Journal of Environment and Earth Science
ISSN 2224-3216 (Paper) ISSN 2225-0948 (Online)
Vol.5, No.5, 2015
www.iiste.org

An Examination of Impact of Tertiary Healthcare Facility Design on User Needs and Satisfaction In South East Nigeria

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Abstract

The work appraises the state of tertiary healthcare facility design as they relate to user needs and satisfaction in South East Nigeria. Research has shown that tertiary healthcare facility designs impact on user needs and satisfaction. In the corporate workplace a poorly designed environment may cause dissatisfaction, poor performance, ineffective communication or contribute to relatively minor health problems. Unlike in a healthcare setting where the consequences of faulty designs can be far more serious, including death. Facility evaluations are often neglected at the design of healthcare institutions. Meeting user needs determines the degree to which facility contributes to the success of an organisation. With increased sophistication in development and user requirements, there is need for tertiary healthcare facility managers to take proactive part in the design process. Proactive facility designs require that user needs and expectations are considered and measures aimed at accomplishing them put in place. This can be done by communicating vital information to the design team and others working towards the effectiveness of the organisation. The fact that facility designs affect an organisations effectiveness and employee performance, makes it mandatory to evaluate them regularly. The consequences of faulty designs especially in healthcare institutions where human lives are at stake should be addressed.

Keywords: Evaluation, Facility Design, Tertiary Healthcare, User needs and satisfaction.

1. Introduction:

Facility management (FM) has gained greater recognition and acceptance as a significant influence upon organizational success and achievement of goal (Armstrong, 2003). Efficiency of business performance, improved quality and the ability to reach set targets are becoming familiar elements in the FM landscape. Some other issues such as the creation of an appropriate maintenance culture, in-house training, empowerment and regular feedback are of immense importance to the field of FM. The increase in competitiveness in the business sector is putting pressure on companies to cut down expenditure on non-core activities. This increased requirement for economic operation of facility has lead to the development of the FM discipline. Facility managers are expected to attain lower operational cost by efficient construction, management and maintenance of facility, without compromising their performance (Shohet, 2004).

Over the years FM has achieved significant development as a result of global trend which includes increased construction cost, greater recognition of the effects of space on productivity, performance requirements by users and owners, contemporary bureaucratic and statutory restriction and realization that the performance of facilities are greatly dependent on their proper maintenance (Barrett, 2000).

Recently, facility management is seen as an integrated approach to maintaining, improving and adapting the facility of an organization in other to create the environment that firmly supports the primary objectives of the organization. The FM role is to meet the business challenges that confront the organization it is supporting, thus striking an optimum balance between people, physical assets, workplace and technology (Barret and Baldry, 2003)

1.1 Healthcare Facility Management

Healthcare facility management is an essential element for successful delivery of healthcare services. Hospitals and healthcare facilities are among the most complex, expensive and challenging facility to manage (Loosemore and Hsin, 2001).

A hospital is a special facility owing to the fact that it operates round the clock everyday, 7 days of the week, all year round. It provides emergency, intensive and life saving care and treatment services. It requires effective support of critical infrastructure of healthcare such as power supply for operating theatres and medical gas in intensive care units. Mistakes in a hospital no matter how minor, can lead to loss of life or serious health impairment of patients. An increased requirement for functional FM in hospitals is indicated in changes in medical technology, improvement in attracting and retaining cognate professional staff (registered nurses, specialist doctors, pharmacists, anaesthetists, medical lab scientists and other health workers), a more condusive environment, a more informed and demanding patient population and data on the quality of healthcare in hospitals. These quality of care issues are central to the fundamental business enterprise of hospitals and have been linked to many different facets of facility design.

1.2 Tertiary Healthcare Facility Design

Tertiary healthcare facilities are referral centres, receiving referrals from secondary and primary healthcare centres. They provide the most specialized healthcare administered to patients with complex diseases who may require high risk medical and surgical procedures with high cost technological resource. Tertiary healthcare is provided mostly in university teaching hospitals and specialized hospitals. It requires sophisticated medical technology, multiple specialists and subspecialists, a diagnostic support group and intensive care facility. In developing countries like Nigeria, tertiary healthcare facilities are usually congested and overcrowded because of the volume of patients admitted (Oladejo, 2014). To increase the likelihood of designing facilities that will function well both for patients and staff, healthcare facility administrators and facility planners need to depend on evidence- based design. This would increase the likelihood that new facilities will generate the expected outcomes. Scholars have argued that to implement evidence-based design principles implies utilizing the “best information available from research” when making design decisions. This would in the end result in demonstrated improvements in healthcare outcomes, productivity, user satisfaction and economic performance (Marbery, 2006; Ulrich et al, 2004, Hamilton, 2003). Unlike in the corporate office sector where a poorly designed environment may cause dissatisfaction and irritation, inhibit effective communication, or contribute to relatively minor health problems, in a healthcare facility the consequences of getting the design wrong can be far more serious, including death. Different facets of healthcare facility design inadequacies are observed in multiple and single patient rooms, flooring materials that contribute to accidents, poor functioning ventilation systems, crowded medication rooms , absence of hand washing facility in patient wards, poor design and layout of nursing units that make it difficult to observe patients, inhibiting teamwork and communication. Improper location of facility and dependent units from patient rooms contribute significantly to fatigue for both patient and staff. Ulrich et al., (2004) identified over 600 studies demonstrating the impact of hospital design on outcome measures, including reduction in staff errors and stress as well as the amount of pain experienced and medication required by patients. Their conclusion proves that there is more than sufficient evidence to guide current hospital designs. The utilization of that information to improve hospital designs does have a significant impact upon patient and staff satisfaction. Oladejo (2014) asserts that great healthcare structures do not imply adequate designs that meet patient and staff (user) satisfaction. Tables 1 and 2 presents the users perception of healthcare facility design in four tertiary healthcare facilities in South East Nigeria. They are University of Nigeria Teaching Hospital, Ituku; Nnamdi Azikiwe University Teaching Hospital, Nnewi; Enugu State University Teaching Hospital, Enugu and Federal Medical Center Owerri.

Table 1 Effect of Design and Layout of Wards on Clinical Staff Performance in the Studied Tertiary Hospitals

Factors	Strongly disagree		Disagree		Neutral		Agree		Strongly Agree	
	F	%	F	%	F	%	F	%	F	%
Absence of hand washing facility	4	1.8	26	11.8	12	5.5	128	58.2	50	22.7
Nursing units that make it difficult to observe patients	5	2.3	26	11.8	11	5.0	88	40.0	90	40.9
Poorly functioning Ventilation systems	65	29.5	60	27.3	19	8.6	39	17.7	37	16.8
Flooring materials that contribute to falls	15	6.8	36	16.4	5	2.3	126	57.3	38	17.3

Authors Field Survey, 2014

F represents frequency

The design and layout of medical wards have different effects on clinical staff performance as shown in table 1. The nursing units are not strategically positioned in such a way that patients can be observed easily. This requires several trips to and from patient wards thus resulting in fatigue. The ventilation systems are most times not positioned in such a way that the patient makes the best use of it. You see very few windows and few electric fans that are still functional. The floors are usually sand screed though in few healthcare institutions the floors are finished with terazo.

Table 2 Design and Construction in the Studied Tertiary Hospitals

Factors	Grossly inadequate		Inadequate		Unsure		Adequate		Highly Adequate	
	F	%	F	%	F	%	F	%	F	%
Location of consulting rooms	33	37.9	46	52.9	3	3.4	2	2.3	3	3.4
Location of theatres	36	41.1	29	33.3	2	2.3	11	12.6	9	10.3
Location of Laboratories	34	39.1	38	43.7	2	2.3	2	3.2	11	12.3
Location of conveniences	12	13.8	39	44.8	23	26.4	7	8.0	6	6.9
Size of laboratories	39	44.5	14	16.1	2	2.3	15	17.2	17	19.5
Size of wards	38	54.7	27	31.0			16	18.4	6	6.9

Authors Field Survey, 2014

Table 2 shows that the location of consulting rooms are inadequate. The location of theatres in tertiary healthcare institutions are grossly inadequate. For example, the distance between the ante-natal ward and the location of theatres in university of Nigeria teaching hospital, Ituku is about 12 to 15 minutes ride on a wheel chair. These units are interdependent and yet too far apart. The location of laboratories are inadequate, the laboratories are very far from medical wards and the patient is responsible for collecting the result of medical tests conducted on him and presenting it to the medical team, before further medical care can be administered. The location of conveniences are inadequate, the conveniences are not proximately located for quick access from the wards. Some patients depend on wheel chairs which are not readily available to assess them. The size of laboratories are grossly inadequate, observations and walkthroughs revealed that they are small compared to the function they are expected to perform. This also accounts for long queues by patients since only few can be admitted into the laboratories at a particular time. The size of the labs also make them too congested for thorough clearing of surfaces. The size of wards are grossly inadequate considering the number of beds and the spaces in between beds.

The absence of timely evaluations to ascertain user need and satisfaction has compounded the existing problems. The stress level on patients and care givers have increased tremendously, risk levels have risen especially in the process of linking dependent units. Most tertiary healthcare facility designs did not take into consideration the

need to locate different units that depend on each other proximately to reduce the added risk and additional stress on patients who have to go up and down to get the desired services. In some cases a wheel chair is assigned to a ward with a porter to take patients to different units where they need medical care. What happens in an emergency? . In no other type of facility has design been shown through research to have significant effect on user outcomes. Adequate and functional designs are considered essential to the long-term survival and performance of healthcare organisations. For that reason, healthcare administrations need to turn to evidence-based planning and design as a means of making more informed decisions about hospital facility design that can help attract and retain medical staff, improve patient safety, reduce risk to patients , generate high levels of patient satisfaction and confidence in the quality of care provided. Patient satisfaction counts because apart from patients wellness, it has been associated with commitment to return and to recommend the hospital to others (Clark and Malone, 2006).

A good healthcare facility design and new information technologies may contribute to improved quality of care by supporting more effective communication and interaction patterns among clinical staff and patients and also among the diverse professionals that form the patient care team (Coiera 2005; Institute of medicine, 2001). Understanding how medical teams work and how to improve communication and interaction patterns whether among closely knit teams in operating theatres or among loosely-coupled clinical professionals in a medical/surgical unit, is critical in that a vast majority of hospital mishaps results from inadequate communication processes among members of healthcare teams (Coiera, 2005; Kohn et al; 1999 patient safety and clinical programme, 2005). The effect that the physical environment (e.g lack of spaces or cramped spaces, poor design and layout of medical wards or work stations and corridors) impacts on communication patterns most especially on informal communication has received very little attention. While poor physical design may constitute a barrier to team work and communication, good design of the physical environment can be an opportunity to overcome social and organizational barriers. Becker and Sims (2001) affirm that work processes benefit from a better understanding of other skills and knowledge, as well as a free exchange of information and opinions when there are more open working areas with a high degree of visual contact than more closed offices and work spaces.

Compromising user needs and satisfaction will result in the loss of patients by tertiary hospitals. Well to do individuals and senior citizens seek medical care in developed countries where the healthcare facility design suit their needs. Such persons have lost confidence in the healthcare system in Nigeria and prefer to spend huge sums of money and have satisfaction with the care provided than fall victim of inadequate healthcare facility designs within the country.

Evidence-based design is a never-ending process of knowledge acquisition. Different studies over time have built confidence in our understanding of the consequences of decisions we make regarding the planning, design and management of the built environment, especially as it affects the design of healthcare facility.

2. Role of the Facility manager in Design and Evaluation of user Needs and Satisfaction

Facility Managers are relatively new in the design process. Facility management is multidisciplinary, encompassing professionals from different backgrounds. However, unless facility managers are involved in the dynamics of the design process, clients will continue to get designs which at completion perform sub standard (Okolie, 2011). This is also seen in tertiary healthcare institutions where the facility is critical to the management of the patients. With increased sophistication in construction and user requirements, there is need for facility managers to take proactive part in the design process (Cots and Lee, 1992). Proactive facility management predict user expectations and work towards accomplishing them. Akin and brooks (2005) suggest that facility managers should have a proper understanding of user satisfaction and facility performance. It is essential that facility managers understand the intricacies of design, these include identification of systems and subsystems, development of standards and regulation of constraints (Okolie, 2011). Facilities managers ought to be knowledgeable in facility evaluation and contribute to organizational efficiency by communicating vital information to the design team and others working towards the effectiveness of the organization (Barrett and Baldry, 2003).The fact that facilities affect an organizations effectiveness and employee performance make it necessary to evaluate them on a regular basis. The consequences of poor facility management especially in healthcare institutions where human lives are at stake should be of important concern.

3. Recommendations

(i) Benchmarking should be sort with other tertiary healthcare providers that have state of the art facility and are doing exceptionally well.

(ii) Evaluation and feedback provides opportunity for organisations to see how well a building facility meets its requirements and also provides information about the kind of buildings that will be needed in the future to accommodate the organisations expected development.

(iii) Tertiary healthcare facility designers should carry out evaluation of user needs and satisfaction at the completion of a particular facility before embarking on another one to avoid having a repeat of an inherent faulty design.

(iv) Dependent units in tertiary healthcare institutions should be proximately located to reduce risk and additional stress on patients, clinical and non-clinical staff who have to walk unreasonable distances to perform their tasks.

(v) The unusually high rate of patient influx in tertiary healthcare institutions should be borne in mind when designing medical wards, laboratories, conveniences, lobbies etc. This will ensure that the facility serves a reasonable time in the future with increased population of users.

4. Conclusion

The study has established that faulty tertiary healthcare facility designs impact negatively on both patients and healthcare workers. Tertiary healthcare facility designs ought to be evaluated periodically to ensure that user needs are well taken care of and the expected satisfaction is achieved. Meeting user needs determines the degree to which a facility contributes to the success of an organisation.

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