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Architects' Perception on Spatial Design Considerations for Users in General Hospitals in Niger State Nigeria

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The goal of any building design is to meet the needs and aspirations of the end users. In the case of general hospitals, the end users are usually numerous and their needs vary, which provides a challenge for the architect. In many general hospitals in Nigeria, the client is usually the State Government and users are treated as non-existing. This lack of inclusion of the basic needs of the users usually leaves them with the singular option of trying to adapt to the building hence the volume of challenges they face. The aim of this paper is to examine the architects' perception regarding the spatial needs of the users with the view to determining how effective the methods used by architects to arrive at design decisions. The study makes use of direct observation and questionnaire in obtaining relevant data from the architects and the buildings, this was done using a post-occupancy evaluation method as the research design. The data were analysed using descriptive statistics tools such as frequency and cross tabulations of variables from SPSS and the results were presented in tables and charts. The results showed that between 67% and 91% of the architects rely on data from textbooks and basic experience to determine the spaces provided in hospitals rather than evidence of users' needs integration from field data. The results also showed that 50% of the respondents considered the time required to obtain the users data regarding needs was long and cumbersome. The study concludes by stating that, the inclusion of users' needs data in the design of general hospital will improve the users' experience in a general hospital. The study recommends that general hospitals like any other public building should be subjected to public presentations where prospective users could make inputs, which would help the architects in the final design and that, the clients should not be considered as the users of the hospitals.

Keywords: Architects, design, hospitals, needs, users

Introduction

The basic requirement for consideration in determining the success or failure of any architectural building design is its ability to meet the users' needs and aspirations. According to Uji (2002), the design process for any design starts with the identification of the users' needs, which involves the collection of data and the satisfaction of the users is the key. Zubairu (2006) and Adedayo (2013), equally stated that it was easier for architects to clearly identify the users of a building if it was a single unit of the house design, while it becomes difficult to achieve this same aim when involved public buildings. The case of general hospitals fits into the general description of public buildings because they serve different users who are from diverse parts of the community or world at large, (Miller, 1997; Mckee, and Healy 2000; Kant and Gruta, 2004; Pellitteri and Belvedere, 2010; Cooper, 2010; Scott, 2014). The needs of the users vary in term of specific function and space required to achieve the aspiration within the hospital, (Stichler, 2001; Gibson and Sierra 2006; Guiseppe and Flavia, 2012). The basic need of the users includes the pursuit for healing while those of the provider (Doctors and Nurses) is providing

the healing services all within a comfortable and functional design space. The common thing that binds these two groups of people (users and care providers) is the spatial provision allocated for the different functions required this singular goal. Scott (2014) argued that hospital is saddled with the responsibility of providing an avenue for medical and support staff to provide medical service for patients, while Cooper (2010) reported that hospitals also serve as an avenue for education and innovative research, which perhaps accounts for the growth residency programme in the medical field.

The responsibility of space provision in hospital building is that of the architect, which is usually drawn from either experience or data available in textbooks. The problem with this kind of approach is that the users are often left out of the loop in the design process, which usually has a negative effect on the users when the building is completed. According to Cornwall (2002), a space in the hospital that serves the needs of the user will go a long way in improving the cultural and emotional healing of the user, Young and Koopsen (2009), equally agree that spaces in hospitals should support the healing process of the patient such that they feel nurtured in their quest for healing. These arguments show that the need for adequate spatial consideration in hospital design is important for those involved. The question from many architects involved in the design of public buildings is how to obtain the data of end users for the buildings as this information is usually not documented. There are many methods of obtaining the users data and view about the hospital buildings either from evaluation of past hospital buildings or from public presentation of proposed designs for the future hospital, (Åstedt-Kurki, Paunonen and Lehti, 1997; Oseland, 2007; Michael, 2012; Fronczek-Munter, 2013). The challenge for the architect is in determining which option for him to select for the design as the users will always differ, however; their perception of the space might not vary that much. While the users will usually complain about the spaces provided for them in public buildings particularly when they are not considered in the design process, the architects on the other hand, will often judge the spaces and the buildings as a whole as being successful. The aim of this paper, therefore, is to examine the perception of the architects regarding the design consideration for the spatial needs of the users in a general hospital. This should help understand how the design decisions are reached and why the architects often exempt the users from its design process.

Spatial Needs in Hospitals

The basic function of the architect in the design of a hospital is to allocate spaces for specific activities within the hospital either enclosed or not enclosed. It is expected that the design should take into account three basic aspects of consideration, which include; the patient area, workers areas and the support area, (Anon, 2017). The process for determining these spaces and allocating the right size to activities is usually the key for determining the overall size of the hospital and the success of the building. In many cases, it would be observed that the nature of the hospital depended on the principle of data set used for design by architects from textbooks, which are usually not based on the users of such facilities. According to Richard (2012), the spatial needs of hospital buildings is considered equivalent to operational planning assumptions which focuses on likely activities and the volume of space that must be accommodated. It is expected that every space within the hospital be analysed to determine its adequacy for the activity to which it is allocated. The spaces usually range from operational spaces, sizes of wards, lobbies, conveniences, relaxation spaces and other supporting spaces. One of the basic functions of any government is to keep its citizens alive and ensure that they have access to good medical care when they are ill, hence according to Ahmad (2011), is an important issue to man. Yusuf (2013), argues that government is seen as the trust for healthcare provision in many developing countries such as Nigeria has seen the rise in space needs for the increased population and changing functions. In the early

development of hospital designs, it was viewed just places where basic health problems were to be solved and were usually considered as small places with few technical or clinical requirements. The designs of hospitals were seen as products of association of engineering and architects with little focus on the specific spatial needs and requirements of the users. Gormley (2010), opined that hospitals are large organisations with varied staff that offer different medical service with different degree of capacity, the activities include but not limited to; diagnosis, medical treatment, rehabilitation, surgery, treatment for both physical and mental patients, health education programmes, nursing and training and specialized care. The key thing with all these activities is that they often do not require the same space size nor description, hence; many architects choose to assume when confronted with spatial needs not captured in any textbooks for designs. The key solution would have been for them to seek the users' data to overcome these challenges. The case of general hospitals shows that they are expected to cater for all cases of medical problems even if they occur within a small scale before they are transferred to specialized hospitals. It is therefore expected that the architects and those involved in hospital design to be knowledgeable in all aspects of the general hospital functioning. It should be noted that the need for adequate space in the hospital buildings is such that it would promote good functioning for all the users in terms of the patients, their relatives and the workers (doctors, nurse and supporting staff).

Users' Spatial Needs in Hospitals

When the users of hospitals are categorized there are usually two clear distinctions within the users namely; caregivers and the care-receivers, (Kant and Gruta, 2004). The caregivers usually consist of the doctors, nurse, other medical support staff and even cleaners. These group of people use the place even though they are not ill but are saddled with the responsibility of providing services for the care receivers. The data usually available for the design of spaces for this category of users is usually available in terms of the space requirement for offices, theatre, wards and other specific spaces. It is usually difficult to describe the category of care receivers because it is often only the patients that are considered in this category, which is often incorrect as described by Edwards and Torecellini (2000). The needs of the users vary as already stated and it is established that there are design standards for the design of hospitals particularly as it affects the different machines required to be installed in the various spaces. The culture of the people is always something that appears to be left out of public building designs (Adedayo, 2015), of which hospitals are covered. According to Fronczek-Munter, Jensen, Sperschneider and Van-Meel (2016) and Reiling, Hughes, and Murphy (2008), the lack of consideration and inclusion of all users' spatial needs in the design of hospitals usually results in poor output, discomfort and stress. Equally, Ojewumi and Ojewumi (2012), argued that lack of integration of users' spatial needs in hospital buildings often results to problems that affect every user within the allotted space. Example of such problems include space overcrowding and untidy surrounding, which are easily observable in some Nigerian General hospitals. According to Pellitteri and Belvedere (2010), the value of any hospital building is its ability to meet the spatial needs, space utilisation and gives access to all users to perform their different functions. It is therefore important for the architects involved in the design of general hospitals to seek ways of ensuring that the relevant data for users' spatial needs are obtained and integrated into hospital development.

Design Process in General Hospital Design

The design process for any building starts with the identification of the user for the sole purpose of collecting data relating to the users' needs, (Uji, 2002; Adedayo, 2013). The issue with public building design process in Nigeria has to do with clear identification of the users and subsequent data collection of the users' needs. In many cases, the government or the developer is often treated as the user and it is his approval

that is often sought by the architect in design decisions. The case of General hospitals is quite similar, here the Government is seen as the client and usually, the highest-ranking officer in the health and public building department usually give approval for the design. Reiling *et al*. (2004), opined that there was need to improve the experience of patients in hospital through their inclusion in the design process. They suggested the use of small groups of users who should be led through a structured design process, which would get their views for the design. De Grey (2015), equally stated that there was a need to change the approach of designing hospital from the traditional method towards a freedom of architects being allowed to engage a client and dialoguing with the users extensively which would lead to the success of the hospital. FEMA (n.d), the design of hospitals is influenced based on the established belief that physical environment has the significant impact on the well-being of the users, hence the need for rethinking the process. It further reiterated that hospital design teams should try to ensure that it has a holistic view of the hazards that could affect the building and its occupants.

Alalouch, Aspinall and Smith, (2016), argued that in the design of hospitals architects are often confronted with different policies and requirement data with sometimes conflicting focus, structure and clarity and that the architect gets more confused when the user's requirements such as privacy are not included. It is clear from several other researches that the traditional method of designing buildings if incorporated into designing of hospitals it is bound to yield a not too satisfactory building, (Pellitteri, & Belvedere, 2010; Castro, Mateus, & Bragança, 2012; Backhaus, Yacoub, Kambaris, Wright, & Yacoub 2015). The design process in hospitals as observed in many developed countries goes to show the need for incorporation of the users' needs to ensure that the hospital is successful. The researchers have shown that the traditional process for designing other public buildings should not be applied for the hospital designs.

Research Method

A process of examining building using post-occupancy evaluation was adopted for this study because it required obtaining field data based on the use of the facility and also examining the individuals responsible for the design decisions in the General hospital development. In undertaking this study, three General hospitals were selected based on the records from the National Health Insurance records which reflected the frequency of use by patients. The selected hospitals were examined to categorise the different users' spaces and show the ones, usually provide for, in the design of these hospitals. In obtaining the data on the architects regarding their views on the spatial design considerations for the General hospitals in Niger State, reference was made to the list of registered architects in Niger State. Based on purposive sampling method, a total of thirty-six architects were selected and administered the questionnaire this sample size because the list of the architects was fluctuating. They were selected based on their involvement in the design, maintenance and teaching of architecture as it affects the design of General hospitals. It was observed that twelve (12) of the architects returned the questionnaire which formed 33.33% which is considered adequate for this study, because of the peculiar type of building being examined as General hospitals are not an everyday building constructed. The data was collated and inputted in SPSS software version 20.0 from which it was analysed using descriptive statistics tools of frequency and cross tabulation.

Findings and Discussion

Users' Spaces in General Hospitals

In examining the spaces within the General hospitals as accounted for, by the users the study categorized the users into staff and non-staff given that they all formed part of the overall users. The spaces they make use of in the hospital vary and they have different requirements hence the separation. It is common to find that the staff spaces are

usually provided for, as there is ample data available for such category (Backhaus, Yacoub, Kambaris, Wright, & Yacoub 2015), however the other non-staff are usually not as lucky as they can be observed in the general hospitals, examined as shown in Figure 1. In Table 1, it is observed that there are primary and secondary spaces used by different users, this based on the frequency of use, the functions performed and the job description of the user. The primary spaces are such that they are often job titled and there are very few cases of the crossing of such spaces between the staff. In the section of secondary spaces for the staff this happens to be a variety of spaces that serve multiple purposes such as ward and the reason for this general used space is due to the fact that these are spaces where staff usually see or attend to non-staff. These secondary spaces are usually difficult to be personalised and often present the highest challenge for the architects when designing for such spaces in the General hospital because the users' population and differences are higher. In the category of the non-staff in Table 1, it is observed that there are two categories of users here (patients, patients' relatives or visitors). There are common facilities that they share in the primary section even if it were for a few hours during the day, however there are still differences of the kitchen, laundry, which are for the relatives of the patients and ward bed spaces for the patient alone. A further examination of Table 1 shows that there are spaces that were primary to staff which are secondary to the patients and their relatives, this purely due to the average time spent in such spaces by the category of staff. The problem with these spaces in the design of hospitals is the fact that little or no attention is paid to the non-staff, when it involves the secondary spaces, as they are often inadequate when they are present as observed in Figure 2.0. The lack of provision of some of these spaces usually has a significant impact on the overall health and wellbeing of the users which is in agreement with Abbas and Ghazali (2011) as overcrowding usually becomes the order of the day for these hospitals. In trying to correct these problems when they arise it is common to see a lot of remodelling or modification of the spaces within the hospital to accommodate the needs as they arise. This practice of modification and alteration can render the General hospital complete non-function design wise. The problems observed with modification trying to solve the growing spatial demands range from stress, new illness for users, lighting and privacy, which agrees with what Ulrich and Zimring (2004) observed. The question that arises when these problems occurs is what were the architects thinking or what data did, they collect. The possible answer is quite simple the data collected never accounted for the users and even when they did the analysis of space could be faulty. In the worst case scenario, the source of the data for the design of the hospital could be foreign to the location and the culture of the users, as it is obvious from Figure 3.0. The way relatives cook and take care of the loved ones in hospital is completely different from what is accounted for in design data books for architects that are based on foreign living styles.

Figure 1: Non-Staff waiting along corridors in a General Hospital in Niger State

Figure 2: Waiting Area for visitors in a General Hospital in Niger State

Figure 3: Patient relative sleeping and cooking within an open area at a General Hospital in Niger State

Table 1: Distribution on types of Spaces Occupied by the Users

Categories of Users		
Staff	**Primary Space Used**	**Secondary Space Used**
Doctors	-Consulting room -Consulting waiting area -Office	-Ward -Toilet -Bathroom -Corridor/Lobbies -Waiting area -Courtyard -Common room -Praying area -Storage area -Facilities spaces -Circulation -Furniture spaces
Nurses	-Nurses station -Open and close store	
Non-Medical Staff	-Consulting room -Nurses station -Laundry area -General toilet -Drying of clothes	
Non-Staff		
Inpatients Outpatients	-Ward (Bed space) -Reception space -Waiting area -Clinic area -Common room -Ward (Bed space)	-Consulting room -Consulting waiting area -Nurses station -Toilet -Bathroom -Corridor/Lobbies -General toilet -Courtyard -Common room -Praying area -Storage area -Facilities spaces -Circulation -Furniture spaces -Arrangement of fittings spaces -Drying of cloth
Patient Relatives Visitor	-Reception space -Waiting area -Clinic area -Common room -Kitchen spaces -Laundry area	

Spatial Allocation for Users in General Hospital Designs

There are basic spaces expected within the hospital building and its immediate environment that is used for the different functions of the user. In any building design, the architect usually determines the spaces to be provided based on the briefing of the client and also the basic requirements for such buildings, which could be obtained from different sources. There are basic sources of data for the architect to obtain this information to help develop the design and key process usually employed is that of a case study of other similar buildings. The allocation of sizes for the spaces is such that

it can be determined by population or facilities to be included within the space. In Table 2, the list of the some of the spaces and source of basic data in allocating the spaces shows that on the average many of the architects rely on their textbooks and experience (67.82%) in determining the sizes of spaces to be allocated for different spatial needs within the hospital. The courtyard spatial allocation shows the least space governed by textbook data, which can be attributed to the fact that the sizes are usually not found in any textbook and that the nature of the activities is usually not predetermined. The heavy reliance on the users' needs and the general idea is in line with the assertions of Alalouch, Aspinall, & Smith, (2016), which indicates for successful hospital designs the data from users was important. The nurse station is the space where there is high dependency on data from textbook, which is due to the specific nature of the work and medical requirements for the nurses to oversee the others spaces where patients occupy. The kitchen aspect, which is a place expected to serve different users particularly the patients' relatives appear to have lees data (17%) being obtained from the users. Areas such as toilets, kitchen and bathrooms are areas that data should have been obtained from the users but architects have chosen to rely on textbook data more. The challenge with this approach is that it does not fit into the cultural setting in Nigerian hospitals where patients' relatives often escort the patients to use such facilities, hence the space allocated may be considered inadequate by the users as shown in Figure 4. There is a need to shift reliance from textbook sources for space allocation to that of the users' needs in order to ensure that the hospital buildings become more functional.

Table 2: Basis for allocation of spaces in hospital designs by Architects

Series No.	Spatial Needs:	Users' Needs Data	Standard Data (text books)	General Ideas	Organisation Requirements
1	Offices	33%	58%	-	9%
2	Ward	33%	58%	-	9%
3	Consulting rooms	17%	33%	-	50%
4	Toilets area	9%	50%	41%	-
5	Bathrooms area	9%	50%	41%	-
6	Laundry area	9%	50%	41%	-
7	Waiting room area	25%	41%	17%	17%
8	Common room area	17%	41%	17%	25%
9	Reception area	17%	25%	33%	25%
10	Kitchen area	17%	41%	9%	33%
11	Corridors area	9%	41%	50%	
12	Lobbies area	9%	50%	41%	-
13	Courtyard area	41%	18%	41%	-
14	Relaxation area	33%	33%	34%	-
15	Nurses station area	9%	73%	9%	9%
16	Administrative area	17%	33%	-	50%
%		**19.55%**	**43.44%**	**23.38%**	**13.63%**

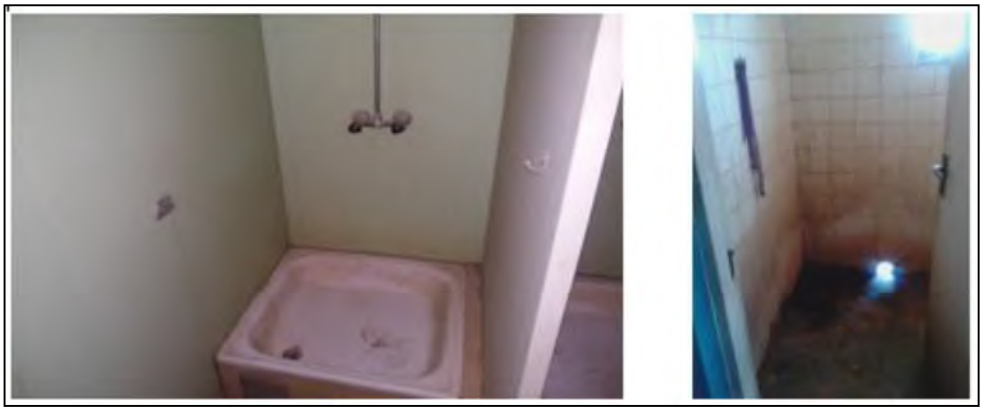

Figure 4: Example of toilet sizes provided in General hospital in Niger State

Design Population Consideration per Space Sizes

The key element for the design of spaces in any building is the users (population), which in many cases could vary. The emphasis is usually giving to activities to be performed by the user while also considering the circulation pattern within the space the essence of which is to ensure adequate space allocation to ensure good functionality. In deciding the spaces for General hospitals, the architect was asked to indicate the number of users they usually consider when deciding the space sizes in the building. In Table 3, it was observed that the traditional spaces (consulting rooms, nursing stations and bed spaces) already accounted for in many design data textbooks were kept relatively the same with the population of users with high percentages of the respondents sticking to design standards. In the case of waiting areas attached to consulting rooms, there was relatively dispersed view regarding the number of users to be accounted for, this explains why you find the same space size allocated for the consulting room waiting area regardless the number of users that have to wait for the doctors. This further explains why you will find some users standing in waiting areas while in some other waiting areas you find empty seats as seen in Figure 5. In the case of general reception space where it is difficult to determine the population, the number of users could vary widely, it can be observed from Table 3 that the 66.66% considered the 26 and above persons as best. In some general hospitals, it was observed that the reception areas where spilt based on departments. The parking areas happen to be an area where chaos usually occurs within the general hospitals as it always appears inadequate despite the 72.72% of respondents claiming to design for 51 and above users. The hospital management usually decides to restrict access for non-staff when they feel that the parking spaces can no longer support the staff need. The solution would for the architects involved in these types of designs to be forward thinking in the choice of parking design and site selection for General hospital buildings as the city grows. In Table 3, a further examination on the guiding principle for the space allocation in the ward 58.33% chose the *Sleeping Area/Small Cupboard/A Sit* option and none considered the need of the relative that usually stays with the patient in the hospital given our culture. In the design of the kitchen, which is also critical for the patients in the general hospital 58.33% of the respondents opined that the number of wards should be the basis for the kitchen size rather than the number of users likely to use it given the population which could be determined by the number of bed spaces provided.

Table 3: Number of users' consideration in the determination of spatial sizes in General hospitals

	How many people do you consider in designing: consulting room area?	
	1 Doctor	2 Doctors
Row 1	50%	50%

	How many people do you consider in designing: consulting waiting area?				
	1 - 10 Users	11 - 20 Users	21 - 30 Users	41 - 50 Users	51 and above Users
Row 2	16.67%	16.67%	33.33%	16.67%	16.67%

	How many people do you consider in designing: nurses' station and supporting area?		
	2 Nurses	3 Nurses	4 Nurses
Row 3	83.34%	8.33%	8.33%

	How many people do you consider in designing: patient bed area?		
	1 Person	2 Persons	4 Persons or More
Row 4	50%	41.67%	8.33%1

	How many people do you consider in designing: kitchen area?	
	11 - 20 Users	21 - 30 Users
Row 5	60%	40%

	How many people do you consider in designing: laundry area?		
	6 - 10 Users	11 - 15 Users	16 - 20 Users
Row 6	30%	40%	30%

	How many people do you consider in designing: common room area?				
	11 - 20 Users	21 - 30 Users	31 - 40 Users	41 - 50 Users	51 and above Users
Row 7	16.66%	25.01%	16.66%	25.01%	16.66%

	How many people do you consider in designing: waiting area?		
	21 - 30 Users	31 - 40 Users	41 - 50 Users
Row 8	41.67%	16.66%	41.67%

	How many people do you consider in designing: reception area?		
	16 - 20 Users	21 - 25 Users	26 and above Users
Row 9	16.67	16.67	66.66%

	How many people do you consider in designing: ward area?		
	6 - 10 Users	11 - 15 Users	16 - 20 Users
Row 10	41.67%	25%	33.33%

	How many people do you consider in designing: relaxation area?			
	21 - 30 Users	31 - 40 Users	41 - 50 Users	51 and above Users
Row 11	16.67%	33.33%	41.67%	8.33%

	How many people do you consider in designing: corridor area?		
	2 Persons	3 Persons	4 Persons or More
Row 12	66.66%	16.67%	16.67%

	How many people do you consider in designing: parking area?	
	41 - 50 Users	51 Users and Above
Row 13	27.28%	72.72%

	In designing patient spaces in hospitals ward, what do you consider?		
	Sleeping Area/Small Cupboard/A Sit	Sleeping Area/Small Cupboard/Staff Working Area	Sleeping Area/Staff Working Area
Row 14	58.33%	16.67%	25%

	What do you base kitchen spaces on?		
	No of Ward Provided	Users' Needs	Number of Bed spaces
Row 15	58.33%	8.33%	33.34%

Figure 5: Empty waiting area attached to the consulting room
in General hospital in Niger State

Challenge of Meeting Spatial Needs of Users in the Hospital by Architects

The issue of users' needs and provision of a spatially functional General hospital that meets such needs is a major challenge for architects in this clime as the process for achieving such appears not developed and in many cases, it is not a government requirement before the hospital plan is approved. It could be observed from Figure 6 that the respondents in responding to meeting the users' spatial needs in the hospital, 92% of them concluded that the hospital designs failed to meet the users' spatial need. This agreement shows that the issue of users' spatial needs appears to be a great challenge for the architects and when probed further some were of the opinion that the reason was due to the level of assumptions placed in determining the spaces for each function. The level of overcrowding in hospitals equally affected their assertion regarding this question. It implies therefore, that there is a need for change in traditional method applied by architects in the design of general hospitals in Nigeria towards a user data friendly approach. The major problem is usually determination of the users of the hospital and overreliance on the textbook data which is often at variance to the culture and user requirements of any given community. In examining some of the likely challenges the

architect face in satisfying users' spatial needs in hospitals, Figure 7 showed that 50% of the respondents considered that time required to source the required data for meeting users' needs to be the major challenge. This could be attributed to the period used for the design and the method required for the approval of such design in development control unit of Urban Development Boards in Nigeria. The challenge of integrating the users' needs has 34% which could be understood considering the method which the architects were trained in the universities, where many design projects were often assumed and little effort is placed on community participation. The net effect of not attempting to overcome these challenges will continue to result in General hospitals that are referred to in Figure 6.0, which according to Castro, Mateus and Bragança, (2012), will yield not satisfactory results for the users and possibly increase their stress levels.

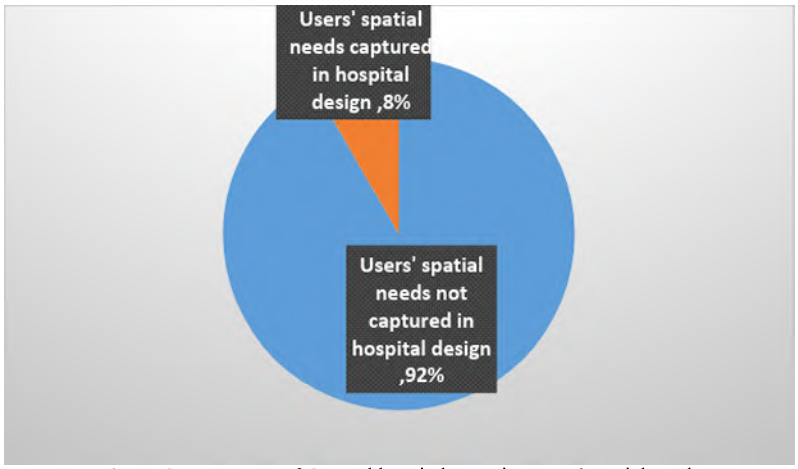

Figure 6: Perception of General hospitals meeting users' spatial needs

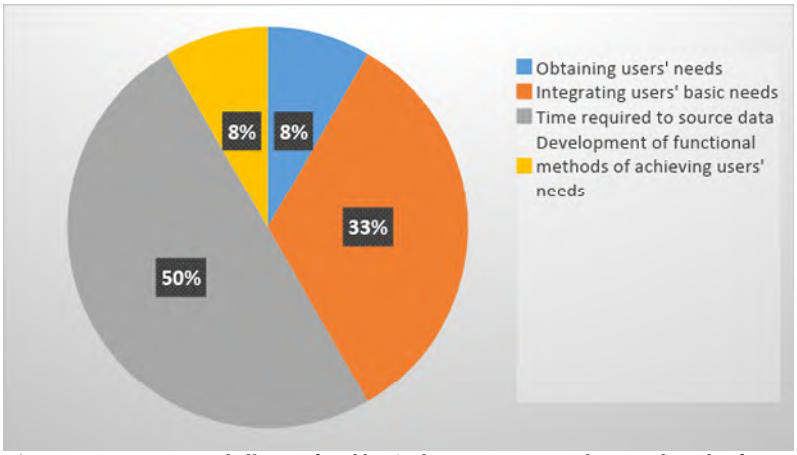

Figure 7: Perception on challenges faced by Architects in meeting the spatial needs of users

Conclusion

While it is easy to argue that users' satisfaction is relative when it is considered in public buildings where the users are not static, it is never the less important that attention should be paid towards meeting them even if it is quantitative terms. The spatial design requirements of the users in the hospital cannot be generalised neither can it be standardised in any textbook considering that culture of the people is quite different, which also affects how the users take care of their patients. It was observed in the study that the aim of the

architect is to ensure that the hospital buildings function as planned, however this is usually not the case given the nature of the hospitals after occupation which showed that the needs of the users are not met and it is in agreement with Huisman, Morales, Van Hoof and Kort (2012) and Ojewumi and Ojewumi (2012). The source of data was also quite evident as a basis for the nature of design problems that result from spatial considerations in the design of hospitals. The clear identification of the users based on their categories as stated in the study is also a key missing variable in the design of the hospital spaces given the different spaces required and the level of interaction that occurs within such spaces.

Limitation of the study regarding the registered architect's data in Niger State was such that there was no clear reliable register of such and the fact architects from across Nigeria were allowed to practice anywhere in the country made the list infinite hence the purposive method. The purposive method result cannot be generalised for application but it gives an idea of what is obtainable and this can be verified using other methods such as case studies and experimental design.

The study recommends a consistent post-occupancy evaluation of the General hospitals with the view of determining and documenting the challenges faced by the users so that such data would assist architects in future designs and modification of new and existing hospitals. The inclusion of community participation in the General hospital designs would enable architects and users develop a functional design. It was observed from the study that there is a need for change in the design process by which architects involved in the design of General hospitals in Nigeria.

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