International Research Journal of Medical Sciences _____ ISSN 2320 –7353
Vol. **3(2),** 1-6, February **(2015)** *Int. Res. J. Medical Sci.*

Knowledge and Perception of Students of Tertiary Institution in the North-Western Nigeria on Childhood Polio Vaccine

Magaji MG.[1], Mahmud M[1], and Muhammad AA[2]
[1]Department of Pharmacology and Therapeutics, Ahmadu Bello University, Zaria, NIGERIA
[2]Department of Pharmacology, Usmanu Danfodiyo University Sokoto, NIGERIA

Available online at: www.isca.in, www.isca.me
Received 12th December 2014, revised 10th January 2015, accepted 24th February 2015

Abstract

Poliomyelitis is a serious clinical problem that affects some developing countries and the disease presents a constant threat to childhood population resulting in social and economic consequences for victim, parents and the society. It is the most important cause of physical disability worldwide. The present study was aimed at assessing Students' knowledge and perception of oral polio vaccine in a tertiary institution in Northwestern Nigeria. Our study utilized a close ended interview questionnaire administered to randomly selected students of Usmanu Danfodiyo University, Sokoto, Nigeria. The results of the study showed a high level of awareness about polio among the respondents (95.9%). Television/radio was observed to be the commonest source of information about polio among the respondents (53.7%). There were 78.9% of the respondents that knew about the indication of polio vaccine. Among the respondents, 85.40% believed on polio vaccine and 4.60% did not believe on polio vaccine. 36.7% of non -believers of polio vaccine thought that, poliomyelitis is not a major problem in Nigeria, 33.3% believed it was against their religions, 20% believed that polio vaccine contained contraceptive ingredients, 3.3% indicated that, the vaccine can cause poliomyelitis itself while 6.7% believed it contain HIV. The study also showed that, majority of the respondents (89.4%) indicated they have polio vaccine unit in their areas where they live. The findings in this study indicates that, more advocacy, enlightenment and social mobilization are needed to dispel negative believes and improve acceptance of polio vaccine in our community.

Keywords: Poliomyelitis, vaccine, knowledge, awareness, perception.

Introduction

During the last 2 decades, child survival in developing countries has been given a prominent place in the world health agenda. The World Health Organization (WHO) estimated that, 2 million child deaths were prevented by vaccinations in 2003[1]. Infant immunization is considered essential for improving infant and child survival. This is necessary in order to achieve the goal ''Health for all'. The goal is crippling due to various factors and management of health care services especially in rural areas is challenging[2]. Global immunization coverage has increased to the level of around 80% for poliomyelitis, tetanus and diphtheria, African region has consistently fallen behind reaching only 68%[1]. Immunization prevents illness, disability and death from vaccine-preventable diseases including cervical cancer, diphtheria, hepatitis B, measles, mumps, pertussis, pneumonia, polio, rotavirus diarrhoea, rubella and tetanus. Immunization currently averts an estimated 2 to 3 million deaths every year. But an estimated 21.8 million infants worldwide are still missing out on basic vaccines[3]. Nigeria was rated among the African countries that made progress in routine immunization coverage (about 80% coverage) especially in southern part of the country[4]. Poliomyelitis still remains a serious problem in a large part of the developing world where the disease presents a constant threat to childhood population with important consequences for social and economic development[5]. Children under five years of age are the most vulnerable group and one out of every 200-400 child infected will suffer from paralysis and even death[4]. Polio vaccine have for long remained a cost-effective tool in reducing paralysis and death from poliomyelitis than any public health intervention[4]. This is true in developed nations where health systems are more organized and immunization services are fully utilized. In Nigerian and other African countries, with poor health seeking behaviors and low vaccination status, the results are different. Health systems of these nations are in tragedy with poverty, illiteracy and inadequate facilities. Common practices like healthy life style and vaccination have proved that these practices greatly contribute to the healthy life[6]. In 1998, the global polio eradication initiative (GPEI), a partnership of UNICEF, the WHO, Rotary international and US centers for disease control and prevention (CDC) began spearheaded efforts to support countries to immunize every child against polio until transmission stops and the world is polio free[1], Nigeria is among those countries. However, the work is not yet completed since Polio still remains active in four endemic countries of Nigeria, India, Afghanistan and Pakistan. Each of the countries suffers a unique set of challenges which require solutions. These challenges included intense virus circulation in northern India, security problem in Afghanistan and northern Pakistan and lack of quality operation, religious misconception and illiteracy in northern Nigeria[4]. The global effort to eradicate polio by the

World Health Organization, UNICEF and The Rotary Foundation have reduced the number of annual diagnosed cases by 99%, an estimated 350,000 cases in 1988 to a low level of 483 cases in 2001, after which it remained at a level of about 1,000 cases per year[7]. Polio is one of the only two diseases considered as the subject of global eradication, the other being guinea worm disease. If the global polio eradication initiative is successful before that of guinea worm, it would be the third time human has ever completely eradicated a disease after small pox in 1979[8] and render pest in 2010[9] number of eradication milestones have already been achieved and several regions of the world have been certified polio free. The Americans were declared polio-free in 1994[9]. Europe was declared polio free in 2002[8]. As of 2006, polio remains endemic only in four countries, Nigeria, India, Pakistan and Afghanistan[10]. Although it continue to cause epidemics in other nearby countries due to hidden re-established transmission[8]. Information, education and enlightment are vital tools that would contribute to the total eradication of polio in the remaining endemic countries. Therefore, the present study was carried out to assess students' knowledge and perception of oral polio vaccine in a tertiary institution in Sokoto State Northwestern Nigeria to measure the level of awareness and acceptance of polio vaccine among the students of tertiary institution.

Methodology

The study involves a cross sectional closed ended 150 questionnaires that were distributed to both male and female students of Usmanu Danfodiyo University Sokoto. 123 questionnaires were successfully filled and retrieved. Data selected was analyzed using SPSS statistical package version 20. Sample size was calculated from the formular; $n= Z^2pq/d^2$, where n = Desired sample, Z = Standard normal deviation set at 95% confidence interval (i.e 1.96). P = Proportion of people who had knowledge on polio vaccine taken as 90% .q = Complimentary probability [I – P] , d = Degree of accuracy = 5% = 0.05. $n= Z^2pq /d^2$ = 1.962 x 0.9 x 0.1 /0.052 = 138.

Results and Discussion

The results of the study showed that, the predominant age range of the respondents is between 20-24 [53.7%] years with mean age of 23.15 $\pm$ 3.69 years. Also two third of the respondents [78.9%] were found to be Hausa/Fulani and 95.9% of the respondents were Muslims. 27% of the respondents comprise of 2nd year students and Faculty of Science had the highest number of respondents of 42.3% as shown in table-1.

Figure-1 showed that, majority of the respondents were aware of polio vaccine (95.90%) when compared to few of the respondents that were not aware of polio vaccine (4.10%).

Figure-2 showed that, about half of the respondents (53.70%) had information about polio vaccine from television or radio stations while 19.50% learnt about polio from school and 15.4% from health personnel, few read about from newspapers (7.30%) and the least source came from family and friends (4.10%).

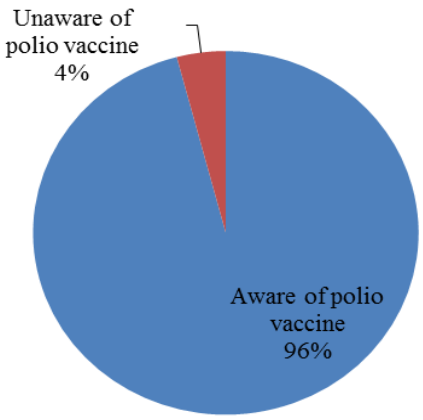

Figure 1
Awareness of polio vaccine amongst the respondents

Table-1
Socio demographic characteristics of the respondents [n = 123]

Variables	Frequency (n=123)	Percentage (%)	P-value
Gender			
Male	80	65	<0.05
Female	43	35	0.06
Age in years			
15-19	15	12.5%	<0.05
20-24	66	53.7%	<0.05
25-29	36	29.3%	<0.05
30-34	4	3.3%	0.07
>34	2	1.6%	0.08
Mean value	23.15 $\pm$ 3.69		
Tribe/language			
Hausa/Fulani	97	78.9%	<0.05
Igbo	3	2.4%	0.06
Yoruba	18	14.6%	0.07
Others	5	4.1%	0.06
Religion			
Islam	118	95.9%	<0.05
Christianity	5	4.1%	0.07
University educational Level			
1st year	27	22.1%	<0.05
2nd year	33	27.0%	<0.05
3rd year	31	25.4%	<0.05
4th year	25	20.5%	<0.05
5th year	6	4.9%	0.04
Field of study			
Sciences	52	42.3%	<0.05
Social science	21	17.1%	<0.05
Arts/Law	15	12.2%	<0.05
Medical sciences	31	25.2%	<0.05
Others	4	3.3%	0.06

Figure-3 showed majority of the respondents were aware that, polio vaccine is administered to prevent poliomyelitis (78.90%). 11.40% indicated prevention of measles while the least indicated malaria, fever and diarrhoea that is 4.90%, 4.10% and 0.8% respectively.

It was observed that, among the respondents, 109 (88.6%) were aware of the indication of polio vaccine to children under five years when compared to 11.4% that indicated polio vaccine is administered to children over six years. Majority of the respondent were aware that polio vaccine is administered at birth, 6 weeks, 10 weeks and 14th weeks, while few of the respondent (5.7%) were not aware of this. This is shown in table-2.

More than 2/3rd of the respondents (85.4%) indicated willingness to allow their children or relatives be given polio vaccine while only 4.6% never allowed their children or relatives to be given polio vaccine as shown in table 3.

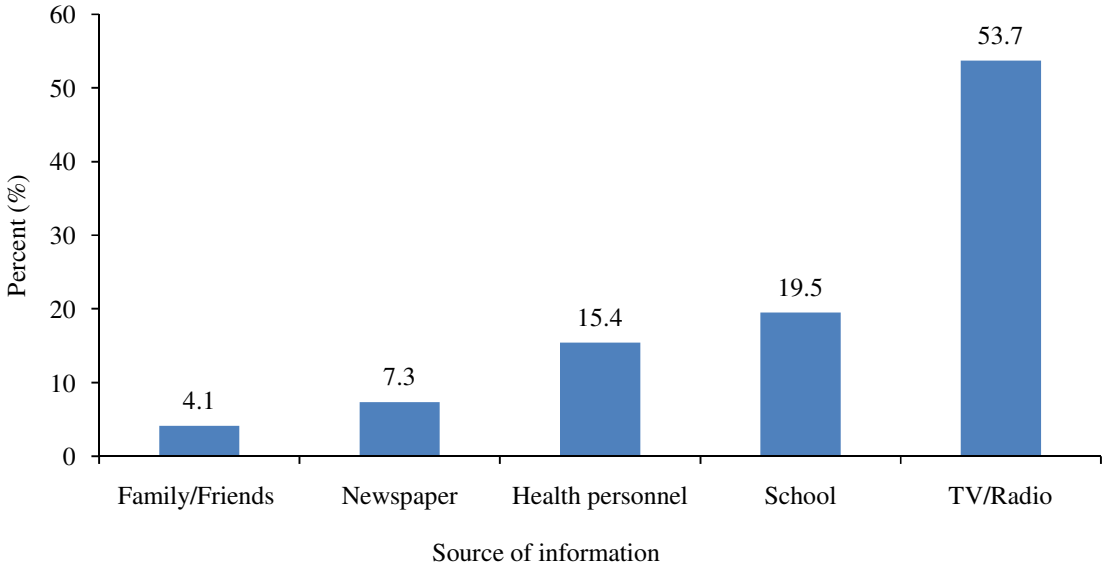

Figure-2
Source of information on polio vaccine amongst the respondent

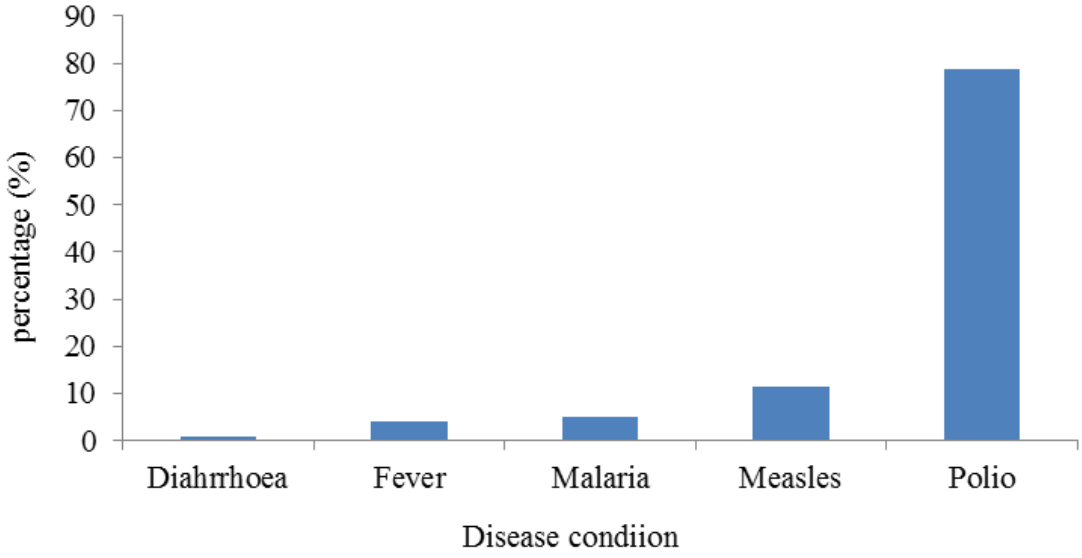

Figure-3
Knowledge on the indication of polio vaccine

Table 2
Knowledge of the respondent on the people benefiting from polio vaccine [n = 123]

People benefiting from polio vaccine	Frequency	Percent
Children age < 6 years	109	88.6%
Children age > 6 years	14	11.4%
TOTAL	123	100%

Table 3
Distribution of polio vaccine to the respondents children in the past (n = 123)

Category of respondents	Frequency	Percent
Respondents children/relatives that have ever received polio vaccine in the past	105	85.4%
Respondents children/relatives that have not received polio vaccine in the past	18	4.6%
Total	123	100%

Figure 5 showed reasons given by respondents for disallowing administration of polio vaccine to their children. 36.7% indicated that poliomyelitis is not major problem in Nigeria when compared to other prevalent diseases. 33.30% said vaccination was against their religion, 20% believed that polio vaccine contained family planning contraceptive, 3.3% even indicated that, the vaccine itself may cause poliomyelitis and 6.70% believed it contains HIV formulated in it.

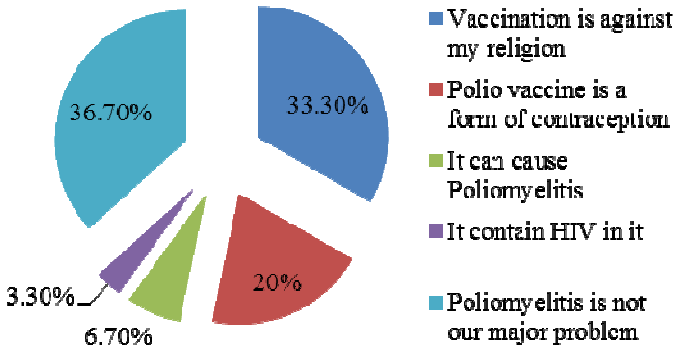

Figure-4
Reasons by the respondents for refusing their children received polio vaccines

Figure 5 showed that, Less than half of the respondents in each case indicated illiteracy (44.7%) and lack of information (31.9%) as the major factors militating against the effectiveness of polio vaccination in their community. Other factors included high cost of vaccine (3.2%), religious misconception (20.2%) and inadequate of information (31.9%).

Figure 6 showed that, percentage availability of polio vaccine unit in the respondent's area with only 11% of the respondents have polio vaccine unit in their area, while 89% indicated lack of polio vaccine unit in their area.

In the present study, it was observed that, the predominant age group of the respondents was within the age range of 20-24 years (53.70%) with mean age of 23.15± (3.69) years ($P<0.05$). This could be due to the fact that majority of the University students are found within this age group. Majority of the respondent were also from Hausa/Fulani tribe (78.60%). Igbo on the other hand has a representation of 2.40% and other tribes constituted 4.10%. The dominance of Hausa/Fulani probably may be due to the location of the study area being a Hausa/Fulani dominated land. Islam (Muslims) had major representation of 95.90% when compared to their Christians counterparts that constituted only 4.1%. This may also be due to the fact that, the study location is known to be a region renowned for outstanding history and practice of Islam. Concerning awareness of polio vaccine, most of the respondents (95.90%) were aware of polio vaccine immunization while only 4.10% were not aware as shown in figure 1. This may probably be due to the campaign efforts by Federal, state and local government of Nigeria augmented by international community inform of health promotion program as previously reported by a study which indicated that, health promotion program increases level of awareness among people in a community[12]. The commonest source of information of polio vaccine was television and radio (53.70%) shown in figure-2, this is followed by school with 19.50%, hospital and health personnel (15.40%) while newspapers and family/friends constituted the least source with 7.30% and 4.10%, respectively. This is in accordance with the findings of a study which reported that; predominant source of information about polio was electronic media[11]. It will be definitely a worthwhile exercise if mass media takes up all possible public causes actively and create awareness among all concerned so that remedial measures could be adopted while dealing with practical situations[13]. Although, the level of awareness was high, some misconceptions occurred as regards to the use of polio vaccine shown in figure-3. Majority of the respondents (78.90%) knew that, the vaccine was administered to prevent poliomyelitis. About one fifth (11.40%) indicated that, the vaccine is used for other diseases such as measles while few indicated it is used for treatment of malaria, fever and diarrhoea. The few that indicated its use for prevention of measles could be due to their inability to differentiate between polio vaccine and measles vaccines. Table 2 showed majority of the respondent (88.60%) indicated that it's given to children less than 6 years of age while one fifth of the respondent indicated that, it's given to children above 6 years of age. Significant percentage of the respondents had enough knowledge on the route of oral polio vaccine administration. The belief and perception of polio vaccine among respondents shown in Figure 4, majority of the respondents (85.40%) believed that, poliomyelitis is a serious disease and polio vaccine can only be used to prevent it when compared to those that believed polio vaccine cannot prevent poliomyelitis.

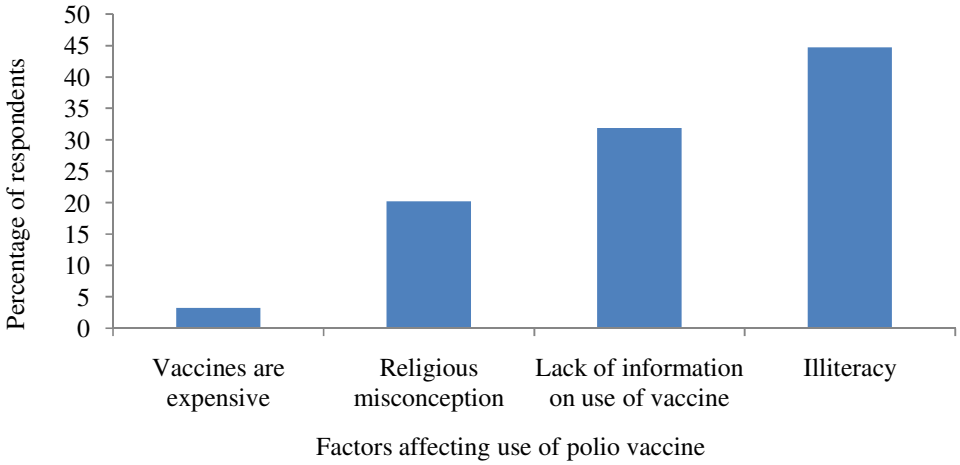

Figure-5
Factors militating against the effectiveness of polio vaccination among the respondents

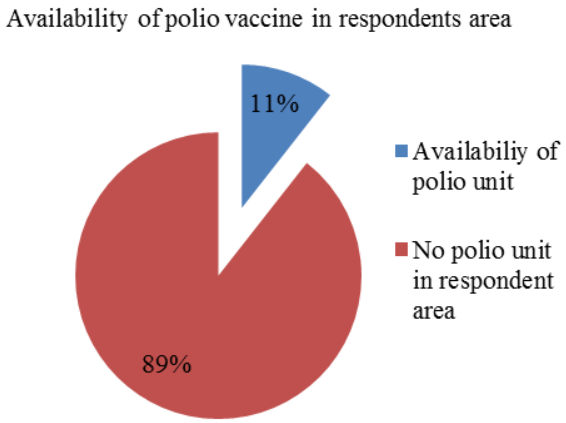

Figure 6
Distribution of respondents whether or not they have polio vaccine unit in their area

This is in agreement with the findings of a study which reported that there was an increased risk of non-belief in polio vaccine in people who do not know the purpose NIDS[14]. Among the respondents, 85.4% (table-3) indicated willingness to allow their children or relatives to be given polio vaccine as against 4.60% that was never willing to allow their children or relatives be given polio vaccine. This indicated that, majority of the respondents believed in the safety of polio vaccine in the prevention of poliomyelitis. The reasons extracted by the respondents were shown in figure-5. Some respondents (36.7%) believed that, poliomyelitis is not a major disease when compared to other diseases like malaria and made them to boycott the vaccination exercise. This finding is in agreement with a study that reported boycott of the polio vaccination campaign in northern Nigeria has greatly stalled global polio eradication targets[14]. Another factor that could fuel the rejection of polio vaccine from the study was due to the fact that, polio vaccine were available and administrated free of charge whereas, other visibly effective vaccines that protect children against more life threatening diseases such as measles and tuberculosis were either out of stock or in short supply in the health facilities. In the present study, it was observed that, 33.3% of the respondents indicated that, vaccination of children was against their religion, while 20% of the respondents thought polio vaccine is a form of contraception. Few of the respondents (3.30% and 6.70%) opined that polio vaccine could cause poliomyelitis or may contain HIV in it respectively and believed that, poliomyelitis is a serious disease that may cause more serious problem to their children. These were the major reasons that aided their reluctance in releasing their children for polio immunization. This corroborates with the findings of a previous study which reported that, misconceptions and beliefs among the mothers in partially immunized children were the main reasons for non-immunization of children[15].

Conclusion

The present study found that, knowledge and awareness about polio vaccine is gradually increasing. The unwillingness to allow children to receive polio immunization was due to misconception about polio vaccine been contaminated with family planning contraceptives, HIV and other harmful pathogens. Religious misconception also contributed a lot to polio vaccine rejection in the study area.

Recommendations: It is therefore, recommended that, an organized health promotion program be conducted in localities to educate public on usefulness of polio vaccine especially with regards to the misconception and belief about the vaccine. The findings in this study indicates that, more advocacy, enlightenment and social mobilization are needed to dispel negative believes and improve acceptance of polio vaccine in the affected communities.

References

1. World Health Organization, UNICEF, Global Immunization Vision and Strategy, 2006-2015, *Geneva, Switzerland*, *WHO*, (**2005)**

2. Veena S. Algur. Health awareness among RHTC beneficiaries at Shivanagi. *Int. Res. J. Medical Sci.* **1(10)**, 17-21, **(2013)**

3. World Health Organization Immunization coverage, *Fact Sheet,* N°378, *WHO, Geneva*, (**2014)**

4. World Health Organization. Immunization Fact Sheet **N°288**, *WHO Geneva*, (**2005)**

5. Lucas A.O. and Gilles H.M., A New Short Textbook of Preventive Medicine for the Tropics, *Edward Arnold, (***1990)**

6. Algur Veena S and Yadavannavar MC, Hand washing practices among patients attending RHTC, *Int. j. of health sci and Res,* **2(2)**, 46 **(2012)**

7. Centers for Disease Control and Prevention (CDC), Progress toward interruption of Wild poliovirus transmission-Worldwide, January 2007-April 2008, *MMWR, Morbidity and mortality weekly report*., **57(18)**, 489 **(2007)**

8. World Health Organization, Acute Flaccid Paralysis Surveillance Indicators in Nigeria 1998, WHO, (**2002)**

9. Centers for Disease Control and Prevention (CDC), "International Notes Certification of Poliomyelitis Eradication, *Weekly Report.,* **39, (1994)**

10. Centers for Disease Control and Prevention (CDC), Update on Vaccine Derived Polio Viruses, *Weekly Report*., **55(40), 2006**

11. Rasania S.K. and Sachdev T.R., Pulse. Polio Program : An Overview of Parent's perception, *The Journal of Communicable diseases*., **32(4)**, 275-283 **(2000)**

12. Stanley C.N, Oreh N.C. and Johnson-Ajinwo R.O., knowledge, Attitudes and Practices of intermittent deworming in Alakahia community, Rivers State, Nigeria, *Int. Res. J. Medical Sci,* **1(7)**, 1-7 **(2013)**

13. Bora Abhijit, Science Communication through Mass Media, Research Journal of Recent Sciences, **1(1),** 10-15 **(2012)**

14. Harmancı H., Gürbüz Y., Torun S.D., Tümerdem N. and Ertürk T., Reasons for non-vaccination during National Immunization days : A case study in Istanbul, Turkey, *Public Health*., **117(1),** 54-61 (**2003)**

15. Yahya M., Polio Vaccines—"no thank you!" Barriers to Polio eradication in Northern Nigeria, *African Affairs*, **106(423)**, 185-204 (**2007)**