

Comparison of Physical Status in Admission Wards of Shiraz Training Hospitals with Standards in 2008

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Abstract: In last, people knew nonphysical power, sin and moral weakness as the cause of illness. But nowadays development of medical sciences shifts medicine from homes to hospitals. Additionally, hospitalizing helps patient's family. Hospitals and clinics must be designed and built according to geographic, social and cultural situation and international standards. These places should be designed to reduce anxiety and cater patient's emotional and physical needs. Hospital standards are one of the most valuable conceptual elements in the organization, since they have an important role in depicting the expected performance and evaluation of hospital activities. This research aimed to assess physical status of inpatient wards in during 2008 with comparison to standards. It was Descriptive. Statistical sample was 3 of Shiraz training hospitals (Namazi, Shahid Faghihi and Shahid Dastgayb) that selected on Stratified Random Sampling. Data were collected personally by the researcher by using a valid and reliable checklist, observation and interviewing and analyzed with SPSS. According to the finding Shiraz training hospitals were located at the partly acceptable level. We must pay specific attention to improve our hospitals according to update standards.

Key words: Hospital • Admission wards • Standard • Index

INTRODUCTION

Nowadays in most countries waiver of space and wealth, health of society and state of treatment and healthy services is critical [1]. Hospitals and the most important medical institute minister medical and health services [2]. Hospitals play main role in physical and mental health for patients and training skillful human resources by using special facilities and equipment [3]. So it is effective in medical services as much as in training that caused to be named as "Science Shrine" [4]. This place because of the difference with others should be more paid attention in accordance with standards to ready calm and safe environment for patients and staffs [5-7].

Physical and virtual development in human society is one of the fundamental principles of human lives so each of indexes effective on human increment are inclusive of this development. Consequently developing standards is very important [8]. Hospital standards are one of the most valuable conceptual elements in the organization, since they have an important role in depicting the expected

performance and evaluation of hospital activities [9]. Standards that used for improving and increasing safety and healthy are always in threat and all of these systems must improve their quality and evaluate their activities [10].

The adequacy of combination of design attributes depends on which user, which hospital unit and which functional area within the unit are involved [11]. As far as different categories of users are concerned, it is important to take into account the difference in evaluative representations among the diverse social actors which are present in hospital environments and namely the patients, staff and visitors. Actually, these representations refer to users' different "environmental roles", which are shaped by peculiar functions, goals, motivations, meanings, expectancies, behaviors and uses of place. The complex nature of interventions of architectural design and transformation is related to the difficulty of combining the sometimes competing needs of the two main types of hospital users, i.e. patients and staff, which differ for their interaction with the environment along the following dimensions [6, 11].

As in the general domain of architectural design, in recent decades the field of health-care design has increasingly recognized the need for building environments which are more "user-centered" [12]. It is now widely acknowledged that places can affect people's health both by producing well-being or distress feelings and by conveying positive or negative information for people's self-esteem, security and identity [13]. Nonetheless, many researchers have lamented the lack of empirical research on the influence of health-care environments on users' wellbeing [14, 15].

So design features play a role in health recovery and time spent in hospital [11]. Consequently in building clinic and hospitals, special attention should be paid to physical standards such as temperature, rate of light, favorite ventilation, space and [16].

As suggested by many authors, a set of design attributes-such as lay-out and spatial configuration; colors and materials of furniture, walls and floors; artwork; type, quantity and focalization of natural and artificial light; kind of views inside and outside; size of windows; cleanliness; climate-should be cared for in order to satisfy fundamental users' needs [17, 18].

Authors were confident that patients can comment meaningfully on hospital environments, the quality of which affects their welfare and recovery [6]. Hutton showed that patients judged hospital on many things: 32% wanted more space; 22% more light; fresh air and cleanliness 16%; 12% referred a warm and friendly atmosphere; 9% privacy; 5% technology; and 5% wanted quieter wards. Based on Hutton's data, there is a risk that older hospitals, which are more likely to score poorly, may be disliked [19, 20].

Other concerns include the adverse effects of ward environment on job satisfaction, staff turnover, patient satisfaction and mortality and readmission rates. Well-designed, well-laid out, spacious and attractively decorated wards significantly influence not only patient welfare but also staff performance [21].

Color and design have not been established as a definite cure for sickness and ill health, but certainly monotony and poor conditions in premises that have not been refurbished with any care, have had a detrimental affect on recovery rates and staff morale [22]. Poorly maintained wards also dissatisfy patients; consequently, authors postulate that badly designed and maintained wards encourage sick rather than recovery roles. On the other hand, in addition to ward design principles (natural light, ventilation and cleanliness), Nightingale said that efficient and effective hospital wards brought together all

that was needed for patient care in one place; allowed patient-staff allocation based on patient dependency in rooms that facilitated close supervision, day and night [6].

Light and noise; patient privacy and security, shopping and dining facilities are also effective [23]. Decrease turnover time of patients is not only better for patients but also improve hospital efficiency [24].

As might be expected from a review of the hospital design literature, cost emerged not least because large capital outlays are needed to design and build hospitals. Extra costs are likely because new hospitals have to address 'consumerism criteria'. Modern hospitals have cost benefits, however. Compared to old buildings, patients in new, purpose-designed hospitals spend one fifth less time in treatment Homely environment rather than healthcare seem to be responsible. [6].

Recent developments in architectural planning and design have highlighted the importance of "humanizing" health-care contexts, in order to increase environmental quality and user's well-being [25]. Keith Hurst in 2004 added the benefits of soothing decor, meaningful and varying stimuli, peaceful sounds; odorless and pleasant views [6].

Ulrich had shown the beneficial effect of window views on recovery from surgery [7].

Infection control input is vital throughout the planning, design and building stages of a new hospital project and must continue through the commissioning (and decommissioning) process, evaluation and putting the facility into full clinical service. J.M. Stockleya showed that building design in relation to infection control needs stricter national regulations [26].

Well-designed and maintained hospitals, therefore, improve patient outcomes, lessen their insecurity and positively influence staffs' working styles, while patient satisfaction scores are likely higher [27].

Kaywanara *et al.*, evaluated physical status of pediatric wards in Isfahan hospitals with standard in 2004. He found that physical space of pediatric wards at Isfahan hospitals were appropriate [28].

Haidari *et al.*, from 2004 to 2006 codified structural standards in NICU according to global standard. Analysis showed that standards located at the appropriate and partly appropriate level. Therefore corrective suggestions were offered in order to improve standard [29].

Comparative study of the Ministry of Health (MOH) standards for hospitals with Joint Commission International hospital accreditation standards was done by Ahmadi *et al.*, in 2006. Despite of the greater quantitative aspect of the MOH's standards for hospitals

in comparison with the Joint Commission's standards, MOH's standards could not cover almost fifty percent (45.4 %) of the latter. In other words, 98 out of 216 statements of the Joint Commission have not had any equivalent in MOH's standards for hospitals. [9].

Parastesh *et al.*, studied the rate of using structural standards of emergency wards in Gylan hospitals in 2005. Data analysis showed that physical standard in 37% cases were weak and in 63% were good [30].

Tolabi *et al.*, in 2005 studied the rate of using general principles to prevent hospitals infection in Khoram Abad training hospitals. They concluded that in physical status, 47.83% of cases were in moderate level. So improving physical status can be one of the main alternatives to control hospital infection [31].

Gross *et al.*, studied the Healing Environment in Psychiatric Hospital Design in 1998. His paper discusses the positive effects of specific components on patients and staff and suggests that our model of psycho environmental approach to psychiatric hospital design can provide an important and effective tool in the pursuit of a humane, efficient containment and reduction of severe psychopathology [32].

Relation between hospital design and hospital infection was done by Michael in 2007. The present study was done at Damanhour Teaching Hospital to focus on the importance of hospital design in developing countries. Data analysis showed that hospital design in developing countries should be taken in consideration in the future for prevention and control of nosocomial infections [33].

In Iran Ministry of Health (MOH) yearly evaluates hospitals according to the up date standards. With regard to importance of this subject we tried to evaluate physical status of inpatient ward of Shiraz training hospitals, in order to improve it according to the standards.

MATERIALS AND METHODS

Shiraz University of Medical Sciences is one of the most successful universities in Iran that has 10 training hospitals. Many students graduated in Medicine and Para clinic yearly.

This was a descriptive study. Statistical sample was 3 of Shiraz training hospitals (Namazi, Shahed Faghehi and Shahed Dastgayb) that selected on Stratified Random Sampling. 26 inpatient wards were selected randomly (2 in Shahed Dastgayb, 13 in Namazi and 11 in Shahed Faghehi).

A valid and reliable checklist according to the standards that are edited by MOH and specialists in

this field, observation and interviewing by ward personnel were used for data collection. Also the checklist was developed by the researchers after reviewing literature. The checklist was included Light rate, Temperature rate, Having isolation room, Windows size, Using net in windows, Door size, Doctor room in ward, dressing room, Medication room, Clean instrument room, Utility room, Bed sheet room, Pantry, Nursing room (rest room), Store, Cloak room and Cleaning room. Data were collected personally by the researcher. Data analysis was carried out by using the statistical program packages SPSS.

RESULTS

Data analysis was showed in Table 1.

Table 1: Mean of indexes in 3 hospitals and compare with standard.

Light rate: The data showed that rate in this study were more than standard.

Temperature rate: Be more than standard. Standard temperature rate is 20-25°C.

Isolation Room: This space is used to prevent infection transmission. According to sanitary principle in preventing infection transmission especially in Hepatitis and AIDS each ward must have isolation room with complete equipment. From 78 % of wards that have isolation room only 33% of them have isolation room with complete entrance equipment. This may be related to the negligence and inattention of hospitals officer to it.

In this study from 33% of wards with standard isolation rooms only 78% were located at the front of nursing station.

Windows: From 348 windows were measured fortunately 326 cases were built according to the standards.

Using Net in Windows: From 348 cases 303 had net.

Door Size: in 3 hospitals 129 doors were checked. Width of 21% of cases were smaller than the standard size (1.1m) consequently stop bed and other equipment movement.

Doctor Room in Ward: This is important for doctors and patients welfare.

Table 1: mean of indexes in 3 hospitals and compare with standard

index	Namazi	Shahed Faghehi	Shahed Dastgayb	Total
Light rate	246 lux	209 lux	170 lux	214 lux
Temperature rate	27.36 °C	27.23 °C	26.5 °C	27.03 °C
Having isolation room	69 %	64 %	100 %	78 %
Windows size	-98 %	91 %	87 %	94 %
Using net in windows	-91 %	81 %	92 %	87 %
Door size	-67 %	100 %	100 %	79 %
Doctor room in ward	-62 %	64 %	50 %	62 %
Dressing room	-54 %	27 %	502 %	42 %
Medication room	-64 %	73 %	0 %	54 %
Clean instrument room	-64 %	69 %	100 %	69 %
Utility room	-69 %	56 %	0 %	85 %
Bed sheet room	-31 %	73 %	0 %	46 %
Pantry	-54 %	64 %	0 %	46 %
Nursing room (rest room)	-100 %	55 %	50 %	77 %
Store	-100 %	91 %	100 %	92 %
Cloak room	-38 %	45 %	0 %	38 %
Cleaning room	-77 %	36 %	50 %	58 %

Dressing Room: this place is bare of each contamination and prevents from infection transmission in hospitals.

Medication Room: In hospital, medication room is used to nurses distribute drug fast and easier.

Ward Space: Space in 3 hospitals averagely 2.6 degree of standard space. This represented dead and useless space that need man power and expenses to be sustained.

DISCUSSION

SUMS training hospitals have inpatient wards with the space more than standard rate. This leads to cost more money and human for keeping it. On the other hand officers should devote most of their time and energy in solving related problems and disregard to the main duties.

Besides, lightening large place with unfavorable building and undesirable position and side and insufficient natural light obliged hospitals to use many lamps where as inappropriate distribution without accurate computation lead to high energy consumption and more heat.

Different more light and darkness parts and hot and cold places may relate to weak ventilation systems, unfavorable building and using many lamps with unsuitable distribution. Natural and enough light, good ventilation and relation between patients and outdoor are the benefit of standard windows that make hospitals be successful in serving with best quality.

Unfortunately another problem is that designer and engineers aren't aware of therapeutic process importance and weak coordination between specialists in physician and engineering.

With regard to importance and need of specific surveillance to patients in isolation room and easier observation for nurses it must be located at front of nursing station. This has direct relationship with officer imprudence and inattention of engineers while building and nurses resistance to it because of fear from disease contagion.

Using net prevents from insect entrance and infection transmission, so rate of infection, time of bedridden and cost will decrease. If hospitals utilize specialists in related fields they will be more useful.

Inapplicable door size in Namazi hospital resulted in destruction of appliances and door frame and cost wasting and will be dangerous in emergency and firing time.

All in all, we must try more and more and plan justly to achieve to the standard. This need officers' specific attention and cooperation between team work including various specialists to pay to all aspects. With respect to the lack of human and financial resources and hospital significance, planning, designing and building must be done according to the standards and with regard to the users' need to prevent time, energy and other resources waste.

Finally, further research is needed to provide evidence regarding the relationship between building design and the prevalence of infection and other important subject.

REFERENCES

1. Sadagheyani, A., 2005. Evaluation of Health-treatment surveillances and hospital's standards, Tehran, Jafari, 2.

2. Helman, C.G., 2001. Culture, Health and Illness, London: Oxford University Press; 4.
3. Asefzadeh, S., 1990. Knowing hospitals, Tehran University.
4. Konner, M., 1993. The trouble with Medicine, London: BBC Books.
5. Baghbaneyan, A.V. *et al*, 2003. management in health and treatment field, Tehran, Gap.
6. Keith Hurst, 2008. UK ward design: Patient dependency, nursing workload, staffing and quality- an observational study, *Intl. J. Nursing Studies*, 45: 370-381.
7. Colin, M., 2000. putting patients first: integrating hospital design and care, the 2nd International Conference on Health and Design, Stockholm, Sweden, June 18-21, 356: 518.
8. Kordestani, S., 2002. shared role of development, standard and culture improvement: 162.
9. Ahmadi, M., M. Khoshgam and A. Mohammadpour, 2008. Comparative study of the Ministry of Health standards for hospitals with Joint Commission International hospital accreditation standards, *Hakim Research Journal*, 10(4): 45-52.
10. Mous, N., 2002. Association of operating room nurses medication use standards being field tested, St.Louis: Mosby.
11. Fornara, F., M. Bonaiuto and M. Bonnes, 2006. Perceived hospital environment quality indicators: A study of orthopedic units, *J. Environ. Psychol.*, 26: 321-334.
12. Gifford, R., 2002. Environmental psychology: Principles and practice, Colville, WA: Optimal Books.
13. Evans, G. And J. McCoy, 1998. when buildings don't work: The role of architecture in human health, *J. Environ. Psychol.*, 18: 85-94.
14. Nagasawa, Y., 2000. The geography of hospitals, In S. Wapner, J. Demick, T. Yamamoto, and H. Minani (Eds.), *Theoretical perspectives in environment-behavior research*, New York: Kluwer.
15. Verderber, S. and D.J. Fine, 2000. Healthcare architecture in an era of radical transformation, New Haven, CT: Yale University Press.
16. Haghani, F. *et al*, 2008. Physical Environment Status of Training Clinics in Isfahan University of Medical Sciences: An Inseparable Part of Teaching-Learning Process in Clinic, *Iranian Journal of Medical Education* 2008 Aut and 2009 Win, 8(2): 239-244.
17. Devlin, A.S. and A.B. Arneill, 2003. Healthcare environments and patient outcomes, *Environment and Behavior*, 35: 665-694.
18. Pressly, P.K. and M. Heesacker, 2001. The physical environment and counseling: A review of theory and research. *J. Counseling and Development*, 79: 148-160.
19. Nolan, A. And L. Whifield, 2005. Choose and book: by the book, *Health Service J.*, 115(5947): 4-6.
20. Hutton, A., 2005. Issues in clinical nursing: consumer perspectives in adolescent ward design, *J. Clin. Nursing*, 14: 537-545.
21. McCusker, J., N. Dendukuri, L. Cardinal, *et al.*, 2004. Nursing work environment and quality of care: differences between units at the same hospital, *Intl. J. Health Care Quality Assurance*, 17(6): 313-322.
22. Dalke Hilary, 2006. Colour and lighting in hospital design, *Optics and Laser Technol.*, 38(4-6): 343-365.
23. Lawson, B., M. Phiri and J. Wells-Thorpe, 2003. The Architectural Healthcare Environment and its Effects on Patient Health Outcomes: A Report on an NHS Estates Funded Research Project, The Stationery Office, London.
24. Hurst, K., 2005. Relationships between patient dependency, nursing workload and quality, *Intl. J. Nursing Studies*, 42: 75-84.
25. Schweitzer, M., L. Gilpin and S. Frampton, 2004. healing spaces: Elements of environmental design that make an impact on health. *The J. Alternative and Complementary Medicine*, 10: 71-83.
26. Stockley, J.M., 2006. Building new hospitals: a UK infection control perspective, *J. Hospital Infection*, 62: 285-299.
27. Dix, A., 2002. Special report, buildings: castles in the air, *Health Service J.*, 112(5801): 33-37.
28. Keyvanara, M. And L. Roholamin, 2007. Comparison of Physical Space of Pediatric Wards in Isfahan Hospitals with Standards, *Health Information Management*; 4(1): 123-132.
29. Heidari, H., 2007. Collection structure national standards in neonatal intensive care unit according to the international standards in years 2006-2007, *Ofoh Danesh*, 12(3): 22-30.
30. Parastesh, S., F. Rashedi and Z. Koshanfar, 2007. Studying rate of structural standards in emergency wards of Gyllan training hospitals in 2005, the 2nd conference of emergent medicine.
31. Tollabi, T., *et al*, 2006. studying rate of main principle in preventing hospital infection in Khoram Abad training hospitals in 2004-2005, *yafteh*, 29: 37.
32. Raz Gross, 1998. Healing Environment in Psychiatric Hospital Design, *General Hospital Psychiatry*, 20: 108-114.
33. Michael, S.E., 2007. Relation between hospital design and hospital infection, *ISH EAD 2007*, 141.