Factors Associated with Interruption of Treatment Among Pulmonary Tuberculosis Patients in Plateau State, Nigeria, 2011

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Introduction

- Tuberculosis (TB) is a global health problem
  - One third of world population is infected
  - 1.1 million deaths in 2010
  - 95% of deaths in low and middle income countries

- 22 countries account for 80% of the TB burden

- Nigeria ranks fifth among the 22 countries
  - Incidence of 311 /100,000 (World TB report 2010)
TB treatment strategy

• Directly observed treatment short course (DOTS)
  – Direct observation of patients in the intensive phase of treatment
  – Reduces morbidity and mortality
  – Prevents multi-drug resistant TB (MDR-TB)
    • Caused by inadequate or incomplete treatment
  – Adopted in Nigeria in 1996
Outcomes of TB treatment in Plateau state 2001-2010

- Cured
- Defaulted
- Failure

Calendar year

Percentage

2001 2002 2003 2004 2005 2006 2007 2008 2009 2010
Outcomes of TB treatment in Plateau state 2001-2010

- Cured: 63.5% (≥85%)
- Defaulted: 6.5% (3%)

Calendar year:

- 2001
- 2002
- 2003
- 2004
- 2005
- 2006
- 2007
- 2008
- 2009
- 2010
Objectives

• To determine the proportion of TB patients with interrupted treatment

• To identify the factors associated with interruption of TB treatment
Study site

- Nigeria
- Plateau state
Methods

• Study design: Cross-sectional study

• Study period: June - July, 2011

• Respondents: Pulmonary TB (PTB) patients

• Eligibility for enrolment
  – Age ≥ 15 years
  – In the eighth month of treatment

• TB treatment interruption
  – Intensive phase – 2 days
  – Continuation phase – 14 days
Recruitment of respondents

438 TB patients in eighth month of treatment

422 (96%) with pulmonary TB patients ≥ 15 years

378 (90%) identified interviewed with questionnaire
Data collection technique

• Quantitative
  – Checklist
  – Structured questionnaire

• Qualitative
  – Focus group discussion (FGD)
  – Homogenous groups of male and female
Data collection

• Quantitative data by
  – Trained research assistants

• Qualitative data
  • Note taker
  • Moderator
  • FGD guide
  • Tape recorder
Data analysis

• Data analyzed with Epi Info version 3.5.1
  – Descriptive analysis
  – Bivariate analysis
  – Multivariate analysis

• Analysis of FGD
  – Transcription
  – Translation from local language to English
  – Report
Ethical considerations

• Ethical clearance obtained from the Plateau State Ethical Review Committee

• Informed consent obtained from all study participants
Results
Age and sex distribution of respondents (n=378)

Mean age 37.6 (±13.5) years, 61% male
Age and sex distribution of respondents (n=378)

<table>
<thead>
<tr>
<th>Age Group in years</th>
<th>Percentage</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 - 19</td>
<td>10</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>20 - 24</td>
<td>15</td>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td>25 - 29</td>
<td>12</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>30 - 34</td>
<td>20</td>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>35 - 39</td>
<td>25</td>
<td>25</td>
<td>0</td>
</tr>
<tr>
<td>40 - 44</td>
<td>20</td>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>45 - 49</td>
<td>15</td>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td>50 - 54</td>
<td>10</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>&gt; 54</td>
<td>10</td>
<td>10</td>
<td>0</td>
</tr>
</tbody>
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Mean age 37.6 (±13.5) years, 61% male
### Clinical and socio-behavioral characteristics of respondents (n=378)

<table>
<thead>
<tr>
<th>Factors</th>
<th>n</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category classification 2</td>
<td>34</td>
<td>(9.0)</td>
</tr>
<tr>
<td>Married</td>
<td>271</td>
<td>(71.7)</td>
</tr>
<tr>
<td>&lt; Secondary level education</td>
<td>189</td>
<td>(50.0)</td>
</tr>
<tr>
<td>Unemployed</td>
<td>85</td>
<td>(22.5)</td>
</tr>
<tr>
<td>Smoke cigarettes</td>
<td>70</td>
<td>(18.5)</td>
</tr>
<tr>
<td>Alcohol use</td>
<td>167</td>
<td>(44.2)</td>
</tr>
<tr>
<td>Bread winner of the family</td>
<td>180</td>
<td>(47.6)</td>
</tr>
<tr>
<td>Living &gt; 5 km from tx site</td>
<td>72</td>
<td>(19.0)</td>
</tr>
</tbody>
</table>
Knowledge of respondents on duration of TB treatment

- 84.7% knew the duration of TB treatment is 8 months.
- 8.2% did not know the duration.
- 5.6% thought it was less than 8 months.
- 1.5% thought it was more than 8 months.
Knowledge of respondents on duration of TB treatment

- 84.7% know the duration is 8 months
- 15.3% do not know
- 8.2% think it is less than 8 months
- 5.6% think it is more than 8 months

Patients’ knowledge
Interruption of treatment

• Total number of PTB respondents 378
  – Number that interrupted TB treatment 71 (19%)

• Interruption by TB treatment phase
  – Intensive phase 25 (35%)
  – Continuation phase 46 (65%)
Reasons for interrupting treatment among respondents

- Long distance/Transport fare: 45%
- Patient felt well: 35%
- Don't know duration of treatment: 25%
- Patient travelled: 20%
- Absence of health care workers: 15%
- Patient refused drugs: 5%

Reasons for interrupting treatment
Reasons for interrupting treatment among respondents

Percentage

- Long distance/Transport fare: 40%
- Patient felt well: 35%
- Don't know duration of treatment: 25%
- Patient travelled: 14%
- Absence of health care workers: 7%
- Patient refused drugs: 3%

Reasons for interrupting treatment
## Factors associated with interruption of treatment among respondents 1/2

<table>
<thead>
<tr>
<th>Factors</th>
<th>Interrupted treatment</th>
<th>OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes (%)</td>
<td>No (%)</td>
</tr>
<tr>
<td>Unemployed</td>
<td>22 (31)</td>
<td>63 (21)</td>
</tr>
<tr>
<td>Age &gt; 35 years</td>
<td>35 (49)</td>
<td>141 (45)</td>
</tr>
<tr>
<td>Male</td>
<td>44 (62)</td>
<td>185 (60)</td>
</tr>
<tr>
<td>&lt; Secondary Education</td>
<td>36 (51)</td>
<td>153 (50)</td>
</tr>
<tr>
<td>Bread winner in family</td>
<td>32 (45)</td>
<td>148 (48)</td>
</tr>
<tr>
<td>Married</td>
<td>48 (68)</td>
<td>223 (73)</td>
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*OR: Odds Ratio, CI: Confidence Interval*
Factors associated with interruption of treatment among respondents 2/2

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Unconditional logistic regression of factors associated with interruption of treatment among PTB patients

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<th>95% C.I.</th>
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<tbody>
<tr>
<td>Sex (Male)</td>
<td>1.9</td>
<td>0.7 - 5.2</td>
</tr>
<tr>
<td>Age &gt; 35 years</td>
<td>0.8</td>
<td>0.3 - 1.9</td>
</tr>
<tr>
<td>Clinical class (Cat 2)</td>
<td>1.9</td>
<td>0.5 - 7.1</td>
</tr>
<tr>
<td>Living &gt; 5km from treatment site</td>
<td>14.1</td>
<td>5.5 - 35.8</td>
</tr>
<tr>
<td>Don’t know duration of treatment</td>
<td>5.3</td>
<td>2.0 - 14.2</td>
</tr>
<tr>
<td>Smoked cigarettes</td>
<td>3.6</td>
<td>1.2 - 10.2</td>
</tr>
<tr>
<td>Alcohol use</td>
<td>0.6</td>
<td>0.2 - 1.4</td>
</tr>
</tbody>
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AOR; Adjusted odds ratio
Result of focus group discussion

• Majority knew the duration for treatment

• Few had interrupted their treatment
  – ‘I take the drugs to get well so as to get back to my work (female participant)’

• Factors responsible for interruption of treatment
  – Cost of transport to clinic
  – Unfriendly attitude of health care workers
Discussion 1/2

• Proportion of TB patients with interruption of treatment is 19%

• Factors associated with interruption of treatment
  – Living far from and cost of transportation to treatment sites
Discussion 2/2

– Inadequate knowledge on duration of treatment
  • Supported by (Gupta et al, 2010)

– Unfriendly attitude of health care workers might cause interruption of treatment
  • Supported by Jaiswal et al (2004)
Limitations

• We could not trace all the PTB patients that were eligible for the study
Conclusion

• Interruption of TB treatment in Plateau state associated with
  – Long distance of patients from treatment sites and transport cost
  – Poor knowledge of duration of TB treatment
  – Unfriendly attitude of healthcare workers towards patients
Public health actions

• Supportive supervision with training of health care workers on
  – Patient education on duration of treatment

• To ensure accessibility of services to patient
  – Decentralization of TB treatment sites
  – Use of treatment supporters for TB patients
Recommendation

• The Government of Plateau state
  – To support and sustain the decentralization process
  – To support the implementation of community TB care
Acknowledgements

- Nigeria FELTP
- Nigeria TB Control Program
- Federal Ministry of Health, Nigeria
- CDC Nigeria
Thank you for your attention