, preserving patients' privacy and autonomy in order to have more control over their environment, and better communication with staff and healthcare workers. These results can help the health system policy makers improve their services.

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