

FACTORS INFLUENCING PATIENT'S ACCESS TO DIAGNOSTIC IMAGING SERVICES IN NIGERIA: PERCEPTION OF GENERAL PRACTITIONERS

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ABSTRACT

Aim: To determine General Practitioners' perceptions of factors influencing patient's access to diagnostic imaging services in Nigeria.

Materials and Methods: Self-administered questionnaires were given to general practitioners to complete, in order to identify factors that limit patients' access to diagnostic imaging services, and the perceived impact of this limited access. Contacts were made with the practitioners during conferences, seminars, update courses and meetings, to facilitate administration and retrieval of the questionnaires.

Results: General Practitioners identified factors that limit patient's access to diagnostic imaging services in Nigeria and the perceived impact of this limited access. Cost was found to be the main limiting factor, followed by non-availability of some of the imaging modalities. A statistically significant association was found between increasing distance from practitioners' location and availability of some imaging services, regarding limited access. It was the popular view (67% of respondents), that restricted access has significant impact on patient management, by forcing general practitioners to resort to therapeutic trials and ancillary laboratory tests.

Conclusion: Diagnostic imaging services remain an important part of patient management in Nigeria. However, access to these services by patients is limited by factors of cost, and non-availability of some modalities, among others. Health insurance and subsidized services as well as training of personnel are suggested for improving access. More interaction between clinicians and radiologists would enhance patient management.

KEY WORDS: Access, Diagnostic Imaging Services, and General Practitioners.

INTRODUCTION

Access could be defined as the opportunity or right to use something or an approach¹. Patients' access to diagnostic imaging services in developing countries has been of concern to some leading authorities in radiology, as well as the World Health Organization. According to Professor Holger Petersson, president of the European Association of Radiology (EAR); "Of the six billion people in the world, four billion will have no access or limited access to diagnostic imaging tools. And if the machines are there, there might not be any radiologists or technicians."²

Imaging requests are made for a number of reasons, including confirmation of normality, as well as confirmation or exclusion of a diagnosis.³ However there have been reports showing a tendency for general practitioners to order fewer investigations for economically disadvantaged patients.⁴

Open access to radiological services has been shown to result in improvement in the quality of services offered by general practitioners for their patients, as well as reduced costs for the health services resulting from reduction in outpatient referrals⁵ Restricted access on the other hand resulted in increased risks for patients, unnecessary use of outpatient facilities, and wasted time for general practitioners.⁶

In Nigeria, diagnostic imaging services are provided largely by government owned secondary or tertiary care centers; although there is increasing private sector involvement especially in the major administrative and commercial cities.

This descriptive study was undertaken to assess general practitioners' views about patient access to diagnostic imaging services in Nigeria.

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MATERIALS AND METHODS

A structured questionnaire was jointly designed by the three authors; A.A, D.U, and M.O. It included items such as general practitioners' a) views about patient access to diagnostic imaging services in Nigeria, b) identification of the principal factors that influence access, and c) the perceived impact of limited access on patient management. The questionnaires were given to General Practitioners at seminars, update courses and meetings or at their practice settings. For this study, a general practitioner is defined as a medical doctor who is either a fellow or at various stages of the general practice residency training programme of either or both the West African and National Postgraduate Medical College, or is engaged in regular general outpatient practice.

Other items covered in the questionnaire included: number of years of practice of the practitioner, type of practice (public or private), location of practice (urban or rural), as well as estimates of number of patients seen per week. It also included the practitioner's definition of direct access to imaging service and the number of patients referred for such services per week, location of the imaging service relative to the practice setting, and patient's compliance with imaging referrals.

The other questions focused on the major problems associated with non-compliance, generally and with reference to specific imaging modalities. The respondents were also asked about the impact of lack of access on subsequent patient management, and alternative measures employed when there is restricted access. The general practitioners' idea on what constitutes a good quality imaging service, and frequency of discussions between them and radiologists concerning imaging referrals/reports was sought. Suggestions aimed at improving access to diagnostic imaging services also featured on the questionnaire.

The responses were collated and statistical analysis using the SPSS software was done. Both descriptive statistics, and tests of significance were used in data analysis with the level of significance at $p < 0.05$.

RESULTS

A total of 160 questionnaires were given out and 158 were completely filled and returned, giving a response rate of 98.8%. The mean age of the

respondents was 38+3.73 years, while males outnumbered females in the ratio 6:1.

Table 1 and 2

Table 1: Age Group of Respondents

Age group	Number
≤30 yrs	2
31-35yrs	44
36-40yrs	22
41-45yrs	28
46-50yrs	46
51-55yrs	16
Total	158

Table 2: Sex Distributions of Respondents

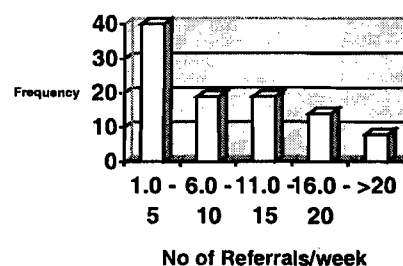
Sex	Number
Male	138
Female	20
Total	158

One-fifth of the respondents are Fellows of either the National or West African Postgraduate Medical Colleges, and more than two-thirds have been in practice for over ten years. General practitioners working mainly in the public sector outnumbered the private practitioners in the ratio 4:1.

The number of referrals for imaging by most of the respondents (sixty six or 40.2%), was in the range of 1 to 5 per week, out of about 50 to 100 patients attended to within the same period.

Fig. 4.

Fig. 4: Histogram showing the number of imaging referrals against number of patients seen within same period.

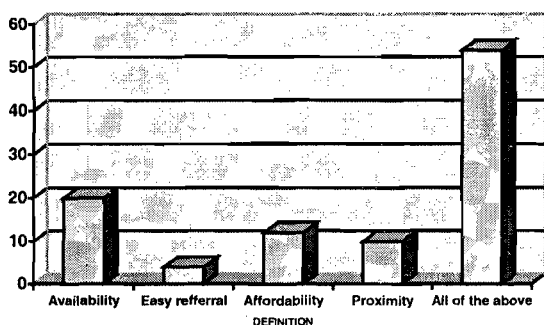


This is despite the admission by two thirds of the practitioners of having a diagnostic imaging service within their practice setting. This study however found a statistically significant association between increasing distance from practitioner's location and

that of diagnostic imaging service in relation to limited access to imaging. The situation is especially true for services such as contrast radiography (barium studies, intravenous urography, computed tomography and angiography). IVU; p value=0.013, Barium studies; p value=0.001.

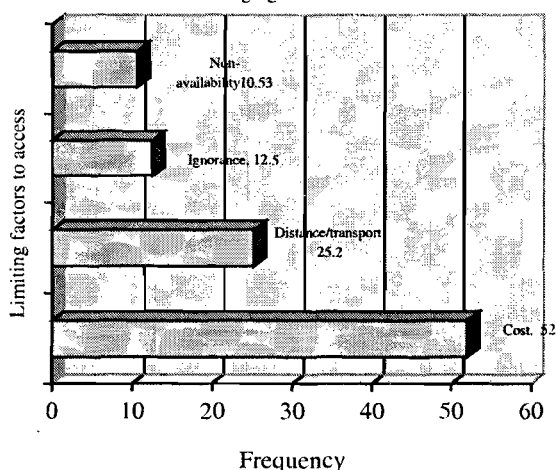
In the opinion of half of the general practitioners, access to imaging services encompasses availability, proximity, and affordability of such services (Fig.3)

Fig. 3: Histogram depicting definition of direct access to imaging.



In this study, patient compliance with referrals for diagnostic imaging service was rated as “average” by forty four percent or about half of the general practitioners. The major factor hindering access to imaging services by patients is cost, in the opinion of eighty or fifty two percent of our respondents (Fig 5).

Fig. 5. Histogram illustrating factors that limit access to imaging services.

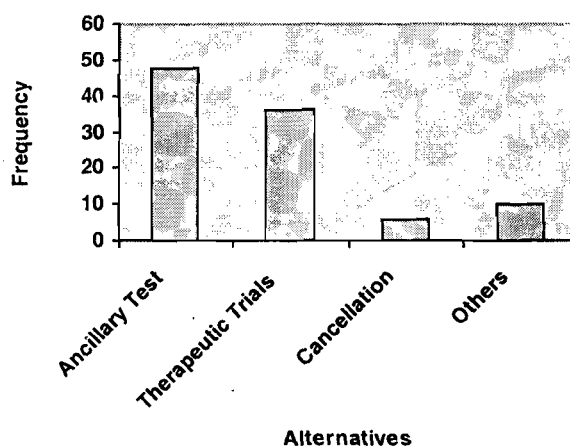


This is also true with regards to specific imaging modalities such as plain radio graphy, ultrasound, and

contrast studies (Barium examinations, Intravenous urography, Hysterosalpingography). However, in addition to cost, access to modalities for contrast studies, such as intravenous urography, barium studies, and angiography and computed tomography is hindered by non-availability.

Two thirds or sixty seven percent of our respondents believed that lack of access has significant impact on patient management. The alternatives resorted to in such instances include ancillary laboratory tests (forty eight percent of the practitioners) or therapeutic drug trials (thirty six percent), as depicted in Fig 2.

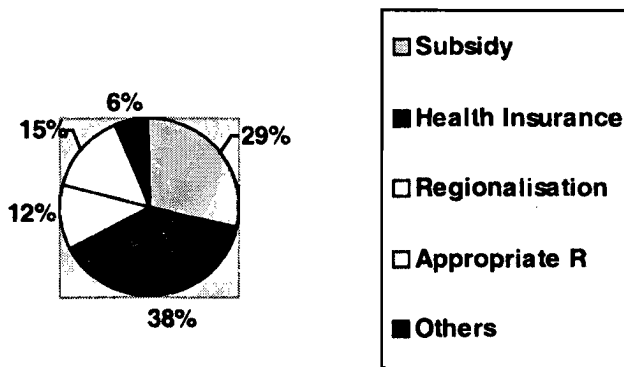
Fig. 2: Histogram showing alternative steps employed when access is restricted



Good quality imaging service was defined by sixty percent of general practitioners who took part in this study as one that offers reliability in terms of reports and image quality. Affordability and availability were not rated high among factors that influence the quality of imaging service. It is interesting to note however that only half of the respondents regularly discuss imaging referrals or reports with radiologists.

Implementation of health insurance, (fifty five respondents or 38 percent), subsidization of services (42 respondents or twenty nine percent), appropriate patient referral system (21 respondents fourteen percent), and rationalization of services (17 respondents or twelve percent), were the suggestions offered towards improving patients’ access to diagnostic imaging services in Nigeria (Fig.1)

FIG.1: PIE CHART SHOWING SUGGESTIONS MADE TOWARDS IMPROVING ACCESS TO IMAGING SERVICES



DISCUSSION

Open access to radiology has been shown to improve the quality of service offered by general practitioners to their patients, by lowering the cost of health services through reduction in out patient referrals.⁵

In this study, cost was identified as the major factor hindering access. an observation that tallies with that of the work done by Durham and Mcleod in New Zealand.⁶ This is not unexpected when one considers the fact that Nigeria has one of the lowest per capita incomes in the world (\$290 as at year 2002).⁷ The definition of access as encompassing variables like affordability, availability, and proximity of imaging services aptly summarizes the feelings of the respondents that access or lack of it probably has a multifactor basis. Where equipments are available, access will be hindered if patients cannot pay for the service; conversely when patients can pay for the service, access will be denied when such equipments are either non-available or non-functional. The need to travel long distances to benefit from such services, with the added cost implication, worsens the situation.

The general practitioners rated access to plain radiographic and ultrasound services higher than other modalities. The reason for this is probably because these services are cheaper, and with specific reference to ultrasound because it is available in the nooks and crannies of major cities in Nigeria. On the other hand, restricted access was noted more in respect of contrast studies, like angiography etc. and computed tomography.

When direct access was not available, our respondents either ordered for ancillary laboratory tests or carried out therapeutic (drug) trials. Apart from the economic or cost implication of these alternative measures, the effect of blind treatment of a ‘presumed’ diagnosis, as well as the delay in diagnosis, has to be considered. One notes that only one to five referrals for imaging services are made out of an estimated fifty to one hundred patients seen per week (a utilization rate of about ten percent); the probable implication of this observation may be that the practitioners are well aware of limitation of access, and therefore try to be ‘selective’ with the referrals. This utilization rate, however, exceeds that noted among general practitioners in a study conducted in New Zealand⁸

The finding that only fifty percent of the general practitioners discuss imaging referrals/reports with radiologists may not be unconnected with the fact that there are still very few radiologists in Nigeria, when compared with the country’s population (1.4 radiologists per 1 million - 2004 figures; unpublished data), with more than half of these residing in the major administrative and commercial cities.⁹

The definition of good quality imaging service as revolving on reliable film quality and issuance of prompt and accurate reports agrees with that made by a group of general practitioners in New Zealand⁶ An additional factor mentioned by the latter group, however, is short waiting time with prompt service for urgent request, and access to radiologists to discuss imaging reports.

The most suggested step towards improving patient access to imaging services was provision of health insurance. Since cost is the most important factor influencing access, a health insured populace will definitely have improved access to health services, including imaging. This position has been canvassed for improving the cost benefit of some expensive imaging modalities in a previous write up.¹⁰ additionally, regionalization has also been proposed as an option for maximizing the cost benefit of these modalities.¹¹

CONCLUSION.

Patients’ access to diagnostic imaging services in Nigeria is significantly hindered by cost and non-availability of newer cross sectional imaging tools. Adequate funding of these services can abate these

manpower to run the services has to be addressed. If patient treatment is to be effective, prompt and accurate diagnosis has to be made in the first instance.

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