

The prevalence of hypertension and its modifiable risk factors among lecturers of a medical school in Port Harcourt, south-south Nigeria: Implications for control effort

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Abstract

Background: Hypertension and other noncommunicable diseases are currently responsible for at least 20% of all deaths in Nigeria, and constitute up to 60% of the patients admitted into the medical wards of most tertiary hospitals in Nigeria. Yet, the treatment outcomes for the diseases have remained very poor, prompting calls for better patient education. It has however been established that the effectiveness of patient education is linked to the healthy habits of the doctor. This study was conducted to find out the prevalence of hypertension and its modifiable risk factors among the lecturers of the University of Port Harcourt Medical School.

Materials and Methods: A descriptive cross-sectional study design was used, with the data collected using a modified form of the WHO STEPS instrument that consists of a questionnaire component and the measurement of body mass index (BMI) and blood pressure. The questionnaire was used to collect information on the sociodemographic characteristics of the respondents, the use of tobacco, the consumption of alcohol, the type of diet, and the amount and types of physical activities undertaken.

Results: A total of 75 lecturers participated fully in the study, out of an eligible total of 109. They were mostly males (65.33%), married (88.33%), and had an average age of 46.06 ± 9.62 years. The prevalence of hypertension was 21.33%; out of which 12 (75.00%) were already aware of their status, and were on appropriate therapy. Only 13 (17.33%) of the lecturers were of normal weight, 45 (60.00%) were overweight, while 17 (22.67%) were obese. Only 2 (2.67%) currently smoke, while most (94.67%) drank less than three standard units of alcohol in a day, mainly in social occasions.

Conclusion: The prevalence of hypertension among the lecturers in the medical school was lower than that in the general population, mainly due to their better health-seeking behavior and healthy lifestyle.

Key words: Epidemiological transition, hypertension, medical lecturers, modifiable risk factors, Nigeria, Port Harcourt

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Introduction

More than 30 years ago, Omran had in a series of articles proposed the epidemiological transition theory.^[1] In this theory, he predicted the displacement of infectious diseases by noncommunicable diseases, as major causes of morbidity and mortality, as a community or country develops. This theory has since been confirmed in most countries of the world, including Nigeria.^[2-7] Several community surveys

indicate that the prevalence of hypertension in Nigeria has increased from 11.2% in the 1990s^[3] to 27.9% in 2010 in a rural community in the Niger delta,^[4] and 22.6% in 2009 among a suburban Christian community in south-west Nigeria.^[5] Noncommunicable diseases are also currently

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responsible for at least 20% of all deaths in Nigeria,^[6] and constitute up to 60% of the patients admitted into the medical wards of most tertiary hospitals in Nigeria.^[7]

In spite of these increases, the treatment outcomes for the noncommunicable diseases, in even the best tertiary hospitals in Nigeria, have remained very poor. For instance, good hypertension control could only be achieved for just 24.2% of the patients seen in a clinic in Port Harcourt;^[8] as much as 25.3% of all patients admitted into the medical ward of a hospital in Kano die,^[9] while up to 45% of patients admitted for hypertension-related illness in Enugu are likely to die.^[10] These gloomy statistics call for urgent action, especially as the WHO has projected a further 24% increase in the prevalence of noncommunicable diseases in Nigeria, in the next 10 years.^[6]

The poor treatment outcome for noncommunicable diseases is however recognized globally, and has prompted the WHO to propose a paradigm shift in health care delivery, in favor of preventive and more proactive healthcare, through its innovative care for chronic condition (ICCC) framework.^[11] This framework called for the education of patients and other members of the community, especially as the risk factors of the noncommunicable diseases are often lifestyle related.

Patient education by physicians and other members of the health team form an important part of this WHO recommendation. For example, the brief advice and counseling delivered by a physician or nurse practitioner, as part of routine primary care, can significantly reduce the amount of alcohol consumed by high-risk drinkers,^[12] while a study in Lagos was able to achieve a 64% increase in hypertension control through the counseling of market women.^[13]

The effectiveness of patient education efforts can however be adversely affected by the lifestyle of the attending physician.^[14-16] Studies in the United States indicate that doctors who have healthy personal habits are more likely to discuss related preventive health behaviors with their patients;^[14,16] while patients are more likely to believe and be motivated by the message given by a physician, if the physician discloses his/her own personal health habits.^[15]

This study was conducted to determine the prevalence of hypertension and its modifiable risk factors among the lecturers of the University of Port Harcourt Medical School. Lecturers in a medical school were chosen for this study not only because they are the leaders of the health team in their respective specialties, but also because they are the teachers of the next generation of medical doctors. A study had found that the emphasis placed during medical education often influence the lifestyle and future practice of a doctor.^[14] The findings of this study would therefore not only provide information on the effectiveness of the current management of chronic diseases in Nigeria, but can also assist in predicting the vigor with which future control efforts would be carried out.

Materials and Methods

A descriptive cross-sectional study design was used, while the medically qualified lecturers of the University of Port Harcourt medical school, who also hold the post of medical consultants in the University of Port Harcourt Teaching Hospital, were used as the study population. Both institutions are owned by the federal government of Nigeria, but primarily sited to take care of the educational and medical needs of the people of Rivers State, one of the States in the Niger delta region of Nigeria.

The study was designed to detect a 5% difference in prevalence of hypertension, with an alpha error of 5%, acceptable beta error of 20%, and a statistical power of 80%; while the estimated prevalence of hypertension in the study population was put at 27.9%.^[14] Using the usual formula for sample size determination for studying proportions in populations of less than 10,000, the minimum required sample size was determined to be 75.

The subjects for the study were randomly chosen from a list of 109 lecturers, obtained from the two institutions, while the data were collected using a modified form of the WHO STEPS instrument for chronic disease risk factor surveillance, that consist of a questionnaire component and physical measurement.^[17]

The questionnaire was structured, self-administered, and used to collect information on the sociodemographic characteristics of the respondents, the use of tobacco, the consumption of alcohol, the type of diet, the amount and types of physical activities undertaken by the respondents, and the history of raised blood pressure.

The physical measurements include the measurement of weight, height, and blood pressure. Weight was measured to the nearest 0.1 kg, using a portable weighing scale, while height was measured to the nearest 0.5 cm, using a stadiometer. The body mass index (BMI) for each of the subjects was then calculated from weight (in kilogram), divided by a square of the height (in meter); and classified as obese when the BMI was greater or equal to 30, overweight when the BMI was between 25.0 and 29.9, normal weight when the BMI was between 18.5 and 24.9, and underweight when the BMI was less than 18.5.

The blood pressure was measured in the sitting position, using a mercury sphygmomanometer with the appropriate size of cuff; and standard measures were taken to ensure accuracy. The systolic blood pressure was recorded at phase I Korotkoff sounds, while the diastolic blood pressure was recorded at phase V Korotkoff sounds. Three consecutive measurements were taken at an interval of at least three minutes, but only the second and third measurements were used in calculating the mean systolic and diastolic blood

pressures that serve as the blood pressure of the subject. The subjects were said to be hypertensive according the WHO/ISH criteria, when their mean systolic blood pressure were greater than or equal to 140 mmHg, and/or when their mean diastolic blood pressure was greater or equal to 90 mmHg.

Results

A total of 100 lecturers were approached for the study, but only 75 responded to the questionnaire, and also made themselves available for the physical measurements. This gives a response rate of 75.00%. Of the 75 lecturers that were studied, 26 (34.67%) were female, while 49 (65.33%) were male, and had an average age of 46.06 ± 9.62 years. Most 64 (88.33%) of the lecturers were married, 6 (8.00%) were never married, 2 (2.67%) were divorced, while 3 (4.00%) were widowed.

The prevalence of hypertension among the lecturers was 21.33%, as a total of 16 of them, 12 males (75.00%), 4 females (25.00%) were found to be hypertensive. Out of the 16 lecturers that were found to be hypertensive, 12 (75.00%) were already aware of their status, and were already on drug therapy and reduced salt intake. Four (25.00%) of the hypertensive lecturers were also diabetic, and were on drugs and prescribed diet.

Only 13 (17.33%) of the lecturers were of normal weight, 45 (60.00%) were overweight, 17 (22.67%) were obese, while none was underweight. The lecturers ate an average of 6.34 ± 2.15 meals per week that were prepared outside their home; all of them went to work with their personal vehicle, while 51 (68.00%) regularly engage in some form of physical exercises, like jogging, brisk walking and aerobics.

Some 11 (14.67%) of the lecturers had previously smoked cigarette, but only 2 (2.67%) still smoke an average of six sticks of cigarette daily, mainly outside the hospital, and at home. All the lecturers had taken an alcoholic drink within the preceding 12 months, mainly in social occasions (92.00%), and less than three standard units (94.67%). Most 40 (53.33%) of the lecturers took an alcoholic drink monthly, 21 (28.00%) 2-3 times in a month, 11 (14.67%) drank alcohol weekly, while 3 (4.00%) took alcohol every day.

Discussion

The subjects of our study had an average age of 46.06 ± 9.62 years, and a prevalence of hypertension of 21.33%. This is much lower than the prevalence in the general population in the urban centers of Nigeria,^[18] but consistent with the prevalence in the rural^[4,19] and semiurban communities^[5] of southern Nigeria that were mainly populated by farmers, fisherfolks, traders, and artisans. A 2003 study carried in urban Lagos^[18] had recorded a prevalence of hypertension of 44.3%, while the prevalence in rural communities in Rivers

State^[4] and Edo State^[19] were 27.9% and 20.2% respectively. The lower prevalence of hypertension recorded in our study might be due to the better health-seeking behavior of the medical lecturers,^[20] especially as 75% of those that were found to be hypertensive were already aware of their condition, and had taken concrete steps to control the hypertension. This is much higher than the 18.5% awareness recorded in a rural community in Edo State.^[19]

Also, the fact that only 2.67% of the lecturers were smokers, coupled with the finding that most of them drank less than three standard units of alcohol a day, might also be responsible for the lower prevalence of hypertension among the lecturers. The use of alcohol and the smoking of cigarette by the lecturers was much lower than that in the general population. The prevalence of smoking among the respondents of the Lagos study^[18] was 9.9%, while close to half of them drank more than three units of alcohol daily. Also, a study conducted in a rural community close to the University of Port Harcourt medical school, recorded a 33% prevalence of harmful drinking among members of the community, with 12.73% of them classified as having alcohol dependence problem.^[21] Studies have demonstrated a direct relationship between alcohol intake and the elevation of blood pressure,^[22] while cigarette smoking is said to be responsible for at least 12% of all vascular diseases, including hypertension.^[2]

The good health-seeking behavior of the subjects of our study and their healthy lifestyle are the essential ingredients required in every doctor, by the WHO's Innovative Care for Chronic Condition (ICCC) framework,^[11] for the successful management of hypertension and other noncommunicable diseases. Healthy lifestyle particularly needs to be encouraged among doctors, especially as the prevalence of smoking among medical students is often similar to those of the general population, according to the Global Health Professions Student Survey (GHPSS).^[23] It is also necessary to correct the impression in certain quarters that a doctor needs to drink alcohol and/or smoke cigarette to cope with the stress of medical practice.^[24] The importance of ensuring that doctors have good health habits is reflected in the number of studies that show a positive relationship between physician's healthy habits and effective management of patients with noncommunicable diseases.^[14,16] The desire to be a good role model for patients and children was one of the main reasons given by several health workers in the United States for quitting smoking.^[25] Similar pressures should be exerted on doctors in Nigeria, even from medical school to achieve the same effect.

Our study also found that more than 80% of the subjects were either overweight or obese. This is much higher than the 39.6% found in the Lagos study,^[18] and the 47.5% recorded in a rural community in Rivers State.^[4] The weight problem of the subjects in our study was in spite of the fact

that 68% of them regularly engaged in some form of physical exercise, but it is however not completely unexpected, considering the high socioeconomic status of the subjects, and the fact that they ate on a daily basis, an average of one meal that was not prepared at home. Although overweight and obesity are established risk factors for hypertension and other noncommunicable diseases,^[2] weight control has been a contentious issue in Nigeria and other African countries where overweight is still being viewed as sign of affluence, while weight loss is often associated with HIV infection.^[26]

However, the fact that 68% of the subjects in our study exercised regularly shows that they were well aware of their weight problem, and the health risks associated with it, in spite of the conflicting cultural reasons. This is higher than the proportion that regularly exercised in the Lagos study,^[18] and can be viewed as a reflection of the greater relevant knowledge possessed by the subjects of our study. Studies have shown that there is a positive relationship between education and the body size dissatisfaction that often triggers actions aimed at weight control.^[27] This further highlights the need to properly educate the general public to take action against the escalating obesity epidemic, especially as studies done in developed countries have linked weight problems to restricted knowledge, lower valuation of weight control, and cultural standards of physical attractiveness.^[28] The importance of education and counseling has also been demonstrated in other aspects of the management of hypertension. Amira and Okubadejo^[20] had found that 60% of the noncompliance to antihypertensive drug therapy was related to the attitudes and beliefs of the patients, which can be improved with education and counseling; while Busari *et al* were able to achieve a 64% increase in hypertension control through the counseling of market women.^[13]

Conclusion

The prevalence of hypertension among the lecturers in the medical school was lower than that in the general population in the urban centers, but consistent with that in the rural communities of Nigeria. This can be attributed to the better health-seeking behavior of the lecturers, and their healthy lifestyle. These need to be encouraged among doctors, considering the positive relationship between the physician's personal health habits and the effective management of patients with noncommunicable diseases.

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Quality of care at a pediatric dental clinic in Ibadan, Nigeria

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Abstract

Background: The quality of healthcare has become a topical issue in recent years and the introduction of quality assurance that constitute some of the tools for change is now an important development in healthcare practice.

Objectives: This study aims at evaluating the quality of care provided at the Paediatric Dental Clinic of the University College Hospital (UCH), Ibadan.

Materials and Methods: A descriptive study was conducted among 141 parents of children who attended the clinic over a 3-month period using a modified quality of care questionnaire by Ygge and Arnetz (2001).

Results: Majority of the parents (93.6%) were pleased with the registration process, while 81.6% and 66.7% were satisfied with the waiting arrangements and social amenities such as light and water respectively. Ratings of the quality of care indices revealed that 50.4% and 41.1% of the parents were happy with the information process and accessibility respectively. Over 80.0% of the respondents were pleased to a great degree with the dental treatment their children received. However, 44 (31.2%) said that they felt that they could not especially/not at all contact their dentist by telephone. About a fifth, (21.2%), felt they had not especially/not at all received information about how to prevent their child's dental problem. Inability of the dentists to introduce themselves was reported by 56.8% of the parents. The mean waiting time spent before being attended was 64.9 minutes while the desired average waiting time was 20.1 minutes.

Conclusion: Parents were extremely satisfied with the dental treatment their children received at the UCH and had great confidence in staff competence even though they complained of long waiting time. However, there is a communication gap between the dentist, patients, and parents, since some of the dentists failed to introduce themselves and give information on prevention of dental diseases. For this reason, patients' appointments should be spread out to reduce waiting time. Furthermore, staff should introduce themselves and efforts must be made to improve health education given to parents. The dental curriculum should emphasize patient–dentist relationships.

Key words: Child, pediatric dental clinic, quality of care

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Introduction

The quality of healthcare has become a topical issue in recent years and pressure is increasing for a change in the healthcare delivery system in many countries.^[1] The introduction of quality assurance and medical audit constitutes some of the tools for the change and is now an important development in healthcare.

Patient satisfaction has become an accepted indicator of quality of care today.^[2,3] However, for patient populations such as small children or elderly individuals with mental impairment who may have difficulties in expressing their views directly, the view of close relatives usually takes precedence.

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Parental satisfaction with pediatric services^[4,5] and pediatric dental care^[6,7] has been the subject of a number of studies. Literature on quality of care of pediatric dental services in Nigeria appears scarce. This study aims at evaluating parental satisfaction with services provided at the Paediatric Dental Clinic of the University College Hospital (UCH), Ibadan, Nigeria.

Materials and Methods

The study was conducted at the Dental Clinic, University College Hospital, a teaching hospital in Ibadan, Southwestern Nigeria. All parents, of children who attended the clinic over a 3-month period consenting to fill the questionnaires, participated in the study.

A 48-item questionnaire was developed which was a modification of the quality of the pediatric care questionnaire by Ygge and Arnetz.^[4] The original questionnaire was modified based on the culture and local environment of the study site.

Basic demographic data were collected and the parents were asked if they had previous contacts with the dental clinic. The study instrument sought to enquire about the quality of care received and items were grouped under the following domains: Information (3 items), accessibility (4 items), dental treatment (4 items), caring process (6 items), staff attitudes (4 items), participation (3 items), staff work environment (5 items), and satisfaction with associated services and facilities (8 items).

A social class was determined by using the three category version of the National Statistics Socioeconomic Classification.^[8] The dental treatment received was a one-visit treatment. The parents scored their overall rating of quality of care at the dental clinic using a visual analog scale from 1 to 10.^[9] The final question asked them to offer suggestions for improved services at the clinic.

The level of satisfaction of the various items was evaluated using a 4-point Likert-type scale (yes to great degree, yes to a certain degree, no not especially and no not at all). Each item was scored and higher scores indicated greater satisfaction. Scores were grouped into percentiles and they were used to grade performance under each domain into "good," "fair," and "poor."

The developed questionnaire was given to three dentists at the Dental Clinic UCH, Ibadan, who read through to evaluate for clarity, ambiguity, and appropriateness to the objectives of the study. The questionnaire was pretested among 10 parents who brought children to the clinic.

Computer data entry was done after the required number of questionnaires had been collected. Statistical analysis

was done using the statistical package SPSS 15. Reliability estimates were obtained using Cronbachs alpha.

Results

A total of 149 questionnaires were filled but 8 were discarded due to missing information. Cronbachs alpha was 0.773.

Many of the respondents 85 (60.3%) were between 30 years and 39 years of age. Twenty-three (16.3%) of them were under 30 years of age while 33 (23.4%) were 40 years and above. Majority of the parents 134 (95.0%) were females while only seven (5.0%) were males. Forty-one (29.1%) of the respondents belonged to the high social class. Sixty-seven (47.5%) and 33 (23.4%) of them were in the middle and lower social classes respectively. Majority of the respondents 94 (66.7%) had children between 7 years and 12 years while 15.6% and 17.7% had children between 1–6 years and 13–15 years, respectively. Seventy-four (52.5%) of the respondents were first timers to the dental clinic [Table 1].

Many of the parents, 132 (93.6%) were satisfied with the registration process while 115 (81.6%) and 94 (66.7%) were pleased with the waiting arrangements and social amenities such as light and water respectively [Table 2].

The mean waiting time that parents claimed they spent before being attended in the pediatric dentistry clinic was 64.9 ± 35.8 minutes while the average waiting time desired was 20.1 ± 10.2 minutes and the difference was significant

Table 1: Characteristics of parent groups

Variable	Number	%
Age of parents		
<30	23	16.3
30–39	85	60.3
>39	33	23.4
Age groups of children (years)		
<7	22	15.6
7–12	94	66.7
>12	25	17.7
Type of contact with hospital (Previous visits)		
Yes	67	47.5
No	74	52.5
Level of education		
No formal education	8	5.7
Primary school	20	14.2
Secondary	25	17.7
University	88	62.4
Socioeconomic status		
High	41	29.1
Middle	67	47.5
Low	33	23.4

($P=0.04$). Thirty-five (24.8%) of the respondents said that the waiting time they spent before seeing the dentist was too long.

Scores regarding information showed that half (50.4%) of the parents were pleased with the information process Figure 1, while a fifth (21.2%) felt that they had not especially/not at all received information about how to prevent their child’s dental problem [Table 3]. A total of 45% of respondents with primary education in comparison

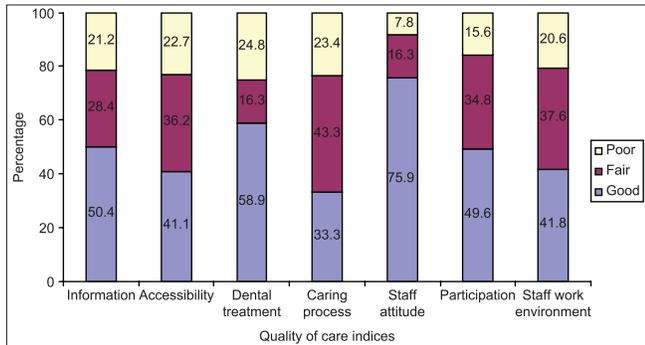


Figure 1: Percentages of various quality of care indices

	Good n (%)	Fair n (%)	Poor n (%)
Process of registration (n=141)	132 (93.6)	9 (6.4)	0 (0.0)
Waiting arrangement (n=141)	115 (81.6)	25 (17.7)	1 (0.7)
Social amenities (n=141)	94 (66.7)	33 (23.4)	14 (9.9)
Toilets (n=79)	42 (53.2)	31 (39.2)	6 (7.6)

n = Number of respondents

	Yes to a great degree n (%)	Yes to a certain degree n (%)	No not especially n (%)	No not at all n (%)
Information				
Have you received sufficient information concerning your child’s dental problem?	103 (73.2)	34 (24.1)	3 (2.1)	1 (0.7)
Have you received sufficient information concerning treatment to be given to your child?	106 (75.2)	31 (22.0)	3 (2.1)	1 (0.7)
Have you received information on how to prevent your child’s dental problem?	83 (58.9)	28 (19.9)	15 (10.6)	15 (10.6)
Accessibility				
Is the dental clinic difficult to get to in terms of transportation?	16 (11.3)	11 (7.8)	17 (12.1)	97 (68.8)
Did you feel you could contact your child’s dentist by telephone?	43 (30.5)	54 (38.3)	22 (15.6)	22 (15.6)
Do you think the cost you paid for your child’s treatment is reasonable?	75 (53.2)	57 (40.4)	6 (4.3)	3 (2.1)
Dental treatment				
Do you think your child received satisfactory dental treatment?	113 (80.1)	28 (19.9)	0 (0.0)	0 (0.0)
Do you have confidence in the staff competence? 118 (83.7)	22 (15.6)	1 (0.7)	0 (0.0)	0 (0.0)
Do you have confidence in the staff skills?	117 (83.0)	24 (17.0)	0 (0.0)	0 (0.0)
Caring process				
Do you feel that the staff were patient with your child?	127 (90.1)	14 (9.9)	0 (0.0)	0 (0.0)
Have they introduced themselves to you?	33 (23.4)	28 (19.9)	29 (20.6)	51 (36.2)
Have they introduced themselves to your child?	34 (24.1)	41 (29.1)	23 (16.3)	43 (30.5)
Have they said something that helped reduce your worries?	76 (53.9)	57 (40.4)	5 (3.6)	3 (2.1)

n = Number of respondents

with 17.0% with university education were displeased with the information process ($P=0.010$) [Table 5].

Ratings concerning accessibility revealed that 41.1% and 36.2% believed that it was good and fair respectively [Figure 1]. A fifth (19.1%) had to a certain degree/great degree experienced difficulty in getting to the clinic in terms of transportation. Majority of the parents 132 (93.6%), believed that the charges to a certain/great degree were alright. Furthermore, 44 (31.2%) said that they felt they could not especially/not at all contact their dentist by telephone [Table 3].

Generally, over half (58.9%) of the respondents rated dental treatment as good while 16.3% thought it was fair [Figure 1]. Specifically, 118 (83.7%) of the parents had confidence to a great degree in the staff competence while 113 (80.1%) stated that they were extremely pleased with their child’s dental treatment [Table 3]. Three quarters (73.2%) of respondents from the high social class were very pleased with the dental treatment process comparison to over a third (39.4%) from the lower social class ($P=0.045$) [Table 6].

On the whole 33.3% and 43.3% of the respondents claimed that the caring process was good and fair respectively [Figure 1]. About half of the parents, 80 (56.8%) and 66 (46.8%) reported that the dentists had not especially/not at all introduced themselves to them or their children respectively. However, majority of the staff (133 (94.3%)) had said things that reduced their worries to a great degree/to a certain degree [Table 3]. Fourteen (42.4%) of the respondents from the lower social class and 7 (17.1%)

from the high social class claimed the caring process was poor ($P=0.030$) [Table 6].

Concerning the staff attitude, three-quarters (75.9%) were pleased while less than a 10th (7.8%) considered it as poor [Figure 1]. However, 127 (90.1%) of the parents said that they were treated with respect to a great degree while 118 (83.7%) of the respondents reported that their children were treated very kindly by the staff they came in contact with [Table 4]. Six (30.0%) of the respondents with primary education in comparison with 4 (4.5%) with university education were unhappy with the staff attitude ($P=0.005$) [Table 5].

Ratings about participation revealed that half, 49.6% of the parents felt it was good while a third (34.8%) rated it as fair [Figure 1]. Three-quarters 102 (72.3%) of the respondents claimed they had a great opportunity to ask questions about their child's dental problem [Table 4]. Forty-five percent of the parents with primary education and a 12.5% of those with university education were unhappy with the participation process ($P=0.001$) [Table 5].

The staff work environment was assessed as good and fair by 41.8% and 37.6% of the respondents respectively. A fifth (20.6%) of the parents were however dissatisfied [Figure 1]. Majority of the parents (138 (97.9%)) believed that the staff had to a great degree/certain degree a positive attitude to their work. However, 38 (26.9%) and 57 (40.4%) respondents felt that the staff worked under stress and had a heavy workload respectively to a great degree/certain degree [Table 4].

Influence of age on the various indices of quality of care was not significant (information $P=0.595$, accessibility $P=0.109$, dental treatment $P=0.072$, caring process $P=0.899$, staff attitude $P=0.724$, participation $P=0.365$, and staff work environment $P=0.084$).

Overall assessment on a visual analog scale revealed an average score of 7.3 out of 10.

Discussion

This study has revealed that parents generally reported high levels of satisfaction (7.3 out of 10) with the dental care their children received at the University College Hospital, Ibadan, which is commendable. Satisfaction with healthcare services is known to be associated with patient behavior, including compliance to treatment plans and the use of preventive health services.^[10]

The information process is an important aspect in dental care and dentists must observe the basics of informed consent with parents seeking dental treatment for their children.^[11] Research revealed that the important factors influencing parent satisfaction in a children's emergency department were a clear explanation of the child's diagnosis and treatment plan.^[5,7,12] This study has demonstrated that the basic of informed consent was adhered to by the dental staff. However, 21.2% of the parents felt that they needed more information on how to prevent the occurrence of dental diseases in their children, corroborating the study by Lahti *et al.*^[13] Emphasis on prevention is pertinent to forestall recurrent oral health problems in patients.

Accessibility to dental care is an important facilitator of dental clinic attendance. Majority of the parents in this study did not have difficulty in reaching the dental clinic. This may be due to the fact that the clinic is accessible, being located on a major as well as popular road (Queen Elizabeth Road) with easy access to public transportation. Similarly, many of the respondents considered the charges reasonable. High hospital fees usually discourage parents from bringing children to the clinic in this environment especially when they are not emergency cases, as is the case with many dental diseases. In recent times, the

Table 4: Respondents responses to some of the items related to the staff attitude, participation, and the staff work environment

	Yes to a great degree n(%)	Yes to a certain degree n(%)	No not especially n(%)	No not at all n(%)
Staff attitude				
Were you treated kindly by the dental staff you came in contact with?	118 (83.7)	23 (16.3)	0 (0.0)	0 (0.0)
Was your child treated kindly by the dental staff they came in contact with?	118 (83.7)	23 (16.3)	0 (0.0)	0 (0.0)
Have you been treated with respect?	127 (90.1)	13 (9.2)	1 (0.7)	0 (0.0)
Participation				
Did you have the possibility to ask questions about your child's dental problem?	102 (72.3)	33 (23.4)	3 (2.1)	3 (2.1)
Did you understand the information about a child's dental problem?	106 (75.2)	29 (20.6)	6 (4.2)	0 (0.0)
Did you have the possibility to participate in the discussions concerning your child's treatment?	92 (65.3)	37 (26.2)	8 (5.7)	4 (2.8)
Staff work environment				
Do you think that the staff work under stress?	12 (8.5)	26 (18.4)	44 (31.2)	59 (41.8)
Do you think that the staff have a heavy workload?	16 (11.3)	41 (29.1)	54 (38.3)	30 (21.3)
Do you think that the staff have a positive attitude to their work?	103 (73.1)	35 (24.8)	3 (2.1)	0 (0.0)

n = Number of respondents

Table 5: Influence of respondents educational level on the various quality of care indices

Quality care of indices	Educational status				P value n=88
	No formal education n=8	Primary n=20	Secondary n=25	University	
Information					
Good	3 (37.5)	6 (30.0)	19 (76.0)	43 (48.9)	0.010*
Fair	2 (25.0)	5 (25.0)	3 (12.0)	30 (34.1)	
Poor	3 (37.5)	9 (45.0)	3 (12.0)	15 (17.0)	
Accessibility					
Good	5 (62.5)	9 (45.0)	10 (40.0)	34 (38.6)	0.779
Fair	2 (25.0)	5 (25.0)	10 (40.0)	34 (38.6)	
Poor	1 (12.5)	6 (30.0)	5 (20.0)	20 (22.7)	
Dental treatment					
Good	3 (37.5)	8 (40.0)	17 (68.0)	55 (62.5)	0.234
Fair	3 (37.5)	4 (20.0)	2 (8.0)	14 (15.9)	
Poor	2 (25.0)	8 (40.0)	6 (24.0)	19 (21.6)	
Caring process					
Good	2 (25.0)	6 (30.0)	9 (36.0)	30 (34.1)	0.661
Fair	4 (50.0)	6 (30.0)	11 (44.0)	40 (45.5)	
Poor	2 (25.0)	8 (40.0)	5 (20.0)	18 (20.5)	
Staff attitude					
Good	7 (87.5)	12 (60.0)	22 (88.0)	66 (75.0) [§]	0.005*
Fair	1 (12.5)	2 (10.0)	2 (8.0)	18 (20.5)	
Poor	0 (0.0)	6 (30.0)	1 (4.0)	4 (4.5)	
Participation					
Good	4 (50.0)	5 (25.0)	18 (72.0)	43 (48.9)	0.001*
Fair	2 (25.0)	6 (30.0)	7 (28.0)	34 (38.6)	
Poor	2 (25.0)	9 (45.0)	0 (0.0)	11 (12.5)	
Staff work environment					
Good	4 (50.0)	7 (35.0)	14 (56.0)	34 (38.6)	0.322
Fair	3 (37.5)	8 (40.0)	4 (16.0)	38 (43.2)	
Poor	1 (12.5)	5 (25.0)	7 (28.0)	16 (18.2)	

*Significant at $P < 0.05$. [§]Yates corrected Chi-square test

introduction of the National Health Insurance Scheme in Nigeria has been helpful in relieving parents of payment of some aspects of dental care. It was noted from the findings of this study that about a third of parents claimed that they did not really feel they could contact the dentist by phone. The advantage of contact by phone includes informing the dentist about appointment changes and also reconfirming or receiving instructions on what to do in emergency. It also provides the dentist the opportunity to remind parents of their children's appointment.

Waiting time has been found to be significantly correlated with overall patient satisfaction.^[5,14-17] In this study, the average waiting time spent before seeing the dentist was 64.9 minutes. Surprisingly, this did not appear to affect the overall rating of UCH dental services (7.3 out of 10). This may be as a result of the high public opinion generally held in association with the hospital. Waiting time is sometimes prolonged because some procedures in children can be lengthy, especially when they are uncooperative. Furthermore, an insufficient number of dental units reduces the number of patients that can be seen at a certain time. When waiting time is prolonged the parents become

impatient and the children become restless and may exhibit decreased level of compliance during treatment. Spreading out patient's appointments will reduce waiting time.

Technical competence of dentists is often cited as a key determinant to client satisfaction placing it at or near the top of contributory factors.^[18] It is commendable to know that over 80% of parents were extremely satisfied with the dental treatment their children received and had confidence in staff competence reflecting the findings of Haulkai and Paulsen.^[6] The high standards revealed in this study could be adduced to the fact that the dental clinic is part of a teaching hospital where strict standards are kept. With increased confidence in the staff, there may be a higher probability that patients and parents will be willing to return.

Technical expertise may not be the standard for judgment to quality of care for many parents and their children. Less technical aspects of treatment especially the human and psychological aspects of care are recognized as being barometers of quality of care^[19] and as such it is imperative that dentists show a high level of care and empathy for their child patients. However, this study has shown that half of

Table 6: Influence of respondents socioeconomic status on the various quality of care indices

Quality care of indices	Socioeconomic status			P value
	Low n=33	Middle n=67	High n=41	
Information				
Good	13 (39.4)	37 (55.2)	21 (51.2)	0.201
Fair	10 (30.3)	15 (22.4)	15 (36.6)	
Poor	10 (30.3)	15 (22.4)	5 (12.2)	
Accessibility				
Good	16 (48.5)	23 (46.3)	19 (43.9)	0.498
Fair	11 (33.3)	25 (37.3)	15 (36.6)	
Poor	6 (18.2)	19 (28.4)	7 (17.1)	
Dental treatment				
Good	13 (39.4)	40 (59.7)	30 (73.2)	0.045*
Fair	8 (24.2)	9 (13.4)	6 (14.6)	
Poor	12 (36.4)	18 (26.9)	5 (12.2)	
Caring process				
Good	8 (24.2)	21 (31.3)	18 (43.9)	0.030*
Fair	11 (33.3)	34 (50.7)	16 (39.0)	
Poor	14 (42.4)	12 (17.9)	7 (17.1)	
Staff attitude				
Good	24 (72.7)	50 (74.6)	33 (80.5)	0.404
Fair	4 (12.1)	13 (19.4)	6 (14.6)	
Poor	5 (15.2)	4 (6.0)	2 (4.9)	
Participation				
Good	12 (34.6)	39 (58.2)	19 (46.3)	0.060
Fair	11 (33.3)	22 (32.8)	16 (39.0)	
Poor	10 (30.3)	6 (9.0)	6 (14.6)	
Staff work environment				
Good	12 (36.4)	30 (44.8)	17 (41.5)	0.655
Fair	12 (36.4)	23 (34.3)	18 (43.9)	
Poor	9 (27.3)	14 (20.9)	6 (14.6)	

*Significant at $P < 0.05$

the dentists did not introduce themselves to their patients and parents. This is one of the things that can create a communication gap and could have been responsible for the reduced satisfaction scores in the caring process domain. Introduction by staff members improves patient and parents' confidence and trust and also helps them to feel more relaxed. Perhaps the simplest and most profound of all human interactions is kindness. However, it is sometimes absent from healthcare environments. Staff attitude has been found as an important factor for satisfaction while patients receive hospital care.^[10,13,20] This study reveals that over three-quarters of the parents were extremely pleased with the staff attitude. The staff who show kindness and compassion can go a long way toward assuring patients that they are in the right place.

Many researchers have identified parental participation in children's healthcare and decision making as important elements of parental satisfaction.^[21] It is laudable to note that majority of the parents in this study had the possibility of participating in discussions pertaining to their children's

treatment. Parental participation will not only increase the knowledge and understanding of their child's dental condition but also foster a trusting relationship between the parent and the dentist.

The relationship between employee satisfaction, patient satisfaction, and quality of care is an interactive and reinforcing one and satisfied employees deliver better care resulting in higher patient satisfaction.^[22] Over a quarter of the parents in this study felt that the staff worked under stress and had a heavy workload. An individual experiencing work stress finds the job taxing, exceeding his or her resources, and endangering their well being.^[23]

The environment is reported as an important contributor to patient satisfaction.^[24,25] Over four-fifths of the respondents in this study were pleased with the waiting arrangements and this may have influenced their overall satisfaction score.

This study has revealed that the respondents with lower educational levels tended to be more displeased with the information process, staff attitude, and the participation process in comparison with those with higher educational levels. Furthermore, parents from the lower social class were not as satisfied with the dental treatment and caring process in comparison with those from the higher social class. This implies there could be a communication gap between the staff and respondents with lower educational levels as well as those from the lower social class. It could also mean that the dental workers were giving differential treatment and attention in favor of the more affluent and more educated parents. For this reason, adequate care and a greater deal of patience should be taken when dealing with parents particularly with less education and those from the lower social class. It is imperative that the dental curriculum should emphasize patient–dentist relationship.

Recommendations

The respondents recommended the following improvement in the services in the clinic:

Waiting time should be shorter and the clinics contact numbers should be available. Waiting arrangements should include a separate play area with games and toys for children and a television with children's channels such as cartoons. Oral health instruction posters for children should adorn the walls. Staff should introduce themselves and there should be a greater degree of interaction between the parents and the dentist concerning dental treatment of their children. The number of dental units and assistants in the clinic should be increased to reduce waiting time. Furthermore, the authors recommend small-scale furniture for the children in exiting colors. Reading materials should also be made available to accompanying parents.

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