

## ORIGINAL RESEARCH ARTICLE

# Experiences of Girls with Hearing Impairment in Accessing Reproductive Health Care Services in Ibadan, Nigeria

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## Abstract

Delivery of health services to people with hearing impairment is poorly understood in Nigeria and limited research has been done to throw more light on the process involved. This study described experiences of 167 girls with hearing impairment in accessing reproductive health services in Ibadan using a validated questionnaire. Descriptive statistics and binary logistic regression were used to analyze the data. Almost 95.0% of respondents had ever visited health facility for reproductive health issues. Of these 6.2% and 4.6% went for treatment of STIs and pregnancy termination respectively; 36.7% were embarrassed to ask questions in the presence of an interpreter, communication (40.5%) and cost (10.8%) were key barriers to access and 85.6% would use facility if hearing impairment-friendly services are provided. Respondents who were currently working were 20 times more likely to receive services they wanted (OR=20.29, CI=1.05-392.16). Availability of certified interpreters and ensuring confidentiality are key to effective service delivery for the hearing impaired. (*Afr J Reprod Health 2013; 17[1]: 85-93*).

## Résumé

La prestation des services de santé aux personnes atteintes de déficience auditive est mal comprise au Nigéria et il n'y a pas eu assez de recherche faite pour jeter plus de lumière sur le processus impliqué. A l'aide d'un questionnaire validé, cette étude décrit les expériences de 167 filles atteintes de déficience auditive, face à l'accès aux services de santé de la reproduction, à Ibadan. Les statistiques descriptives et de régression logistique binaire ont été utilisées pour analyser les données. Près de 95,0% des interviewées avaient déjà visité un établissement de santé pour les questions de santé de la reproduction. Parmi elles, 6,2% et 4,6% sont allées pour le traitement des ISTs et l'interruption de grossesse, respectivement; 36,7% étaient gênées de poser des questions à la présence d'un interprète; la communication (40,5%) et le coût (10,8%) étaient les principaux obstacles à l'accès et 85,6% se serviraient des établissements de santé si les services adaptés à la déficience auditive sont assurés. Les interviewées qui travaillent actuellement étaient 20 fois plus susceptibles de recevoir des services qu'ils voulaient (OR = 20,29, IC = 1,05 à 392,16). La disponibilité des interprètes certifiés et l'assurance de la confidentialité sont essentielles à la prestation efficace des services pour les personnes atteintes de déficience auditive (*Afr J Reprod Health 2013; 17[1]: 85-93*).

**Keywords:** disability, reproductive health, health care access, hearing impaired girls

## Introduction

Women with disabilities often have health problems that go untreated because of physical and social barriers in their communities<sup>1</sup>. Finding and accessing good health care is hard for a disabled woman. She often has less money than most people in her community and therefore cannot afford health services. Health centres and hospitals are often not accessible, because they are not

designed for use by those with disabilities. On the service delivery side, the patient's participation in health care decisions is a legal right, as well as a source of accurate assessment and treatment information<sup>2,3</sup>.

Communication barriers are a challenge experienced not only by people who are hearing impaired or hard of hearing but also by providers when it comes to communicating within a health care setting<sup>4,5</sup>. This poses a particular problem to access and quality of health care services, as

primary health care depends heavily on effective communication between patient and health care provider to ensure that health care services are safe, timely, efficient and patient centered<sup>5, 6</sup>. Access to health care information is also limited by barriers to written and spoken language as hearing impaired people cannot overhear conversations, have limited access to mass media and present with a low average reading level of grade three or four<sup>7,8</sup>. Communication in health care settings currently falls below par<sup>5</sup>, which has been documented as one of the main reasons why hearing impaired people use health care services differently from the general population<sup>9</sup>. Tamaskar et al<sup>10</sup> found that hearing impaired and hard of hearing respondents studied were more likely to avoid health care providers because of lack of communication, lack of available interpreters and other factors which is consistent with other reports that hearing impaired people see doctors less often<sup>11</sup>. Due to these complex individual, interpersonal and systemic factors, hearing impaired and hard-of-hearing individuals have reportedly often received inadequate, inappropriate and unethical health care<sup>12</sup>.

It is estimated that about 2% of Nigerian population (about 2.8 million) are hearing impaired<sup>13</sup>. Despite the size of this population, there is limited information regarding the health services utilization of this group of people. Studies of health care and hearing impaired people in other parts of the world have produced conflicting results. Some studies indicate that people with hearing loss have poorer health status and increased health services utilization<sup>14, 15, 16</sup>. Other studies suggest that people with hearing loss have decreased health services utilization<sup>17, 18</sup>. The relative lack of data and the inconsistencies of previous findings make it difficult to identify and address the health care needs of hearing impaired and hard-of-hearing people in Nigeria. Understanding the dynamics involved in accessing health care is of utmost importance, a gap that this study set out to fill. This study therefore assessed the experiences of hearing impaired girls in accessing reproductive health care services. The scope of this study is delimited to communication/interactive experiences between

service providers and hearing impaired clients as well as the factors influencing access to services.

## Methods

### Study Design

The study adopted a descriptive cross sectional design that assessed experiences of girls with hearing impairment in accessing reproductive health services in Ibadan metropolis using the quantitative method of data collection.

### Setting and study population

Ibadan in Oyo State Nigeria was purposively selected as the site for this study. The criteria for selecting this site was based on the fact that it is home to one of the earliest establishments for the hearing impaired-the Ibadan School for the Deaf and reproductive health service point-the University College Hospital. The city of Ibadan is divided into three zones based on the historical progression - traditional inner core, transitional area and the sub-urban periphery<sup>20</sup>. The city of Ibadan comprised 5 local government areas and is home to many private and government owned health institutions. Furthermore, the study target population who are the hearing impaired, are concentrated in different clusters around Ibadan. These population clusters are around elementary and secondary schools as well as vocational and residential homes. Also, in this area, there are organisations as well as government health facilities providing youth friendly services. The study population for the study consisted of hearing impaired girls aged 11-24years who were either in or out-of-school as at the time of the study.

### Sampling procedure

All the girls with hearing impairment in all the special schools with provision for the hearing impaired who met the inclusion criteria of being hearing impaired and have sign language as their primary language and those who were out-of-school in work settings were surveyed. The hearing impaired population for participation in the study is defined as individuals whose hearing is sufficiently non-functional for

ordinary life to compel them to need to use sign language as their primary language. Those who were excluded from the study included those whose level of hearing is sufficiently adequate such that they do not have sign language as their primary language; as well as those hearing impaired persons with other co-morbidities including self-identified intellectual impairment or learning disabilities.

### Data collection methods

Quantitative method of data collection was utilized for this study using a questionnaire that was developed from literature review. The questionnaire was used to collect information on respondents' socio-demographic characteristics, experiences accessing reproductive health care services. Questions used as proxy for assessing experiences included whether they had ever visited any facility for reproductive health services, barriers to access, mode of interaction, whether they receive the services expected and whether they would go back to the same facility again another day. The questionnaire was interviewer-administered and administration was in sign language. Data was collected between March and April, 2011.

Seven certified interpreters (two females and seven males) were recruited as research assistants and trained on data gathering using the questionnaire and subsequently administered the questionnaire on consenting hearing impaired girls.

Before the administration of the questionnaire, informed consent was obtained from the respondents after the objectives have been explained to them in sign language and they were requested to append their signature on the consent forms. Confidentiality was ensured as no identifiers were included in the questionnaire. Interviews were conducted in a place that ensured minimal distraction away from the visual distance of other people. The collected data were stored in a secured place.

### Validity and reliability of instrument

To ensure validity of the instrument, a draft of the developed questionnaire was subjected to reviews

from peers and other experts after which it was pre-tested in Eruwa a community that is 57 kilometers away from Ibadan among girls with hearing impairment by trained certified interpreters. The pretested questionnaire was subjected to a reliability test using the Cronbach's Alpha model. Reliability co-efficient of 0.681, higher than the average correlation coefficient of 0.5 was obtained. In spite of this, some modifications were made to the instrument as words not easily understood were re-phrased and some removed while some of the questions were re-ordered to follow a logical sequence.

### Data analysis

Each questionnaire was scrutinized for completeness, coded and entered into the computer. The SPSS Version 15 was used in analyzing the data. Descriptive statistics (mean, standard deviation and proportions) were used to summarise estimates. Data was cross-classified and tests of independence were used through odds ratios and binary logistic models to identify covariates of expected health services. All statistical tests were carried out at 5% (or 0.05) level of significance.

### Ethical Considerations

This study followed the ethical principles guiding the use of human respondents in research. Approval for the study was obtained from the University of Ibadan/ University College Hospital (UI/UCH) Health Research Ethics Committee (Ref No UI/EC/08/0019). The vulnerability of the girls with hearing impairment was acknowledged and the potential benefit to the local community of our research was emphasized. Prior to surveying the respondents, permission to carry out the study was obtained from relevant local school authorities concerned and the employers of the out-of-school respondents. The nature, purpose and process of the study were explained to the respondents after which written informed consent were obtained. Respondents were assured of confidentiality, privacy and anonymity of information provided. It was explained to the respondents using sign language that the confidentiality of information shared during the interview would be guaranteed.

Necessary steps such as asking for no names and keeping transcripts and data sources in a secure place were taken to ensure confidentiality. Respondents were continuously reminded of their right to withdraw from the study at any time. Respondents were reassured that refusing to participate in or withdrawing from the study would not disadvantage them in any way. They were informed that they will not necessarily benefit directly from the project but that the data will be used to try and contribute to universal and equitable access to healthcare.

## Results

A total of 167 hearing impaired girls comprising 140(83.8%) in-school and 27 (16.2%) out-of-school were interviewed. The age range of the hearing impaired girls surveyed was 11 – 25 years with an overall mean age as at their last birthday was 17.5±3.4 years. Segregated by school attendance, the mean age for in-school girls was 16.7±3.0 years while that of out-of-school was 21.5±2.8 years. The data showed that 151(90.4%) of hearing impaired girls had ever attended hearing impaired school and 82.8% were in-school as at the time of data collection. Educational level of respondents showed that 47.6% had secondary education, 46.4% primary school education and 6.0% technical education. The majority (87.8%) of respondents attended mixed schools and only 12.2% went to girls only schools. Apart from attending schools, 26.3% of respondents (68.2% in-school and 31.8% out-of-school) had ever worked for pay. Only 14.4% of respondents (45.8% in-school and 54.2% out-of-school) were currently working for pay.

One hundred and fifty-one (90.4%) and 95.8% of respondents still had their fathers and mothers alive respectively. Pattern of parent-child communication revealed that 41.7%, 10.6% and 4.6% of respondents found it very easy, difficult and very difficult to discuss with their fathers respectively while 54.4% and 23.6% of respondents found it very easy and easy discussing with their mothers respectively. However, 5.6% and 6.9% of respondents declared that they found it difficult and very difficult respectively sharing their feelings with their mothers.

## Experiences in accessing reproductive health care services

Of the 167 hearing impaired girls studied, 158 (94.6%) of them had ever visited a health facility for a reproductive health related problem. Of this number 60.1% visited government facility and only 4(2.5%) went alone. Categories of people who went with respondents to the health facility included parents (72.2%), someone from organizations supporting the hearing impaired (6.3%) and husband (2.5%). Only 65(41.1%) of respondents could recall reasons for visiting the facilities. Recalled reasons for visiting the facilities included pregnancy test (29.2%), contraception (26.2%), treatment of sexually transmitted diseases (6.2%) and pregnancy termination (4.6%). Others are shown in Table 1. Table 2 shows the pattern of client-provider interaction during visits. Communication through the interpreter who accompanied the hearing

**Table 1:** Respondents' Pattern of Reproductive Health Care Services Utilization

Variable	Number (%)
<b>Ever use reproductive health care facility (N=167)</b>	
Yes	158(94.6)
No	9(5.4)
<b>Type of facility visited (N=158)</b>	
Government	95(60.1)
Private	53(33.3)
Others	10(6.3)
<b>Accompanied to the health facility</b>	
Yes	151(95.6)
No	7(4.4)
<b>Type of accompanying person (N=151)</b>	
Parents	114(72.2)
Someone from a supporting Organization	10(6.3)
Other relatives	7(4.4)
Friend	5(3.2)
Husband	4(2.5)
In-laws	3(1.9)
Boyfriend	1(0.6)
Others	7(4.4)
<b>Reproductive health services sought (N=65)</b>	
Pregnancy test	19(29.2)
Contraceptive services	17(26.2)
Gynaecologic examination	13(20.0)
Maternal and Child Health services	9(13.8)
Treatment of STIs	4(6.2)
Pregnancy termination	3(4.6)

impaired girl to the facility (32.9%) was the most common mode of communication with service provider followed by writing (27.2%) while 10(6.3%) respondents reported that there was no communication between them and the service provider. On whether the respondents were able to make themselves understood by the health provider, 41.1% responded in the negative, 17.1% did not understand anything said by the health provider and 41.8% had missed their turn in waiting room because they did not hear their names being called. Seventy-three (46.2%) respondents felt comfortable asking their health providers questions and 34(46.6%) of these said the questions asked were adequately answered. Of the 151 respondents who were accompanied to the facility, 113 (74.8%) were attended to in the presence of the accompanying person and 53.2% were concerned about the confidentiality of whatever was discussed with the health provider. Sixty (38.0%) respondents had questions they

wanted to ask their health provider but could not and main reasons were inability to communicate with health care provider (48.3%), embarrassed to ask in the presence of interpreter in the consulting room (36.7%) and provider not giving the respondent the opportunity to do so (15.0%). Only 17.1% and 22.2% reported that they were poorly treated by health provider and other staff respectively while 15.2% reported that they were not treated with dignity by the health providers seen at the facilities visited. Only 11.4% of respondents would not want to go back again to the health provider seen in the future.

When asked whether they received information and services wanted, 40.5% answered in the affirmative. Binary logistic regression of receipt of requested services revealed that those who are currently working were 20 times more likely to receive services wanted (OR=20.29, CI=1.05-392.16). (Table 3).

**Table 2:** Respondents' Reported Pattern of Client-Provider Interaction

Variable	Number (%)
<b>Mode of communication with health care provider</b>	
Did not communicate	10(6.3)
Through interpreter who accompanied hearing impaired girl	52(32.9)
Through written communication	43(27.2)
Health provider understood sign language	33(20.9)
Through speech	12(7.6)
Through interpreter provided by the health facility	8(5.1)
<b>Ability to make self understood</b>	
No	64(41.1)
Yes	93(58.9)
<b>Ability to understand all that the health provider said</b>	
No did not understand anything	27(17.1)
Not everything	77(48.7)
Yes understood everything	54(34.2)
<b>Ever missed turn in the waiting room because of hearing status</b>	
Yes	66(41.8)
No	92(58.2)
<b>Concern about confidentiality of discussion</b>	
Yes	84(53.2)
No	74(46.8)
<b>Did health provider meet you in the presence of accompanying person (N=151)</b>	
Yes	113(74.8)
No	38(25.2)
<b>Did you receive the information and/service wanted</b>	
Yes	64(40.5)
No	78(49.4)
Partially	16(10.1)

**Table 3:** Odds ratio of independent factors affecting receipt of services wanted

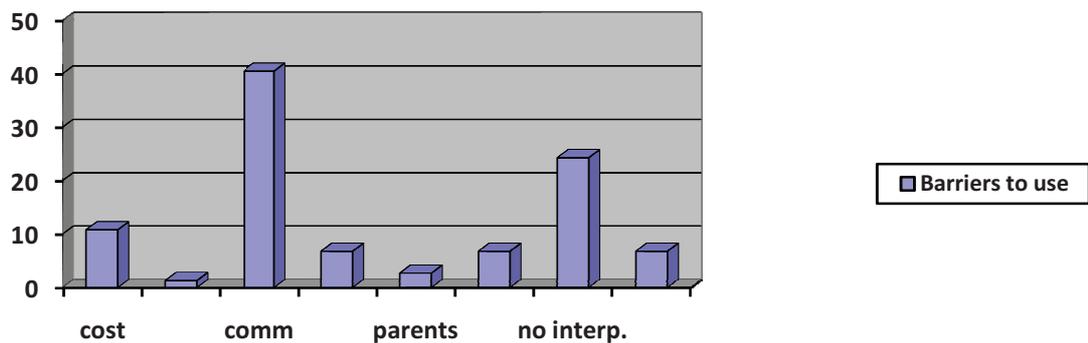
Variable	Unadjusted Odds Ratio			Adjusted Odds Ratio		
	Odds Ratio	95% CI	P-value	Odds Ratio	95% CI	P-value
<b>Age</b>						
<21years						
>21years (Ref <21 years)	3.05	0.94-9.89	0.063	5.64	0.30-104.34	0.246
<b>Ever work for pay</b>						
Yes						
No (Ref No)	1.06	0.41-2.72	0.905	-	-	-
<b>Currently working</b>						
Yes						
No (Ref No)	13.33	1.3-134.62	0.028	20.29	1.05-392.16	0.046
<b>School attendance</b>						
In-school						
Out-of-school (Ref in-school)	3.24	0.86-12.14	0.081	0.46	0.02-13.10	0.651

Seventy-four (44.3%) respondents reported that there had been a time when they should visit the health facility but did not due to a barrier or the other. Main barriers to accessing health care services as enumerated by respondents included communication problem (40.5%), not finding anyone to accompany hearing impaired girls to the facility (24.3%), cost (10.8%) and not liking the way they were treated by health provider the last time they visited the facility (6.8%) (Figure 1). Overall 143(85.6%) respondents said they were more likely to use health care services if hearing impaired women friendly services are available in the health facilities.

## Discussion

Our results mirror previous findings among hearing impaired persons and health care utilization. Schein and Delk's<sup>19</sup> study regarding health care experiences of hearing impaired persons documented that 80.5% of their study respondents suggested the use of a sign language interpreter as a means to improve communication between hospital staff and themselves. This was buttressed by our findings where 85.6% would likely use health facilities when there are

supporting facilities like interpreters. This was also supported by Folkins et al<sup>20</sup> respondents who recommended that the single most important improvement to health services for them would be the provision of not only interpreters but high level certified medical interpreters. This shows that not all interpreters can be effective in medical consultation. However in Nigeria where none exists at present, employing the services of available non-medically certified interpreters is a starting point and these can then be trained through an in-service training programme. The current practice of family members serving as interpreters breeches privacy and confidentiality as expressed in this study where 74.8% were seen in the presence of accompanying persons and 53.2% were concerned about the confidentiality of the content of the interactions. This has made hearing impaired persons feel that they had been excluded from their own health care decisions<sup>21, 9</sup> by communicating directly with provider leaving the hearing impaired person out completely. This feeling is eliminated by the availability of certified interpreters. Furthermore, to bridge the communication gap between providers and hearing impaired patients, service providers need training to be able to work with interpreters during



**Figure 1:** Reported barriers to accessing reproductive health care services

consultation. Service providers should also be encouraged to learn some basic of sign language which according to Steinberg et al<sup>9</sup> is better than nothing.

The finding that providers turn to writing as a strategy to overcome communication barrier with hearing impaired persons is commendable. However this has its challenges. One of the biggest challenges found with writing is the limited vocabulary among hearing impaired people who use English infrequently as a second/third language. This problem is especially noticeable with relation to medical terminology used in the health care setting.

The finding that 17.1% of our respondents did not understand anything said by their provider is important as providers need to be aware that medical terminologies may not be readily understood by lay people with communication problems as has been reported by Mayer and Villaire<sup>22</sup>. In addition, health providers need to consider the use of visual aids and taking extra time to explain to their patients. These steps have been found to be helpful<sup>9</sup>. The lack of courtesy and insensitivity reported in this study was corroborated by Kroll et al<sup>23</sup> who documented that their study respondents experienced lack of insensitivity, courtesy and support during examination.

A sizable number of our respondents missed their turn while waiting in the waiting room. This concern has been voiced by hearing impaired persons in other studies. Iezzoni et al<sup>5</sup> and Ubido et al<sup>24</sup> documented this concern raised by the hearing

impaired groups studied where they missed long awaited appointments because they cannot hear when they are called in the waiting room, often causing great embarrassment and frustration on the part of the hearing impaired patient. This problem is not only specific to people who are profoundly hearing impaired but hard-of-hearing people also experienced difficulties in understanding what was being said over the intercom system, especially at times when waiting areas were overcrowded and noisy. This calls for a re-organization of waiting rooms to accommodate this group of people. Posters in sign language can be put on walls in waiting areas to reduce this. The finding that less than half of respondents had their expectations met at the facilities visited affirmed aforementioned challenged faced.

A major limitation of the data obtained is that the information is based solely on self-report. This is not a problem in itself, but no responses, without further verification, can be seen as representing the truth of what has happened. All accounts are affected by respondents' memory and by how they chose (consciously or otherwise) to present themselves. What the data does give us however is an indication of hearing impaired people's reported experiences in accessing reproductive health care services.

## Conclusion

This study highlights challenges faced by girls with hearing impairment in accessing reproductive health care services. The main barrier experienced

was communication, a problem not specific to the health care environment but also experienced within society at large. The assumption before the study was that communication would be a significant barrier in the access to health care facilities however other barriers not expected to be significant such as work status were observed. These play an integral part in how the respondents access health care services. The finding that hearing impaired girls are dependent on others to access care paint a picture of helplessness which is a precursor to their state of anxiety and fear as they lack the control of their own health care management but are dependent on secondary information.

Confidentiality is one of the rights due to a person entering into the health care environment, however, for the hearing impaired population, this right is very often not afforded to them. There are practically no professional interpreters available at clinics. Most often, friends/family are used as interpreters, in addition to a breach in confidentiality, this practice could potentially lead to further miscommunication as the language of the interpreter and the doctor are most probably not the same either, so there is another aspect of communication difficulties. The blame for this problem should not be the health system one alone, the educational system also shares in the blame and has a role to play in fostering independent questioning skill among the hearing impaired as part of educational skills imparted.

### **Implications of the findings for the sexual and reproductive health of the hearing impaired**

There is therefore the need for the Federal Ministry of Health to develop national standards related to language access to health care. This is practicable as more of the respondents use government facilities and government can spearhead this in their facilities. This should include: support for development and provision of training for interpreters to work in a number of roles; development of standards for provider training in working with an interpreter; development of policy outlining required use of professional interpreters; and support for, and development of, accreditation processes for interpreters and institution. In addition there need

for a national strategy for health interpreter training, interpreter accreditation and standards of service provision to be developed and put in place. This is to be a collaborative effort between the ministries of health and education.

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### **Contributions of authors**

OSA conceived the study; OSA, MAT, NAB, OEO and OGBN participated in research design. MAT, OEO and OGBN supervised data collection and NAB the data analysis. OSA, MAT, NAB, OEO and OGBN contributed to data interpretation and writing of the draft. OSA was the principal investigator for the study and revised the draft extensively with MAT. All authors read and approved the final manuscript.

### **References**

1. Womens' Health Exchange. Breaking barriers in Nigeria Access to health care for women with disabilities, 2006; 11: 1-8.
2. American Nurses Association (ANA) *Code of ethics for nurses*. Retrieved June 6, 2007, from <http://www.nursingworld.org/ethics/chcode.htm>
3. Pozgar GD. *Legal aspects of health care administration* (9<sup>th</sup> ed.) Sudbury, MA: Jones and Bartlett Publishers 2004
4. Bachman SS, Vedrani M, Drainoni M, Tobias C and Maisels L. Provider perceptions of their capacity to offer accessible health care for people with disabilities. *J. Disabil. Policy Stud* 2006; 17(3), 130-136.
5. Iezzoni LI, O'Day BL, Killeen M and Harker H. Communicating about health care: Observations from persons who are hearing impaired or hard of hearing. *Ann Intern Med* 2004; 140(5), 356-362.
6. Law J, Bunning K, Byng S, Farrelly, S and Heyman, B. Making sense in primary care: Levelling the playing field for people with communication difficulties. *Disability and Society* 2005; 20(2), 169-184.
7. Jones EG, Renger R. and Firestone R. Hearing impaired community analysis for health education priorities. *Public Health Nurs* 2005; 22(1), 27-35.

8. Zazove P, Meador H, Reed BD, Sen A and Gorenflo D. Cancer prevention knowledge of people with profound hearing loss. *J Gen Intern Med* 2009; 24, 320-326.
9. Steinberg AG, Barnett S, Meador HE, Wiggins EA and Zazove P. Health care system accessibility: Experiences and perceptions of hearing impaired people. *J Gen Intern Med* 2006; 21(3), 260-266.
10. Tamaskar P, Malia T, Stern C, Gorenflo D, Meador H and Zazove P. Preventive attitudes and beliefs of hearing impaired and hard-of-hearing individuals. *Arch Fam Med* 2000; 9, 518-525.
11. Barnett S and Franks P. Health care utilization and adults who are hearing impaired: Relationship with age at onset of hearing impairedness. *Health Serv Res* 2002; 37(1), 105-120.
12. Harmer LM. Health care delivery and hearing impaired people: practice, problems and recommendations for change. *J Hearing impaired Stud Hearing impaired Educ* 1999; 4:73-110.
13. Olubodun WO. The life experiences of hearing impaired high school graduates in Nigeria. A Dissertation of the University of Nebraska – Lincoln, 2003
14. Kurz RSC, Haddock DL, Winkle V and Wang G. The Effects of Hearing Impairment on Health Services Utilization. *Med Care* 1991; 29: 878–89.
15. Ries PW. Hearing Ability of Persons by Sociodemographic and Health Characteristics: United States, 1977. *Vital and Health Statistics*, 1982; Series 10, No. 140.
16. Zazove P, Niemann LC, Gorenflo DW, Carmach C, Mehr D, Coyne JC and Antonucci T. 1993. “The Health Status and Health Care Utilization of Hearing impaired and Hard-of-Hearing Persons.” *Arch Fam Med* 1993; 2: 745–52.
17. Ebert DA, and Heckerling PS. Communication with Hearing impaired Patients: Knowledge, Beliefs, and Practices of Physicians. *JAMA* 1995; 273: 227–9.
18. Pollard RQ. Public Mental Health Service and Diagnostic Trends Regarding Individuals Who Are Hearing impaired or Hard of Hearing. *Rehabil Psychol* 1994; 39: 147–60.
19. Schein JD and Delk MT. Survey of health care for hearing impaired people. *Hearing impaired Am* 1980; 32(5): 5-6, 27.
20. Brieger WR, and Adeniyi JD. Urban community health education in Africa. *Int'l. Quarterly of Community Health Education* 1982; 2: 109-121.
21. Folkins A, Sadler GR, Ko C, Branz P, Marsh S and Bovee M. Improving the hearing impaired community's access to prostate and testicular cancer information: A survey study. *BMC Public Health*, 2005; 5, 63-69.
- Mayer GG and Villaire M. Low health literacy and its effects on patient care. *J Nurs Adm* 2004; 34: 440-442.
22. Bat-Chava Y, Martin D and Kosciw JG. Barriers to HIV/AIDS knowledge and prevention among hearing impaired and hard of hearing people. *AIDS Care* 2005; 17(5), 623-634.
23. Kroll T, Jones GC, Kehn M and Neri MT. Barriers and strategies affecting the utilization of primary preventive services for people with physical disabilities: A qualitative inquiry. *Health Soc Care Community* 2006; 14(4), 284-293.
24. Ubido J, Huntington J and Warburton D. Inequalities in access to healthcare faced by women who are hearing impaired. *Health Soc Care Community* 2002; 10(4), 247-253.
25. Kritzinger J. Exploring the barriers and facilitators to health care services and health care information for hearing impaired people in Worcester Stellenbosch University <http://scholar.sun.ac.za> December 2011.