Factors associated with lost to follow up Tuberculosis patients on Tuberculosis treatment at Fort Portal Regional Referral Hospital, Kabarole District Western Uganda.

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PROBLEM STATEMENT

In 2012 Uganda had a TB incidence rate of 179/100,000 and 54% of TB patients were HIV positive (WHO, 2013). The TB mortality rate was 13/100,000 (in HIV Negative patients), and 25/100,000 in HIV positive patients (WHO, 2013).

A number of Ugandan studies revealed that TB was the leading cause of death in HIV patients, many of whom died before TB was confirmed by laboratory methods and many of them were lost to follow up (Kyeyune, et al., 2010, Amuron, et al., 2011and Moore, et al., 2011).

<table>
<thead>
<tr>
<th>The Kabarole District Health Statistics of December, 2013 report.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of patients enrolled</td>
</tr>
<tr>
<td>Completed treatment</td>
</tr>
<tr>
<td>Had issues with treatment</td>
</tr>
<tr>
<td>• Treatment failure</td>
</tr>
<tr>
<td>• Transfers out</td>
</tr>
<tr>
<td>• Lost to follow up</td>
</tr>
<tr>
<td>Lost to follow up (FPRRH)</td>
</tr>
</tbody>
</table>

These statistics implies that many patients were not followed up and there was inadequate management of TB patients in Kabarole District.
1.3 OBJECTIVE OF THE STUDY
1.3.1 BROAD OBJECTIVE
The purpose of this study was to Assess factors associated with lost to follow up TB patients on TB treatment in Fort Portal Regional Referral Hospital, Kabarole District.

1.3.2 SPECIFIC OBJECTIVES
• To describe patients demographic characteristics that contributed to lost to follow up of TB patients.
• To establish the Health facility factors that would have contributed to lost to follow up of the TB patients.
• To determine the patient-related factors that would have contributed to lost to follow up.
• To determine which factors where the commonest cause of lost to follow up of TB patients.

1.4 RESEARCH QUESTIONS.
• What were the demographic characteristics that contributed to lost to follow up of TB patients?
• What were the Health facility factors that contributed to lost to follow up of the TB patients?
• What were the patient-related factors that contributed to their lost to follow up?
• Which factors commonly caused lost to follow up of TB patients?
CONCEPTUAL FRAMEWORK

HEALTH FACILITY FACTORS
• Attitude of Health Workers
• Drug stock outs
• Staffing norm
• Diagnostic equipments
• Distance
• Waiting time

PATIENT RELATED FACTORS
• Stigma
• Pill burden
• Financial status
• Knowledge on Treatment benefits
• Side effects of drugs
• Residence

DEMOGRAPHIC CHARACTERISTICS
• Age
• Sex
• Marital status
• Tribe
• Education level
• Religion
• Occupation

LOST TO FOLLOW UP
METHODOLOGY

• **The study area** was FPRRH.
• **Study design** was a cross sectional.
• **Target population** (patients that were initiated into anti TB drugs at baseline on 01\(^{st}\) January 2012 to 31\(^{st}\) December 2012 but were lost to follow up during the course of the treatment till December 2013 they were my cases)
• **Data collection**; questionnaires and checklists.
• **Ethical consideration** Informed consent, study was voluntary and confidentiality was observed.
### Research Findings

**Table 1: Description of the Demographic characteristics (n=368)**

<table>
<thead>
<tr>
<th>Factor</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Factor</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age group</td>
<td></td>
<td></td>
<td>Marital status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16-20</td>
<td>13</td>
<td>3.53%</td>
<td>Married</td>
<td>134</td>
<td>36.41%</td>
</tr>
<tr>
<td>21-25</td>
<td>112</td>
<td>30.43%</td>
<td>Separated</td>
<td>50</td>
<td>13.59%</td>
</tr>
<tr>
<td>26-30</td>
<td>62</td>
<td>16.85%</td>
<td>Co-habiting</td>
<td>37</td>
<td>10.05%</td>
</tr>
<tr>
<td>31-35</td>
<td>93</td>
<td>25.27%</td>
<td>Single</td>
<td>68</td>
<td>18.48%</td>
</tr>
<tr>
<td>36-40</td>
<td>36</td>
<td>9.78%</td>
<td>Widow</td>
<td>79</td>
<td>21.47%</td>
</tr>
<tr>
<td>41-45</td>
<td>29</td>
<td>7.88%</td>
<td>Occupation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>46-99</td>
<td>23</td>
<td>6.25%</td>
<td>Business person</td>
<td>44</td>
<td>11.96%</td>
</tr>
<tr>
<td>Education level</td>
<td></td>
<td></td>
<td>Substance farmer</td>
<td>204</td>
<td>55.43%</td>
</tr>
<tr>
<td>None</td>
<td>74</td>
<td>20.11%</td>
<td>Formal employment</td>
<td>120</td>
<td>32.61%</td>
</tr>
<tr>
<td>Primary</td>
<td>175</td>
<td>47.55%</td>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary &amp; above</td>
<td>119</td>
<td>32.34%</td>
<td>Female</td>
<td>193</td>
<td>52.45%</td>
</tr>
<tr>
<td>Religion</td>
<td></td>
<td></td>
<td>Male</td>
<td>175</td>
<td>47.55%</td>
</tr>
<tr>
<td>Catholic</td>
<td>140</td>
<td>38.04%</td>
<td>Tribe</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anglican</td>
<td>106</td>
<td>28.80%</td>
<td>Baganda</td>
<td>36</td>
<td>9.78%</td>
</tr>
<tr>
<td>Born again Christian</td>
<td>20</td>
<td>5.43%</td>
<td>Batooro</td>
<td>151</td>
<td>41.03%</td>
</tr>
<tr>
<td>Moslem</td>
<td>102</td>
<td>27.72%</td>
<td>Banyoro</td>
<td>43</td>
<td>11.68%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Banyankole</td>
<td>62</td>
<td>16.85%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Bakiga</td>
<td>76</td>
<td>20.65%</td>
</tr>
</tbody>
</table>
### Table 2: Patients outcome of care Verses Demographic Characteristic (n=368)

<table>
<thead>
<tr>
<th>Demographic Characteristics</th>
<th>Outcome of care</th>
<th>Chi Squared Test</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>Lost to follow up (184)</td>
<td>Remained in care (184)</td>
<td></td>
</tr>
<tr>
<td>Female (193)</td>
<td>100(51.81%)</td>
<td>93(48.19%)</td>
<td>0.5339</td>
</tr>
<tr>
<td>Male (175)</td>
<td>84(48.00%)</td>
<td>91(52.00%)</td>
<td></td>
</tr>
<tr>
<td>Education level</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None (74)</td>
<td>72(97.3%)</td>
<td>2(2.7%)</td>
<td>92.9221</td>
</tr>
<tr>
<td>Primary level (175)</td>
<td>80(45.71%)</td>
<td>95(54.29%)</td>
<td></td>
</tr>
<tr>
<td>Secondary level and above (119)</td>
<td>32(26.89%)</td>
<td>87(73.11%)</td>
<td></td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business person(44)</td>
<td>44(100.00%)</td>
<td>0(0.00%)</td>
<td>66.8471</td>
</tr>
<tr>
<td>Subsistence Farmer (204)</td>
<td>106(51.96%)</td>
<td>98(48.04%)</td>
<td></td>
</tr>
<tr>
<td>Formal Employment (120)</td>
<td>34(28.33%)</td>
<td>86(71.67%)</td>
<td></td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married (134)</td>
<td>102(76.12%)</td>
<td>32(23.88%)</td>
<td>152.2264</td>
</tr>
<tr>
<td>Separated(50)</td>
<td>4(8.00%)</td>
<td>46(92.00%)</td>
<td></td>
</tr>
<tr>
<td>Co habiting (37)</td>
<td>18(48.65%)</td>
<td>19(51.35%)</td>
<td></td>
</tr>
<tr>
<td>Single (68)</td>
<td>54(79.41%)</td>
<td>14(20.59%)</td>
<td></td>
</tr>
<tr>
<td>Widow (79)</td>
<td>6(7.59%)</td>
<td>73(92.41%)</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16-20 (13)</td>
<td>8(61.54%)</td>
<td>5(38.46%)</td>
<td>2.4261</td>
</tr>
<tr>
<td>21-25 (112)</td>
<td>56(50.00%)</td>
<td>56(50.00%)</td>
<td></td>
</tr>
<tr>
<td>26-30 (62)</td>
<td>30(48.39%)</td>
<td>32(51.61%)</td>
<td></td>
</tr>
<tr>
<td>31-35 (93)</td>
<td>42(45.16%)</td>
<td>51(54.84%)</td>
<td></td>
</tr>
<tr>
<td>36-40 (36)</td>
<td>20(55.56%)</td>
<td>16(44.44%)</td>
<td></td>
</tr>
<tr>
<td>41-45 (29)</td>
<td>16(55.17%)</td>
<td>13(44.83%)</td>
<td></td>
</tr>
<tr>
<td>46 99 (23)</td>
<td>12(52.17%)</td>
<td>11(47.83%)</td>
<td></td>
</tr>
</tbody>
</table>
### Table 3: Patient factors versus the outcome of care (n=368)

<table>
<thead>
<tr>
<th>FACTORS</th>
<th>Outcome of care</th>
<th>Chi squared Test</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not knowledgeable (n=148)</td>
<td>142(95.95%)</td>
<td>6(4.05%)</td>
<td>209.0457</td>
</tr>
<tr>
<td>knowledgeable (n=220)</td>
<td>42(19.09%)</td>
<td>178(80.91%)</td>
<td></td>
</tr>
<tr>
<td>Stigma</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Absent (n=128)</td>
<td>41(32.03%)</td>
<td>87(67.97%)</td>
<td>25.347</td>
</tr>
<tr>
<td>Present (n=240)</td>
<td>143(59.58%)</td>
<td>97(40.42%)</td>
<td></td>
</tr>
<tr>
<td>Residence</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural (n=294)</td>
<td>168(57.14%)</td>
<td>126(42.86%)</td>
<td>29.8378</td>
</tr>
<tr>
<td>Urban (n=74)</td>
<td>16(21.62%)</td>
<td>58(78.38%)</td>
<td></td>
</tr>
<tr>
<td>Patients waiting time</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 1 hour (n=159)</td>
<td>55(34.59%)</td>
<td>104(65.41%)</td>
<td>28.8870</td>
</tr>
<tr>
<td>1-2 hours (n=169)</td>
<td>100(59.17%)</td>
<td>69(40.83%)</td>
<td></td>
</tr>
<tr>
<td>3-5 hours (n=40)</td>
<td>29(72.50%)</td>
<td>11(27.50%)</td>
<td></td>
</tr>
<tr>
<td>Pill burden</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Absent (n=39)</td>
<td>1(2.56%)</td>
<td>38(97.44%)</td>
<td>39.2637</td>
</tr>
<tr>
<td>Present (n=329)</td>
<td>183(55.62%)</td>
<td>146(44.38%)</td>
<td></td>
</tr>
<tr>
<td>Side effects</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No (n=95)</td>
<td>38(40.00%)</td>
<td>57(60.00%)</td>
<td>5.1223</td>
</tr>
<tr>
<td>Yes (n=273)</td>
<td>146(53.48%)</td>
<td>127(46.52%)</td>
<td></td>
</tr>
<tr>
<td>Distance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-5 kms (n=146)</td>
<td>47(32.19%)</td>
<td>99(67.81%)</td>
<td>22.9021</td>
</tr>
<tr>
<td>6kms and above (n=222)</td>
<td>128(57.66%)</td>
<td>94(42.34%)</td>
<td></td>
</tr>
</tbody>
</table>
### Table 4: Health Facility Factors.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Number required</th>
<th>Number available</th>
<th>Variance deficit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Staffing</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Medical Officers</td>
<td>1</td>
<td>1*(comes really like once in 3 months)</td>
<td>1(100%)</td>
</tr>
<tr>
<td>• Clinical Officers</td>
<td>1</td>
<td>Nil</td>
<td>1(100%)</td>
</tr>
<tr>
<td>• Nursing Officers</td>
<td>1</td>
<td>Nil</td>
<td>1(100%)</td>
</tr>
<tr>
<td>• Assistant Nursing Officers</td>
<td>3</td>
<td>1</td>
<td>2(67%)</td>
</tr>
<tr>
<td>• Enrolled Nurses</td>
<td>3</td>
<td>1</td>
<td>2(67%)</td>
</tr>
<tr>
<td>• Nursing Aides</td>
<td>Nil</td>
<td>02</td>
<td>Nil</td>
</tr>
<tr>
<td><strong>Diagnostic equipments</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• X ray machine</td>
<td>1</td>
<td>1</td>
<td>Nil</td>
</tr>
<tr>
<td>• Gene Xpert machine</td>
<td>2</td>
<td>1</td>
<td>1(50%)</td>
</tr>
<tr>
<td>• Microscopes</td>
<td>3</td>
<td>1</td>
<td>2(67%)</td>
</tr>
<tr>
<td><strong>Stock</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Drug stock in</td>
<td>1 every month</td>
<td>1 every 2 months</td>
<td>1(50%)</td>
</tr>
<tr>
<td>• Drug stock outs</td>
<td>Nil</td>
<td>1 every month</td>
<td></td>
</tr>
<tr>
<td>• Reagents stock in</td>
<td>1 every month</td>
<td>1 every 3 months</td>
<td>2(67%)</td>
</tr>
<tr>
<td>• Reagents stock outs</td>
<td>Nil</td>
<td>1 every 2 months</td>
<td></td>
</tr>
<tr>
<td><strong>Waiting time</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Before initiation to anti TBs</td>
<td>1 day</td>
<td>2-7 days</td>
<td>&gt;49%</td>
</tr>
<tr>
<td>• During drug pick ups</td>
<td>10 minutes</td>
<td>45 minutes</td>
<td>5(50%)</td>
</tr>
</tbody>
</table>
CONCLUSIONS

• Stigma, residence, knowledge, side effects and pill burden were the patient related factors that contributed lost to follow up of TB patients who were on TB treatment.

• The distance, drug stock outs and long waiting time were among the Health Facility factors that contributed also to patient’s lost to follow up from TB treatment.

• Marital status, level of education and occupation of the patients where the Demographic characteristics that had a strong association to lost to follow up.

• Lost to follow up of TB patients was commonly caused by patient’s related factors, Health Facility Factors, and demographic factors.
RECOMMENDATIONS

• There is need to intensify Health Education campaign on TB.
• There is need to decongest Fort Portal Regional Referral Hospital.
• MOH Uganda and DHO Kabarole should recruit more Health Workers and refresher trainings on staffs.
• All Health Facility Heads in Kabarole District must have supervised out reaches to reach out to the communities for Health Education.
• There is need to include the religious leaders in the fight against TB in Kabarole District by the DHO.
• There is need for the MOH Uganda to have a discussion with the pharmaceutical companies that supply Uganda with anti TB drugs to consider making small size anti TB drugs since most patients are getting lost to follow up because of the complex regimen and the big size of the tables which were difficult to swallow.