Construction Focus, Vol. 4, No 1, (2011) 14-20

AN ASSESSMENT OF SICK BUILDING SYNDROME IN KADUNA BANKING WORKPLACES

I. H. MSHELGARU, M. DODO. AND A. B. KEMI
Department of Building, Ahmadu Bello "University, Zaria

ABSTRACT

Facility management ensures functionality of the built environment by putting process, people, place and technology into consideration. Given the importance of people as a resource to organisations, this research focused on how Sick Building Syndrome impacts on employees of the banking workplace in Kaduna. Questionnaires lvere used to collect data and the data was analysed, ranked and presented in charts and tables. Results obtained showed mental and physical fatigue, headaches, loss of concentration, aches and pains as well as hoarseness were the symptoms of sick building that abound in the banking workplaces. Subsequently, concentrations of workers, their ability to move, observe, and think while working were undermined. It is recommended that sources of Sick Building Syndrome in the workplace be seriously looked into so as to make amendments that will improve well being of people at work and ultimately ensure higher productivity.

KEYWORDS: *SickBitildingSyndrome, Workplaces,Banking,Sickness,Kaduna*

Sick Building Syndrome (SBS) is defined as a situation in which occupants of buildings experience acute health and comfort effects that are apparently linked to the time spent in a building without specific illness or cause that can be identified (Environmental Protection Agency, 1991). Apte (2000) further noted that SBS is a group of symptoms whose impact is felt specifically at work and as such is differentiated from complaints that stem from other sources which may include illnesses such as allergies, job related stress or dissatisfaction contacted outside the building (Environmental Illness Resource, 2001). Assoulin and Leong (2002) listed the usual symptoms of SBS to include headaches, runny or itchy nose, loss of concentration, itching, watery or dry eyes, dry skin, lethargy and dryness or irritation of the throat among others. These symptoms may be general too, but can be distinguished by higher occurrences in some buildings than in others (London hazards centre, 1990).

SBS associated conditions are created when buildings are operated or maintained in a manner that is inconsistent with operating procedures and are usually temporary; but in some buildings they may have long term impacts. According to Martin and Yanguas (1997) and Godish (2001), five ranges of indicators are regularly encountered in SBS environment. These indicators are Nasal, Ocular, Oroharyngeal, Cutaneous and General Manifestations leading to poor concentration and may occur singly or in combinations with each other (Jeff, 2011).

Since the official recognition and acknowledgment of SBS as a recognizable disease by the World Health Organization in 1986, there has been increasing concerns of identifying causes of SBS as well as eliminating them from buildings at all stages including design stage (Tsai and Gershwin, 2002). Marmot and Stafford (2006) reported that over the years researchers have tried to identify causes of SBS but no single cause has been identified. However, Kreiss (1990) believes that SBS may occur as the result of a combination of different factors and that the possible risk factors are poor ventilation, high or low humidity, temperature, airborne pollutants, chemical pollutants, dirt, display screen equipment, presence of ozone gas and psychological factors among others. According to the Environmental Illness resource (2001), up to 30 percent of remodelled and an unknown number of new buildings worldwide have been the subject matter of excessive complaints related to sick building syndrome. Marmot and Stafford (2006) asserts that SBS is associated with certain types of buildings and it is more evident in open plan office buildings and in buildings that house lots of people such as schools, libraries and museums; especially where there are air conditioning and automated heating and ventilating systems circulating air around the buildings (Godish, 2001).

According to Norback (2009), SBS is a poorly understood phenomenon where people in work environments have a range of non-specified building related symptoms in yet an increasing presence of electronic equipment and other factors. Though SBS is not a life threatening, it disables, leading to counterproductive activities, increased absenteeism, reduced work performance, and closure of a building and so it is an important issue to those affected (Burge, 2004). According to Kreiss Kathleen (1990) the sign of the existence of SBS can appear on their own or in combinations with each other. These signs may improve or disappear altogether after leaving the building. This research is borne out of similar concerns and complaints with respect to cases of discomfort, tiredness, frequent headaches and low performance among employees in the banking sector (Burge, 2004). This research is aimed at evaluating the symptoms and impacts of SBS on Bank employees in Kaduna metropolis with the view to making recommendations that will enhance the banking workplaces in the study area.

This research seeks to look in-depth into the concept of SBS. It seeks to answer questions

STATEMENT OF RESEARCH PROBLEM

This research seeks closely examine the concept of SBS. It seeks to answer questions regarding to the likely causes of SBS in the workplaces, symptoms of SBS and possible solutions to the problem of SBS. Sick building syndrome is a problem that affects a lot of people in the work environment but many do not know what it is. However, its effects are enormous and solutions are not readily available.

NEED FOR THE STUDY

Most people's lives are lived in offices or in various workplaces (Norback, 2009) and as such there is the need to create comfortable and healthier and more productive workplaces. Furthermore, the importance of the banking sector as a large employer of labour cannot be overemphasized in a developing economy like Nigeria. It can be inferred from relevant literature and existing research that SBS is a worldwide phenomenon and it affects the productivity of organisations and health of individuals. The study is necessitated by the growing concern over the impact of SBS on the performance of workers. This research intends to shed more light on SBS and bring to the attention of those who before now do not know much about it and its effects.

AIM AND OBJECTIVES

The aim of this study is to examine the extent and impact of Sick Building Syndrome on employees of different Banks in Kaduna metropolis with the view to improve their health and working conditions.

The objectives of the study include:

i. Exploring the concept of SBS from relevant literature
ii. Outlining the symptoms of SBS
iii. Determining the symptoms of SBS in the study area.
iv. Recommending the possible steps that can be taken to reduce SBS if found existing in the study area.

METHODOLOGY

A structured questionnaire was designed to collect information from the bank staff that carry out assignments directly in these workplaces. The questionnaire focused on the two most poignant features of SBS. (a) Commonality of the symptoms; a large number of co-workers experiencing largely the same symptoms. (b) Timing of symptoms; Symptoms generally get worse as occupants spend more time in the building and improve mostly over the weekend after some time away from the building (Jeff, 2011).

Field Survey

The major consideration in data collection for this research are size of the bank and number of staff in each bank. It has been reported (Apte, 2000; Assoulin and Leong; 2002) that certain office equipment produce pollutants which affect workers. The types of equipmment being used by the staff in the banks were also examined. This was consequently featured on the questionnaire. A number of questionnaires proportionate to number of employees in each bank were administered in order to be able to have at least 80% response from each targeted bank. This number was perceived adequate to investigate SBS with a fair outcome.

Questionnaire Design

The questionnaire was designed on five point Likert's scale: always, sometimes, occassionaly, seldom and never and it covered general and specific areas such as;

i. General data: this demanded information about gender, age, nature of job, number of hours spent at work in the banking workplace and smoking habits of each worker. This formed the foundation for the rest of the sections and the information collected.

ii. Assessment of working condition: this captured in detail the type of office equipments used by staff and the suspected causes of SBS as perceived by workers.

iii. Degree of control: how much staff have access to means of control or effect changes to regulate their work environment to suit them.

iv. Health Symptoms: checks if staff actually experience symptoms of SBS in the workplace and to what frequency and extent.

v. Effects: show the prevalence of symptoms of SBS experienced, their impact or effect on employees and activities.

Questionnaire Administration

A total of 176 questionnaires were distributed out to staff of 9 banks from which 148 were returned and collated from 72 males (51%) and 76 females (49%) . About 84.09% response was received from the respondents. Unique codes were assigned to each of the 9 banks using the first 9 letters of the alphabet, A to I. The number of questionnaires distributed to individual branches of a bank vary according to the number of staff in the branch office. The questionnaire administration selected the respondents from the basic sectional classification as Marketing, Customer Service, Accounts and Clearing, Funds transfer and Bank Operation Management sections.

Data Analysis

The data was compiled and categorised and presented as percentages and ranked according to relative importance. This enabled combinations that show percentages of staff that perceived symptoms of SBS and ranked causes and effects of the SBS.

RESULTS AND DISCUSSIONS

Distribution of questionnaires

Table 1 shows the numeric representations of the number of questionnaires issued to each bank and the number that was returned.

Table 1: Distribution of Questionnaires

Bank	Number issued	Number Returned	Percentage
A	30	23	76.7
B	20	17	85
C	35	29	82.9
D	10	9	90
E	11	11	100
F	12	10	83.3
G	12	10	83.3
H	21	18	85.7
I	25	21	84
Total	176	148	

Age and Gender of Respondents

The data were collected from 51% female and 49% male respondents. Figure 1 shows the gender distribution of the respondents in the various age groups. About 32% of the respondents were between the ages 31-40 years, out of which 53% were female and 47% were male. In addition, 45% of the respondents were of the ages between 20-30 years. These two age groups represent 77% of the total respondents. Medically and anthropologically, these two groups are generally in the best of health of the working class (Martin and Yanguas, 1997; Jeff, 2011) with limited negative personal factors.

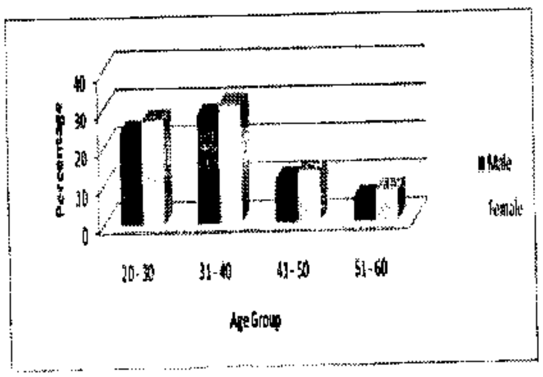

Figure 1 : Age of Respondents

There were 12% respondents between 45-50 years and only 7% between 51 and 60 years. The percentages of female and male in each age group were about 53% and 47% respectively except for 51-60 age group which was 57% and 43%. The sample is gender balanced because it shows the perceptions of the two genders on nearly equal basis.

These last two groups preclude extraordinary circumstances and are in good health but could be more susceptible to hormonal and emotional effects of menopause and popular midlife crisis (London hazards centre, 1990; Godish, 2001) which may affect their perception of the working environment. This is because SBS have non-specific symptoms that differ from one person to another (Brian and Brooks, 2008). The objectives of perception were made clear to preclude other physiological interference in order to make this research as accurate as possible. Thus, it is not likely that the results of this research significantly skewed by factors peculiar to the physiological changes of this group.

Common Departments and Nature of Work in the Banks

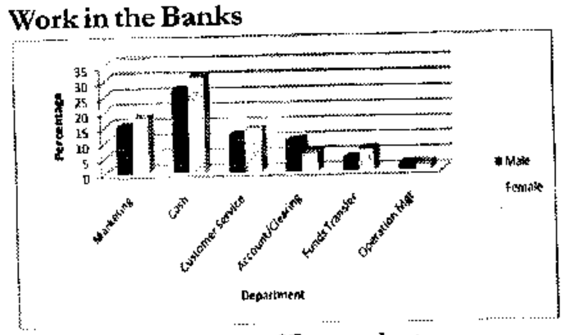

Figure 2: Designation of Respondents

The nature of work the employees are engaged in the bank sections are usually classified into 6 departments. The marketing staff who participated in the survey stood at 20% while those in other departments whose works were basically office based; were 37% Cash, 16 % Customer Service, 10% Accounts and clearing, 6% Funds Transfer and 11% Bank Operation(s) management.

The nature of work and conditions of work environment influence how the impact of sick building on employees will be (Burge, 2004). For instance, those in marketing department apparently spend less time in the bank building compared with those in other departments and should consequently feel less of the impact than others. This however, indicates the importance of the responses from this group. There seems to be sense of sincerity in their perception because they were less subjected to sensory habituation.

Average Number of Hours Spent in the Bank Building

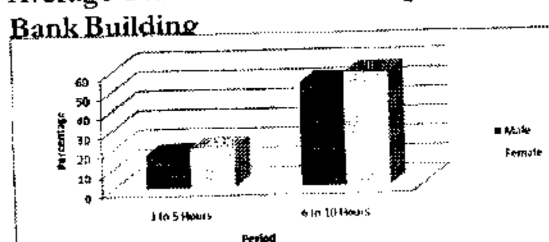

Figure 3: Average Hours Spent in the Workplace

About 11% of the respondents who were

males and 14% females spent one to five hours daily in Bank Building while 39% and 36% of the respondents who were females and males respectively spent six to ten hours a day. Seventy percent of the workers worked more than six hours in the office while only 20% worked less than five hours. The length of time spent in the work environment determined how much symptoms of SBS were perceived (Burge, 2004) and in the long run the effects on the employees and their activities. Those who work longer hours in the office evidently experience more effects of SBS on their work

Existence of Sick Building Syndrome Related Equipment in the Workplaces.

The equipment available in the office varies in number and type. Ninety five percent of the staff use photocopiers, 33% use scanners, 100% of them use computers, 88% use printers, 30% use strapping machines, 34% use counting machines, 37% use mecury lights and 8% use encoders on nearly daily basis. The computers are known to be less hazardous (Burge, 2004), but due to occupational stresses using them leads to discomfort and headache to most staff.

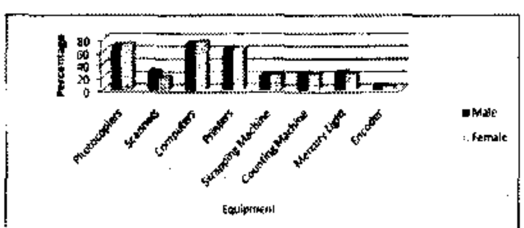

Figure 4: Office Equipment in Use

The Counting and strapping machine is hazardous, because it gives off dust and fumes. About 37% of the respondents use it. The photocopier and printer also give off ozone (Brian and Brooks, 2008) and were frequently used by almost all the staff.

Presence of Sources of Sick Building Syndrome in the Banking Workplaces

The possible causes of SBS investigated and ranked in the bank buildings included; stuffiness, unpleasant odours and inadequate space among others. On always and sometimes bases, too hot, stuffiness, too cold, inadequate space and unpleasant odours were the most frequently perceived situations.

Control over Sick Building Syndrome Conditions in the Workspaces

The degree of control employees have over their personal workspaces determined how comfortable they were (Apte, 2000; Burge, 2004). Therefore, there arose the need to assess the ability of the workers to regulate the four major factors relating to sources of SBS. Table 3 shows that most of the workers did not have control over these factors. They relatively had less control on noise and temperature in the workplaces and it means the conditions are set by operators who do not themselves use the bank buildings as workspaces.

Health Symptoms of Sick Building Syndrome in the Banking Workplaces

Table 4 presents ranking of the commonly experienced symptoms of SBS in the banking workplaces. Mental and physical fatigue, headaches, loss of concentration, aches and pains and hoarseness were the most frequently perceived symptoms.

The effects of the SBS differ from one person to another but the effects become clearer and when they impact workers activities. It is noted from Table 5 that appreciable number of workers did perceive the effects on their movement, observation, concentration and thinking while discharging their duties. These effects can directly be linked to drop in performance.

CONCLUSION

Mental and physical fatigue, headaches, loss of concentration, aches and pains and hoarseness were the most common SBS symptoms identified that signified the presence of SBS in the banking workplaces in Kaduna metropolis. The bank staff working in these workplaces confirmed the effects of the SBS symptoms on movement, observation, concentration and thinking capabilities while carrying out their duties.

Table 2: Likely Causes of Sick Building Syndromes in the Banks

s/no	SBS Causes	Response 5	4	3	2	1	Σf	Σfx	Mean (x)	RII	Ranking
1	Stuffiness	36	40	47	22	3	148	527	3.56	0.71	2
2	Too Airy	0	0	15	44	89	148	222	1.50	0.30	11
3	Too Dry Air	0	0	10	34	104	148	202	1.36	0.27	12
4	Too Cold	15	65	38	12	18	148	481	3.25	0.65	3
5	Too Hot	40	49	33	15	12	148	536	3.62	0.72	1
6	Too Dim	1	12	10	46	78	148	253	1.71	0.34	10
7	Too Bright	0	0	0	49	99	148	197	1.33	0.27	12
8	Too Noisy	12	30	28	40	38	148	379	2.56	0.51	7
9	Too Quiet	9	6	19	49	65	148	289	1.95	0.39	8
10	Smoky	0	0	0	1	147	148	149	1.01	0.20	14
11	Unpleasant Odors	10	38	44	27	28	148	416	2.81	0.56	5
12	Dirty Environment	18	24	33	44	30	148	403	2.72	0.54	6
13	Inadequate Space	36	12	36	44	21	148	445	3.01	0.60	4
14	Dampness	0	12	6	61	70	148	257	1.74	0.35	9

5=always, 4=sometimes, 3=occassionaly, 2=seldom and 1=never

Table 3: Degree of Control over Workspace Settings

S/No	Issues	Factors 1	2	3	Σf	Σfx	Mean (x)	RII	Ranking
1	Temperature	84	49	15	148	226	1.53	0.51	2
2	Ventilation	133	15	0	148	163	1.10	0.37	4
3	Lighting	118	19	10	148	188	1.27	0.42	3
4	Noise	77	40	31	148	250	1.69	0.56	1

Table 4: Perceived SBS Health Symptoms in the Workplaces

s/no	Symptoms	Response 5	4	3	2	1	? f	? fx	Mean (x)	RII	Ranking
1	Eye irritation	0	4	6	28	83	148	121	0.82	0.16	10
2	Throat dryness	7	6	15	20	82	148	130	0.88	0.17	9
3	Dry skin	3	6	24	18	81	148	132	0.89	0.18	8
4	Itching	10	12	21	32	72	148	147	0.99	0.20	6
5	Skin rashes	0	4	12	8	91	148	115	0.78	0.16	10
6	Drowsiness	0	4	6	8	93	148	111	0.75	0.15	12
7	Headaches	295	60	33	18	6	148	412	2.78	0.55	2
8	Nausea	0	4	0	4	97	148	105	0.71	0.14	14
9	Mental and physical Fatigue	330	36	27	12	10	148	415	2.80	0.56	1
10	Dizziness	0	0	0	6	97	148	103	0.70	0.14	14
11	Cough	15	4	24	12	82	148	137	0.93	0.19	7
12	Chest pain	0	0	0	2	99	148	101	0.68	0.13	16
13	Runny nose	0	8	3	12	91	148	114	0.77	0.15	12
14	Loss of concentration	280	56	30	14	13	148	393	2.66	0.53	3
15	Hoarseness	0	16	18	56	83	148	173	1.17	0.23	5
16	Asthma	0	0	0	0	100	148	100	0.68	0.13	16
17	Aches and pains	260	56	45	20	9	148	390	2.64	0.53	3

5=always, 4=sometimes, 3=occassionaly, 2=seldom and 1=never

RECOMMENDATIONS

The study has established the presence of SBS in the bank buildings which had effects on the employees' performance. Therefore, it is recommended that;

(i) Standards be laid with respect to material used in bank buildings, ventilation and use of space that will eliminate substandard work conditions.

(ii) Good designs that enhance indoor conditions which will eliminate sources of SBS should be insisted on.

Table 5: Effects of Sick Building Syndrome on Bank Workers' Activities

S/no	Symptoms	Response					Σf	Σfx	Mean (x)	RII	Ranking
		5	4	3	2	1					
1	Movement	275	64	33	16	10	148	398	2.69	0.54	2
2	Typing	95	108	6	6	49	148	264	1.78	0.36	6
3	Thinking	280	56	27	14	14	148	391	2.64	0.53	3
4	Communication	120	56	36	16	42	148	270	1.82	0.37	5
5	Concentration	290	64	33	18	6	148	411	2.78	0.56	1
6	Writing	0	16	0	10	91	148	117	0.79	0.16	9
7	Socializing	0	0	0	22	89	148	111	0.75	0.15	11
8	Counting	130	56	0	2	59	148	247	1.67	0.33	7
9	Observation	265	88	15	4	18	148	390	2.64	0.53	3
10	Eating	0	4	9	12	90	148	115	0.78	0.16	9
11	Drinking	5	24	39	16	72	148	156	1.05	0.21	8

5=always, 4=sometimes, 3=occassionaly, 2=seldom and 1=never

(iii) Workers be allowed to regulate working conditions that suit them.

(v) SBS management departments that will assess, monitor and control SBS in the workplaces and restore any lapse that may develop should be established.

REFERENCES

Apte, M.G., Fisk, W.J., Daisey, J.M. (2000): "Associations Between Indoor Co_2 Concentrations and Sick Building Syndrome Symptoms". Pp246-57

Assoulin, D.Y. and Leong, A. (2002): "Studies of Sick Building Syndrome Mycotoxicosis" Pp191-201

Brian, A. & Adrian, B. (2008): "Total Facilities Management". Pp 122-123

Burge, P.S. (2004): "Sick Building Syndrome. Occupational Environment".Pp185-90

Environmental Illness Resource (2001): "Sick Building Syndrome related Conditions".www.patient.co.uk. Accessed 5 November 2010

Godish, T. (2001): "Indoor Environmental Quality". New York CRC press. Pp 196-197

Jeff, D. (2011): "How to Avoid Sick Building Syndrome". www.safeworkers.co.uk. Accessed September 2010

Kreiss, K. (1990): "The Sick Building Syndrome: where is the epidemiologic basis?" American journal of public health. Pp 1172-73

London Hazards Centre (1990): "Sick Building Syndrome - causes, effects and control". Pp 213

Martin, J. and Yanguas, M. (1997): "Outcomes of Research into a Sick Hospital". Hospital Management international. Sterling publications limited. Pp 80-82

Marmot, A.F., Eley, J. and Stafford, M. (2006): "Building Health: an epidemiological study Of Sick Building Syndrome". Pp 283-9

National Health Service (1997): http://www.nhs.uk/condition/sick building syndrome

Norback, D. (2009): "An update on Sick Building Syndrome". www.patient.co.uk. Accessed 11December 2010

Tsai, Y.J. and Gershwin, M.E. (2002): "The Sick Building Syndrome: what is it, when it is?" Pp140-4

Environmental Protection Agency (1991): Indoor Air Facts. No 4 (revised) United States of America. http://epa.gov/iaq/pubs/sbs.html. Accessed 12 March 2011