Beliefs And Perceptions About Poliomyelitis Among Adult Women In A Nigerian City: Implications For Global Polio Eradication Early 21st Century

G Jombo, M Enenebeaku, A Salako, L Nimzing, D Egah, O Kandakai

Citation

Abstract
Background Declaration of Nigeria a polio free nation early 21st century would require a proper understanding and cooperation of all her citizens especially the women. This study was carried out to assess the beliefs and perceptions about polio among women in Jos.

Methods A cross-sectional study involving administration of questionnaires to 2,431 women scattered across six different parts of the city was carried out between February and April 2006. Information on questionnaire such as age, educational level, marital status, and modes of transmission and control of polio were obtained. Results were analysed using Epi Info 2002 version statistical software and P values ≤ 0.05 were considered significant.

Results About 7% (170) of the 2431 women studied had no knowledge of polio. Majority of those without knowledge of polio had no formal education (p<0.05); based on religion, 11.6%(88) of Moslems had no knowledge of polio as compared to Christians, 4.1%(63) and traditional religion, 19.8%(17), (p<0.05); awareness of polio among married women was significantly higher than that of the singles, (p<0.05). Also varied and conflicting modes of transmission and control of polio were enumerated by several women (about 30%, n= 729), while 297(12.2) and 171(7.0%) respondents had no knowledge about the modes of transmission and control of polio respectively.

Conclusion Up to 30% of adult women in Jos lack proper understanding of polio. Public enlightenment should be more coordinated and stepped up along with the regular immunization campaigns. Also education of girl child and that of adult woman be given priority to enhance their knowledge, and adequate incentives provided for its success.

INTRODUCTION
Poliomyelitis (or polio), a viral infection caused by polio virus has been in the centre of activity of World Health Organization (WHO) for the past 20 years more than ever before. The world health body and other collaborators such as Rotary International have been making frantic efforts to rid the globe of the disease. The World Health Assembly launched a global initiative in 1988 to eradicate polio from the world by the year 2000. Over 350,000 new cases of polio were estimated to occur yearly as at then in over 125 countries of the world. This was eventually pruned down to about 500 new cases a year by 2001 in about 10 endemic countries. In October 2003, 477 cases of Wild Polio Virus (WPV) were reported in 7 endemic countries. While by December 31st 2006, 1,912 cases of WPV were reported in the year in about 11 endemic countries. This was as a result of outbreak of WPV in countries hitherto declared polio free. Although there have been spikes of outbreaks of polio in different regions of the world in the midst of the present global polio eradication initiative, the exercise is nevertheless being sustained. In 1994, WHO certified 124 countries free of WPV, and by 2006 over 150 countries were certified. Of the 1,912 cases of WPV in 2006, Nigeria had 1,077 (56.3%) cases, followed by India with 643 (33.6%) and Somalia 154 (8.1%) with few other countries as...
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the most heavily infected nations on earth. In Niger, a study showed that 96% of mothers did not know what OPV was, while 33% did not know the venues of immunization campaigns in the country. In Somalia, the unstable sociopolitical situation in the country was shown to affect negatively the control of the disease.

In Nigeria, the control of poliomyelitis has yielded quite unimpressive results for the past seven years; available statistics show that: 28, 56, 202, and 335 cases of WPV were respectively reported in 2000, 2001, 2002, and 2003 across the country. In 2004, 571 cases of WPV were reported in the country, while in 2006 alone, 1,077 cases of WPV were reported. This makes Nigeria the most endemic country with over 56% of the cases of WPV on earth at present, and potentially, central to the re-importation of the virus directly to at least 12 countries in the sub-region. Part of the factors that have contributed to this unenviable position of Nigeria on polio eradication table is attributed to varied perceptions and understanding of the people towards its control.

The national programme on Immunization (NPI) of the federal government of Nigeria with the assistance of WHO, United Nations Children Fund (UNICEF), European Union (EU), Canadian International Development Agency (CIDA), among others, have collaborated with renewed vigour to eradicate WPV from Nigeria. This is beneficial, since as long as the polio situation in Nigeria remains uncontrolled, the entire global community still stands the risk of re-infection either in the immediate or distant future.

Twice, the WHO has shifted its target to certify the world, polio free; first in 2000, and then 2004, and the Nigerian situation appear to be contributory. As the global health body awaits to certify the world polio free, as it was in the case of small pox some 30 years ago, and with the continued persistence of the disease in Nigeria. There is need to reassess the knowledge and perceptions of the Nigerian woman about the subject, and its impact on the ongoing control programme. This formed the basis for the study.

MATERIALS AND METHODS

Study Area. The study was carried out in Jos, the capital city of Plateau state. Plateau state is situated in the north central Nigeria and shares common boundaries with states such as Kaduna, Nassarawa, Bauchi and Taraba. Based on 2006 population census, the population of Jos is estimated at 700,000 people, and has a temperate like climate. The major ethnic groups that constitute the city are Berom, Anaguta and Afisere which are believed to be the original inhabitants of the city, along with Hausa, Ibo and Yoruba with several other minor ethnic nationalities. The two major religions practiced by the inhabitants are Christianity and Islam with much fewer people practicing traditional religion. A large number of the people are either civil servants or staff of organized private sector, due to the large number of both federal and state establishments and industries in the city, many of the inhabitants are civil servants, or engage in one form of business, trading or the other due to the tourist and mining disposition of the area.

Procedure. Six different parts of the city including, Nassarawa, Angwan rogo, Rikkos, Farin gada, Tudun wada and Bukuru were selected between February and April 2006 to cut across religious, cultural and ethnic groups. Individual households and subjects were selected by simple random sampling methods for the study. Interviewers were recruited and trained on the art of questionnaire administration and its appropriate interpretation into subject’s understanding. All willing women of age 18 to 60 years in the selected households were interviewed on different aspects of polio vaccine. Questionnaires were either self administered depending on the literacy level of the subjects, or interviewer administered, and were collected back at the same time.

Exclusion criteria. Those less than 18 years and over 60 years.

Inclusion criteria. Those between 18 and 60 years, those nursing children outside the target age range.

Ethical Consideration. Ethical approval for the study was obtained from the Ethics committee of Jos University Teaching Hospital, Jos.

Analysis of Results. Results obtained were analysed using Epi Info 2002 statistical software, Chi square ($X^2$) was used to compare degree of association among variations, and P values less than 0.05 were considered significant.

RESULTS

Out of the 2605 questionnaires that were administered, 2503 (96%) were returned, out of which 2431 (97%) were correctly filled. Those aware of the existence of polio as a disease among the respondents were 93% (2261), while 7% (170) were unaware of the existence of the disease, (Fig. 1).
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Figure 1
Figure 1: Rate of knowledge of polio existence among adult women in Jos, North Central Nigeria.

<table>
<thead>
<tr>
<th>Aware (n= 2206)</th>
<th>Unaware (n= 170)</th>
</tr>
</thead>
<tbody>
<tr>
<td>58%</td>
<td>42%</td>
</tr>
</tbody>
</table>

Evaluation of the age distribution pattern among the respondents showed that: those ≤20 years (n= 411), 57(13.9%) were unaware of the disease; those 51-55 years (n= 83), 19(22.9%); and those 55-60 years(n= 61), 12(19.7%) as the age ranges with highest number of respondents that were unaware of the existence of the disease. On the contrary, the lowest figures of 13(4.1%), 10(2.8%), and 3(1.1%) were recorded among those 31-35(n= 314), 36-40(n= 358), and 41-45 years (n= 267) respectively, (Fig. 2), (p>0.05).

Figure 2
Figure 2: Age distribution pattern and rate of knowledge of polio existence among adult women in Jos.

An analysis of the educational level of the respondents showed that: among the 799 respondents who had no formal education, 87(10.9%) had no knowledge of polio; also, of the 715, 530 and 387 respondents that attended primary, secondary and tertiary education respectively, 51(7.1%), 32(6.0%), and 0(0.0%) respectively had no knowledge of polio existence, (p< 0.05), (Fig. 3).

Evaluation of the respondents based on religion showed that, of the 760 that practiced Islam and 86 of the traditional religion 11.6% and 19.8% respectively were unaware of the existence of polio compared with the 63(4.1%) of the 1549 Christians, (p< 0.05), (Fig. 4).

On account of ethnicity, 37(6.9%) of 502 Berom, 26(3.8%) of 657 Anaguta, 58(9.0%) of 645 Jarawa, 49(9.1%) of 488 Hausa, and Nil (0.0%) of 27 others had no knowledge of polio existence, (Fig. 5).

Based on marital status, 121(8.6%) of the 1410 singles, 40(4.5%) of the 883 married, and 9(6.5%) of the 138 divorced/separated group had no knowledge of polio. Also 3.9 %( 27) of 699, 8.3(143) of 1732 of the respondents who had nursed a child and those who had not respectively had no knowledge of polio, (p< 0.05).

An analysis of the knowledge of the respondents about the modes of transmission of polio revealed that, 72(3.0%) believed polio can be transmitted through mosquitoes, 15(0.5%) through other insect bites, and 1,336(55.0%) through food contaminated with faeces. Also 1,482 (61.0%) believed polio can be transmitted through water contaminated with faeces while 302(12.4%) believed eating with dirty hands could lead to transmission of polio. Other opinions raised include: Infection through air, 138(5.7%); From dirty clothing, 93(3.8%); From witches and wizards, 86(3.5%); As a result of curses, 132(5.4%); and by contact with infected persons and objects, 352(14.5%). About 12.2 %( 297) had no idea about modes of transmission of polio, (Table 1).

Evaluation of the modes of control of polio among the respondents showed that, 486(20.0%) endorsed proper hand washing before eating food, 512(20.1%) accepted the use of mosquito nets, and 267(11.0%) accepted the wearing of protective clotting and footwear as means of control. Other points raised on control were: Preventing contact of food and drinks with faecal matter, 622(25.6%); Boiling water before drinking, 701(28.8%); Avoiding contact with infected people, 197(8.1%); Obtain immunization from hospital/clinic, 1,768(72.7); Obtain cure from traditional herbalists, 252(10.4%), and seek for spiritual healing, 145(6.0%). Up to 171(7.0%) had no idea about control, (Table 2).
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Figure 3
Figure 3: Educational levels and rates of awareness of existence of polio among adult women in Jos.

Figure 5
Figure 5: Ethnic groups and rate of knowledge of polio existence among adult women in Jos.

Figure 4
Figure 4: Religious inclination and rate of awareness of polio existence among adult women in Jos.

Figure 6
Table 1: Knowledge about modes of Transmission of polio among adult

<table>
<thead>
<tr>
<th>Modes of Transmission</th>
<th>Response (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mosquito bite</td>
<td>72 (3.0)</td>
</tr>
<tr>
<td>Other insect bite</td>
<td>15 (0.6)</td>
</tr>
<tr>
<td>Food contaminated with faeces</td>
<td>1,326 (55.0)</td>
</tr>
<tr>
<td>Water contaminated with faeces</td>
<td>1,402 (61.0)</td>
</tr>
<tr>
<td>Eating with dirty hands</td>
<td>302 (12.4)</td>
</tr>
<tr>
<td>Infection through air</td>
<td>130 (5.7)</td>
</tr>
<tr>
<td>From dirty clothing</td>
<td>93 (3.8)</td>
</tr>
<tr>
<td>From witches and wizards</td>
<td>86 (3.5)</td>
</tr>
<tr>
<td>As a result of curses</td>
<td>132 (5.4)</td>
</tr>
<tr>
<td>Contact with infected person and objects</td>
<td>352 (14.5)</td>
</tr>
<tr>
<td>Others</td>
<td>13 (0.5)</td>
</tr>
<tr>
<td>No Idea</td>
<td>297 (12.2)</td>
</tr>
</tbody>
</table>

Note: *Subjects were allowed to tick more than one option based on their conviction
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Figure 7
Table 2: Knowledge about modes of control of polio among adult women in Jos.

<table>
<thead>
<tr>
<th>Modes of Control</th>
<th>Response (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proper hand washing before eating food with bare hands</td>
<td>46(6.0)</td>
</tr>
<tr>
<td>Use of mosquito nets</td>
<td>51(2.0)</td>
</tr>
<tr>
<td>Wearing protective clothing and foot wear</td>
<td>257(11.0)</td>
</tr>
<tr>
<td>Preventing contact of foods and drinks with faecal matter</td>
<td>62(2.5)</td>
</tr>
<tr>
<td>Boiling water before drinking</td>
<td>701(28.0)</td>
</tr>
<tr>
<td>Avoiding contact with infected people</td>
<td>197(8.1)</td>
</tr>
<tr>
<td>Obtain Immunization from hospital/clinic</td>
<td>1798(72.7)</td>
</tr>
<tr>
<td>Obtain care from traditional herbalist</td>
<td>252(10.4)</td>
</tr>
<tr>
<td>Seek spiritual healing</td>
<td>145(5.9)</td>
</tr>
<tr>
<td>Washing raw foods, fruits, vegetables, etc. with clean water</td>
<td>677(27.8)</td>
</tr>
<tr>
<td>Others</td>
<td>32(1.3)</td>
</tr>
<tr>
<td>No idea</td>
<td>171(7.0)</td>
</tr>
</tbody>
</table>

Note: *Subjects were allowed to hold more than one option based on their conviction.

DISCUSSION

Out of the 2431 valid questionnaires analysed, 7%(170) of the respondents were found to be unaware of the existence of polio. The 7% is an incredibly high figure with far reaching implications. Firstly, children born by such women stand the risk of being denied oral polio vaccine (OPV) by their mothers due to sheer negligence. The resultant effect being a continuous spread of the WPV in the community, neighboring communities and probably exporting it to other countries [11,12]. Secondly, such women would be obviously unaware of the control measures against polio such food and water sanitation with the consequence of continuous spread of the virus. And thirdly, the global community is not safe, and still stands the risk of a probable re-infection even in the already declared polio free countries [24,27].

The ongoing regular OPV immunization campaigns being carried out by the Federal Government of Nigeria should include a robust public enlightenment about modes of transmission and other modes of control outside immunization. Use of bill boards, posters, hand bills, electronic and print media could be intensified in use so as to impact in the public conscience. Other agencies such as volunteer group of National Youth Service corps (NYSC), boys scout, girls and boys brigade, and even members of medical students' unions, could be mobilized to embark on house to house public enlightenment in order to draw home this message. Mass immunization alone without a proper health education may fail to yield the desired results on time and hence further prolong the time to declare Nigeria polio free [31,32,33].

Education had a significant impact on the knowledge of polio among the respondents as majority of those who were unaware of the disease were among those with no formal education while all with tertiary education were aware of the disease (p<0.05). The impact of education of girl child and then adult woman on the control of polio and other childhood diseases in the country becomes apparent. Adult formal or informal literacy classes should be sited in different parts of the urban centres and women encouraged to attend, to, in addition, learn tit bits on maternal and child health. A 100% immunization coverage of polio among knowledgeable and enlightened mothers is a more easily achievable venture compared to those with inadequate knowledge [37].

The fact that a significant over 11% of the Moslems had no knowledge of polio compared to other faiths (p<0.05) stresses the need for the cooperation of especially Islamic religious leaders towards the public enlightenment about the disease in the country. A more enduring positive attitudinal change about the control of the disease is more likely to be achieved in such alliance [25,26]. Involvement of traditional rulers and opinion leaders in the community for advocacy campaigns would also boost peoples' warm embrace of best control measures for the disease.

Married women and those who had nursed a baby had a significantly better knowledge about polio compared to the singles (p<0.05), most of which was found to acquired at ante-natal visits. Adequate ante-natal facilities should be provided at proximity sites in the community to also serve as centres for knowledge dissemination and women encouraged to register at them.

The varied and diverse responses by the respondents about the modes of transmission and control of polio clearly show that quite a significant proportion of them had no adequate knowledge about them. The significant contribution of host communities towards proper monitoring and surveillance of polio will be lacking in such communities with inadequate knowledge. It is noteworthy that, surveillance by health personnel in collaboration with a well informed public has been successful in the control of polio in several parts of the world [38,39,40,41]. Improvement in public knowledge about polio would enhance its surveillance and hence its eventual
elimination.

In conclusion, this study has found out that, a significant proportion of women in Jos, North central Nigeria, has inadequate knowledge about polio and this is capable of affecting the global time table set for its elimination. More coordinated public enlightenment campaigns and advocacy should be carried out along with the mass immunization campaigns in order to educate the public adequately about the disease. Furthermore, education of the girl child and adult woman should be given priority and proper avenues created to facilitate it. Finally, active surveillance by the general public should be improved to detect remnant of cases in the community, as these would be required in order to declare Nigeria polio free and indeed the global community early 21st century.

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