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Comparative influence of health locus of control on medication adherence among tuberculosis and HIV-positive outpatients in Edo State, Nigeria

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Full Length Research Paper

Comparative influence of health locus of control on medication adherence among tuberculosis and HIV-positive outpatients in Edo State, Nigeria

Obadiora, A.H.
Department of Physical and Health Education, Obafemi Awolowo University, Ile-Ife, Nigeria.

Received 8 August, 2015; Accepted 15 February, 2016

The purpose of this study was to investigate the difference between influence of health locus of control on medication adherence among outpatients undergoing directly observed treatment-short course (DOTS) and those receiving antiretroviral therapy (ART). Resurgence of tuberculosis (TB) infection following the spread of HIV epidemic has made treatment of TB and HIV co-infection a public healthcare priority in Nigeria. However, strict adherence to medications is critical for the treatment to be effective and to prevent death due to TB and rapid progression of HIV to full-blown AIDS. Locus of control perceptions of outpatients with TB and HIV infections should be assessed and determined for effective package of treatment that requires strict medication adherence. The participants were 100 outpatients receiving tuberculosis (n = 30) and HIV/AIDS (n = 70) services in seven selected treatment facilities across Edo State, Nigeria. The respondents were selected using a purposive sampling technique. All participants were individually administered with multidimensional health locus of control (MHLC) scale and Morisky (8-Item) medication adherence questionnaire (MMAQ). Percentage and inferential statistics (ANOVA) were used to analyse the data collected and were tested at p < 0.05. Heath locus of control presents similar influence on medication adherence among outpatients. There was an association between non-adherence (27%) and reported health complications (27%) by outpatients. The reasons cited for missing medications were travelling (48%), work schedule (14.8%), religion activities (14.8%), side effects of drug (11.1%), financial constraints (7.4%) and bereavement (3.7%). It was also observed that Internal-LOC [F = (23, 76) = 0.469, P<0.05], Powerful others-LOC [F = (26, 73) = 0.067, P<0.05] and Luck or chance-LOC [F = (27, 72) = 0.136, P<0.05] present similar influence on medication adherence among tuberculosis and HIV-positive outpatients undergoing treatments. The study revealed that LOC as a personality construct is not determined or influenced by TB or HIV/AIDS conditions. It was further shown that treatment methods such as DOTS for tuberculosis treatment whereby drugs use is directly administered and monitored by healthcare providers with support provided by family members ensured compliance influence of LOC beliefs, especially towards powerful others.

Key words: Health, locus of control, medication, adherence, DOTS, tuberculosis, ART, HIV/AIDS

INTRODUCTION

Tuberculosis (TB) and HIV have become major public health problems in many countries including Nigeria. Nigeria, with an estimated 259,000 cases, has the sixth largest population of people with tuberculosis (TB) in the world. The arrival of HIV/AIDS has caused a secondary tuberculosis epidemic in many African countries. Before
the HIV epidemic, the incidence rate of new cases of tuberculosis had been estimated at 2 per 1,000 (UNAIDS, 2005). The World Health Organization (WHO) now estimates that the incidence is 3.05 per 1,000, implying a 50% increase in the incidence rate (WHO, 2005).

Human immunodeficiency virus (HIV) greatly increases the risk for tuberculosis (TB), and the two epidemics continue to fuel one another (Suchindran et al., 2009). Olaitan (2004) observed that tuberculosis is also recognized as a major complication of human immunodeficiency virus (HIV) infection (Raviglione et al., 1992; Murray et al., 1990). Conversely, many reports have shown high rates of HIV infection in patients with tuberculosis in countries with HIV epidemics (Kelly et al., 1990). With an estimated National prevalence of HIV in Nigeria of 3.6% (Federal Ministry of Health (FMOH), 2011), the number of people living with HIV (3.3 million) represents the second largest burden of disease on the continent (UNAIDS/WHO, 2009). The World Health Organization (WHO) estimates that 26% of patients with TB infection in Nigeria are HIV infected (WHO, 2010).

The current treatment for HIV consists of antiretrovirals (ARVs) or highly active antiretroviral treatment (HAART). Since the introduction of ARVs in 1996 they have been highly beneficial for HIV infected individuals by reducing both the mortality and morbidity of the infection. ARVs have proven effective at treating people with AIDS but resistance can develop very easily if doses are missed (Alcorn, 2007; Charurat et al., 2010). However, they are not a cure and if treatment is discontinued the virus becomes active again, so a person on ARVs must comply with the treatment regimen for life (UNAIDS/WHO, 2006). It is estimated that adherence rates lower than 95% are associated with the development of viral resistance to antiretroviral medications (Nchega et al., 2007; Charurat et al., 2010).

Health locus of control and adherence

Studies have supported the belief that personality constructs such as the locus of control (LOC) can influence health behavior and impact on illness and treatment (Singh, 2011). The LOC concept stems from Rotter's social learning theory (Lynam et al., 2009) which states that individuals can be differentiated in terms of their internal or external source of control. Internal health LOC is associated with knowledge and attitude, psychological state, health behaviour, and better health conditions. People with an internal LOC accept responsibility and decisions without any form of influence from the external body. Studies also showed that persons with internal-LOC are more likely to adhere to prescribed treatment regimens because they believe in their ability to influence their own health (Burkhardt and Rayens, 2005; Omeje and Nebo, 2011). Conversely, individuals with external LOC assign their situations to external forces such as chance, fate or other people. External health LOC is linked with negative health behaviours and weak psychological state (Malame et al., 2005). Externally-driven people are thought to be less likely to adhere to therapy because of the belief that their actions may not appreciably affect health outcomes (Halimi et al., 2010).

Adherence in Treatment

Medication adherence is used as a general term to cover medication compliance and persistence (Urquhart, 1996). Medication compliance may be defined as "the extent to which a patient acts in accordance with the prescribed interval, dose and dosing of regimen" and medication persistence as "the length of time from initiation to discontinuation of therapy" (Cramer et al., 2008). Acknowledging this potential limitation, poor adherence may be responsible for a large difference between efficacy and clinical effectiveness. The consequences of poor adherence on the clinical effectiveness at a population level have been shown to be significant in many countries (Daanese et al., 2009; Wood et al., 2003; Osterberg and Blaschke, 2005, McGavock, 1996; Charurat et al., 2010). Andrews and Friedland (2000) define it as "the act of taking medications as prescribed...a highly complex clinical behaviour". It has also been defined as "the extent to which a person's behaviour (in terms of taking medications, following diets, or executing lifestyle changes) coincides with medical advice" (Haynes, 1979).

In an acute illness, the rewards or benefits of complying with therapy are immediately apparent to the patient, thereby creating a sense of accomplishment that reinforces adherent behaviour (Hecht, 1998). Such a reinforcement may be lacking or may diminish over time in chronic diseases, as patients are required to remain adherent for prolonged or indefinite periods of time. Maintaining good adherence among patients requires vigilance (Farley, 2007; Odafe et al., 2012).

A growing body of evidence suggests that social and psychological variables, including social support, are amongst the most significant factors that influence adherence to medical therapy (DiMatteo, 2004). However, other factors may also contribute such as inconvenient dosing frequency, dietary restrictions, pill burden, and side effects; patient-health-care provider relationships;
relationships; depression and psychiatric illness; and the system of care. Other factors that were identified include severity of illness, side effects of the medication, duration of the treatment and the complexity of the treatment (Janis, 1983; Levy, 1995; Paterson et al., 2000; American Public Health Association (APHA), 2004; Odafe et al., 2012).

Adherence and directly observed therapy

Directly observed therapy (DOT) has been used extensively in the management of tuberculosis (Meichenbaum and Turk, 1987). The key component of directly observed treatment - short course (DOTS) is that someone directly observes the patient ingesting the medication. Tuberculosis is both treatable and preventable; however, effective and complete treatment require strict adherence to prolonged courses of therapy usually for at least six months. Many studies have shown that the only effective means of achieving high completion rates for the treatment of active tuberculosis is the use of DOTS. There are many variations of DOTS, although the unifying theme is a social worker or healthcare professional witnessing the ingestion of the medication by the patient at each dosing to ensure adherence (Chaulk and Kazandjian, 1998). With strict adherence to medication, effectiveness of DOTS for reducing tuberculosis incidence rates has been demonstrated in many regions (APHA, 2004).

Theoretical framework

The health belief model (HBM) is a psychological model that attempts to explain and predict health behaviours by focusing on the attitudes and beliefs of individuals (Nuttbeam and Harris, 2004; Glanz et al., 2008). The HBM is based on the assumption that a person will take a health-related action if that person feels or believes that a negative health condition can be avoided, has a positive expectation that by taking a recommended action, he/she will avoid a negative health condition (that is, progressing to the final stages of AIDS) and believes that he/she can successfully take a recommended health action. The HBM comprises four constructs that represent the perceived threat and net benefits: These are: (1) perceived susceptibility to disease, (2) perceived severity of the disease or disability, and (3) perceived barriers to health-enhancing behaviours and (4) perceived benefit to health-enhancing behaviours (National Cancer Institute (NCI), 2003; Champion and Skinner, 2008). These concepts were proposed as accounting for people’s “readiness to act” (Conner and Norman, 1996). Each of these perceptions, individually or in combination, are used to explain health behaviours. Additional constructs such as cues to action, motivating factors, and self-efficacy have been added to the model (Champion and Skinner, 2008). The HBM assumes that these four interactive belief states influence compliance to health-related behaviours (Kgomotso, 2009).

Application of HBM to this research

The model is applied to broad range of health behaviours and population. Three broad areas were identified by Conner and Norman (1996) which are preventive health behaviour; sick role behaviour, which refers to compliance with treatment regimen; and clinic use and visits for varieties of reasons. The HBM constructs are used to investigate beliefs held by patients with regards to treatment including drug adherence. Kgomotso (2009) observed that research on lifelong and or terminal conditions such as diabetes and hypertension has shown that patients from diverse populations often have complex mixes of medically accurate and inaccurate beliefs. The concept behind the MHLC scales is that one’s beliefs regarding perceived control and health have an impact on health behaviors (Wallston et al., 1976). Thus, the HBM is relevant in Nigeria, and particularly in Edo State context with a mix of cultures (Owan and Etsako in the North, Esan in the Central and Bini in the South) with their various beliefs and superstitions which have been found to have contributed to non-adherence to medications (Llongo, 2004).

Study Objective

Many previous studies have shown that locus of control correlates positively with health beliefs and behaviors that affect adherence to specific treatment regimen; this study compares the influence of locus of control on medication adherence among TB and HIV-positive outpatients in Edo State, Nigeria. The study objective is therefore:

- To determine the difference between influence of LOC on medication adherence among TB and HIV/AIDS outpatients receiving treatment in selected health facilities across Edo State.

MATERIALS AND METHODS

Study population and design

Participants were chosen based on non-probability, purposive sampling. This sampling method refers to procedures directed towards obtaining a certain type of participant (Dane, 1990), comprising 70 persons living with HIV/AIDS (PLHIV) and 30 persons infected with tuberculosis who currently received antiretroviral or DOTS in selected facilities spread across Edo State. Total number of the study respondents was 25 percent of total patients attending clinic on the day approved for the study. The questionnaires were administered to the patients on arrival at the facilities until the number allocated to each of the selected facilities was completed. The study targeted 100 individuals currently
receiving TB or HIV/AIDS services and over the age of 21. Only the TB patients who are not on ARVs and those on ARTs who are not on DOTS were selected for the study. The participants were of both genders, and understand English which ensure their understanding of the questionnaire. Participation in the study, which was voluntary, required completion of a two-page questionnaire comprising of four sections including voluntary participation consent, respondent's demographic information, Health-LOC, and medication adherence tests. The researcher ensured that the voluntary participation consent form was duly completed and signed by the respondents. Administration of questionnaire was done at the selected health facilities, where HIV and TB-smear positive individuals receive their routine drugs and related treatments. The anonymity of the respondents was guaranteed through use of number consisting of facility code and participant's numbers for questionnaire collation and not for participant's identification. This further guaranteed the confidentiality of information given. A total of 100 questionnaires were distributed while the researcher waited for 20 minutes to collect the completed questionnaire. This ensured a 100 percent return of completed questionnaire.

### Study instrument and translation

The study questionnaire explored the LOC and medication adherence among TB and HIV/AIDS outpatients in Edo State. The biographical section was designed to gather information about the participants such as gender, marital status and level of education. The purpose of this section was to obtain essential sociodemographic information pertaining to the participants. This information was necessary for the meaningful and contextual interpretation of the results. The mediation adherence of respondents was measured using MMAS-8 while the LOC questionnaire used to measure respondents' attribution of their health conditions was a modification of 3-factor multidimensional locus of control scale (MLCS) developed by Levenson in 1973.

The MMAS-8 was developed from a previously validated four-item scale and supplemented with additional items addressing the circumstances surrounding adherence behaviour (Morisky and DiMatteo, 2011). The revised scale underlying that failure of adherence to a medication regimen could occur due to several factors such as “Do you sometimes forget to take your medication?”, “Do you stop taking medications when feeling worse?” and “Do you feel hassled about sticking to a treatment plan?” Each item measures a specific medication-taking behaviour and not a determinant of adherence. Items 1 to 7 were recorded as a Yes (for 1 score)/No (for zero score) dichotomous response and the last item was recorded with Zero score for Never/Rarely and 1 score for any of the others - once in a while, sometimes, usually and all the time. High adherence: MMAS score, 0 - 2; medium adherence: MMAS score 3 - 4; low adherence: MMAS score 5 - 8. Reliability of the instrument was 7.3 when tested using a measure of internal consistency (Cronbach's alpha), indicating that MMAS-8 is a reliable and valid measure to detect patients' medical adherence. The MHLC instrument contains three separate scales use to measure one’s locus of control: Internal Scale, Powerful Others Scale, and Chance or Luck Scale. The MHLC scale is a 24-item self-report instrument that measures respondents’ beliefs regarding the control of their health using 6-point Likert scale (1 = strongly disagree to 6 = strongly agree). The self-report measure contains four 6-item orthogonal subscales: 1) Internal, with items measuring the perception that one has personal control over one's state of health; 2) Powerful others, with items reflecting the degree to which people believe that health professionals and family members control their health; and 3) Luck or chance, with items reflecting the degree to which people believe that health is due to fate or chance. Respondents are asked to indicate the extent to which they agree with each statement using a 6-point Likert scale.

Internal consistency reliability coefficients (Cronbach's alpha) of the MHLC scale used for the study were 0.69, 0.65, and 0.71 for Internal HLC, Powerful Others HLC, and Chance HLC, respectively.

### Statistical analyses

Data analysis was performed using SPSS software, version 20. Percentage and inferential statistics were used for the analysis. A one-way analysis of variance (ANOVA) with unequal sample sizes were used to analyse data collected and tested at p < 0.05.

### RESULTS

Seven health facilities were selected for the study from which 5 DOTS and ART centres were selected, respectively for the study. The selected DOTS/ART centers were in two primary, two secondary, two tertiary/teaching and one private/mission health facilities (Table 1). 100 outpatients participated in the study that was held between February and March, 2013. 30 of the respondents were undergoing treatment for tuberculosis in DOTS centres while 70 were receiving antiretroviral therapy. Majority of the respondents (30) were selected from Central Specialist Hospital, Benin followed by 15 participants from each of the Central Hospital, Uromi and

<table>
<thead>
<tr>
<th>Name of facility</th>
<th>Location</th>
<th>Facility category</th>
<th>Respondents Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Hospital</td>
<td>Benin City</td>
<td>Secondary</td>
<td>TB</td>
</tr>
<tr>
<td>Primary Health Centre</td>
<td>Sapele Road, Benin City</td>
<td>Primary</td>
<td>-</td>
</tr>
<tr>
<td>Primary Health Centre</td>
<td>Ugbekun</td>
<td>Primary</td>
<td>-</td>
</tr>
<tr>
<td>Central Hospital</td>
<td>Uromi</td>
<td>Secondary</td>
<td>-</td>
</tr>
<tr>
<td>Faith Mediplex Hospital</td>
<td>Benin City</td>
<td>Private</td>
<td>-</td>
</tr>
<tr>
<td>Irrua Specialist Teaching Hospital (ISTH)</td>
<td>Irrua</td>
<td>Tertiary</td>
<td>-</td>
</tr>
<tr>
<td>University of Benin Teaching Hospital (UBTH)</td>
<td>Ugbowo</td>
<td>Tertiary</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td>5</td>
</tr>
</tbody>
</table>
Table 2. Respondents by Treatment Facilities.

<table>
<thead>
<tr>
<th>Treatment centres</th>
<th>Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TB</td>
</tr>
<tr>
<td>Central Hospital Uromi</td>
<td>5</td>
</tr>
<tr>
<td>Central Hospital, Benin</td>
<td>10</td>
</tr>
<tr>
<td>Faith Mediplex, Airport Road, Benin</td>
<td>-</td>
</tr>
<tr>
<td>Oredo Primary Health Centre, Sapele Road, Benin</td>
<td>5</td>
</tr>
<tr>
<td>Irrua Specialist Teaching Hospital (ISTH)</td>
<td>5</td>
</tr>
<tr>
<td>Ugbekun Primary Health Centre, Ikpoba-Okha</td>
<td>5</td>
</tr>
<tr>
<td>University of Benin Teaching Hospital, Ugbowo</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
</tr>
</tbody>
</table>

Table 3. Socio-demographic characteristics of respondents.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>n=100</td>
<td></td>
</tr>
<tr>
<td>&lt;25</td>
<td>17</td>
<td>17.0</td>
</tr>
<tr>
<td>26-40</td>
<td>57</td>
<td>57.0</td>
</tr>
<tr>
<td>41-60</td>
<td>24</td>
<td>24.0</td>
</tr>
<tr>
<td>&gt;60</td>
<td>2</td>
<td>2.0</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>35</td>
<td>35.0</td>
</tr>
<tr>
<td>Married</td>
<td>48</td>
<td>48.0</td>
</tr>
<tr>
<td>Divorced</td>
<td>2</td>
<td>2.0</td>
</tr>
<tr>
<td>Separated</td>
<td>6</td>
<td>6.0</td>
</tr>
<tr>
<td>Widowed</td>
<td>9</td>
<td>9.0</td>
</tr>
<tr>
<td>Educational status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary School</td>
<td>35</td>
<td>35.0</td>
</tr>
<tr>
<td>Secondary School</td>
<td>40</td>
<td>40.0</td>
</tr>
<tr>
<td>Higher Institution</td>
<td>24</td>
<td>24.0</td>
</tr>
<tr>
<td>None</td>
<td>1</td>
<td>1.0</td>
</tr>
</tbody>
</table>

UBTH, Benin City. 15 respondents were selected from ISTH, Irrua and 5 each from Faith Mediplex, PHC Ugbekun and PHC Sapele Road (Table 2).

In Table 3, majority of the participants were below the age of 40 years old (74%), 24% were between the age of 41 and 60 years while only 2% were above 60 years. 48% of the respondents were married, followed by singles (35%), widowed and separated were 9 and 6%, respectively while only 2% were divorced. 40% had attained a minimum of secondary school education, 35% have primary school education and 24% have higher education. Only 1.0% did not have any school leaving certificate.

Table 4 showed an observed correlation between non-adherence and reported health complications among the outpatients. Findings showed that 27% of outpatients have previously defaulted in their medication while 21% of the respondents have experienced complications associated with non-adherence to their medications. There is an observed relationship between percentage default and reported health complications at 27 and 21%, respectively, and between respondents who reported never defaulted and no health complications at 73 and 79%, respectively. A Pearson product-moment correlation coefficient was computed to assess the relationship between medication adherence and reported health
Table 4a. Reported medication non-adherence and health complications among Outpatients Receiving Tuberculosis and HIV/AIDS services.

<table>
<thead>
<tr>
<th></th>
<th>Medication adherence</th>
<th>Reported health complications</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Defaulted %</td>
<td>Never defaulted %</td>
</tr>
<tr>
<td>Defaulted</td>
<td>27.0</td>
<td>73.0</td>
</tr>
<tr>
<td>Never Defaulted</td>
<td>73.0</td>
<td>27.0</td>
</tr>
</tbody>
</table>

Table 4b. A Pearson product-moment correlation coefficient between Medical Adherence and Reported Health Complications among Patients.

\[ r = \frac{\sum xy}{\sqrt{\sum x^2 \cdot \sum y^2}} \]

\[ = \frac{1334}{\sqrt{1,779,556}} \]

\[ = 1.0 \]

\[ P > 0.05 \]

Table 5. Reasons for Medication Non-adherence among Outpatients receiving Tuberculosis and HIV/AIDS Services in Edo State.

<table>
<thead>
<tr>
<th>Reason</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Travelling</td>
<td>13</td>
<td>48.2</td>
</tr>
<tr>
<td>Drug Side Effect</td>
<td>3</td>
<td>11.1</td>
</tr>
<tr>
<td>Religion (prayer and fasting)</td>
<td>4</td>
<td>14.8</td>
</tr>
<tr>
<td>Bereavement</td>
<td>1</td>
<td>3.7</td>
</tr>
<tr>
<td>Financial constraint</td>
<td>2</td>
<td>7.4</td>
</tr>
<tr>
<td>Work schedule</td>
<td>4</td>
<td>14.8</td>
</tr>
<tr>
<td>Total</td>
<td>27</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Complications (Table 4b). There was a perfect positive correlation between the two variables, \( r = 1.0 \), \( n = 2 \), \( p = 0.5 \). Overall, there was a strong, positive correlation between medication adherence and reported health complications. Increases in medication adherence were correlated with reduction in reported cases of health complications associated with TB and HIV/AIDS treatments. The reported health complications included pains in the legs and hands, cough, fever, anaemia, skin infection, stomach ulcer and vagina discharge.

Table 5 shows that the most common reasons indicated by outpatients were traveling (48.2%), followed by work schedule (14.8%), participation in religion prayer and fasting session (14.8%) and side effect of drugs (11.1%). The least common reasons cited for missing medication were financial constraints (7.4%) and bereavement (3.7%). Financial constraint was the least cause of missing medication because tuberculosis and anti-retroviral drugs were provided freely in Nigeria.

Hypothesis 1: There will be no significant difference on the influence of Internal-LOC on medication adherence among outpatients Receiving Tuberculosis and HIV/AIDS services.

Table 6 showed that there is no statistically significant difference on the influence of internal LOC on medication adherence among outpatients receiving tuberculosis and HIV/AIDS services. This shows that there is no difference on the influence of Internal-LOC on medication adherence
adherence among TB or HIV/AIDS outpatients. The computed F-value of 1.006 was found not to be significant at F= (23, 76) = 0.469, P<005. Therefore the null hypothesis that there will be no significant difference on the influence of Internal-Locus of Control among outpatients receiving TB and HIV/AIDS services is accepted.

**Hypothesis 2:** There will be no significant difference on the influence of Powerful Others-LOC on medication adherence among TB and HIV-positive outpatients.

Table 7 showed that there is no significant difference on the influence of internal LOC on medication adherence among outpatients receiving tuberculosis and HIV/AIDS. This shows that there is no difference on the influence of Powerful Others-LOC on medication adherence among TB or HIV/AIDS outpatients. The computed F-value of 1.576 was found not to be significant at F = (26, 73) = 0.067, P<005. Therefore the null hypothesis that there will be no significant difference on the influence of Powerful Others-Locus of Control among outpatients receiving TB and HIV/AIDS services is accepted.

**Hypothesis 3:** There will be no significant difference on the influence of Luck or Chance-LOC on medication adherence among outpatients receiving Tuberculosis and HIV/AIDS services.

Table 8 showed that Luck or Chance-LOC presents similar influence on medication adherence among outpatients receiving tuberculosis and HIV/AIDS services. This shows that there is no statistically significant difference on the influence of Luck or Chance-LOC on medication adherence among TB or HIV/AIDS outpatients. The computed F-value of 1.390 was found not to be significant at F = (26, 72) = 0.136, P<005. Therefore the null hypothesis that there will be no significant difference on the influence of Luck or Chance-Locus of Control among outpatients receiving TB and HIV/AIDS services is accepted.

**RESULTS AND DISCUSSION**

The study showed an association between non-adherence and reported incident of health complications by outpatients. Poor treatment outcomes in TB and HIV-positive patients, development of drug-resistant TB, opportunistic infections and rapid progression of HIV to AIDS among TB and HIV-positive patients can be attributed
to non-compliance with medication regimen as prescribed in DOTS and ART regimens. These findings agreed with Urquhart (1996) and McGavock (1996) that non-adherence present negative clinical outcomes and that compliant patients generally have better outcomes (Vermeire et al., 2001). The findings also showed that Locus of Control present similar influence on medication adherence among tuberculosis and HIV-positive outpatients. The study revealed that there is a relationship on how LOC beliefs or perceptions (Internal, powerful others and luck or chance) influence medication adherence among TB and HIV-positive outpatients. The influence skewed toward powerful others LOC among TB patients where most difference is observed. This LOC belief of powerful others among TB patients might have been due to the strategy of directly observed treatment, short course (DOTS) adopted by WHO (2002) for the treatment of tuberculosis which is based on the concept of “entirely supervised administration of medicines to patients” by healthcare providers and with the support of family members who also ensure compliance as prescribed. Powerful others (family members and healthcare providers) perform critical roles in TB treatment outcomes. This assertion agreed with the believe of Bam et al. (2005) and Drageset and Lindstrom (2005) that family support is closely associated with compliance to TB treatment regimen and outcomes. Also, Ministry of Health (2006) observed that “People monitoring the patients” plays a huge role in the high cure rate at local health centres and in ensuring that medication is taken regularly, preventing a high number of drug resistance cases while Grimwood et al. (2012) observed that community support have benefited adult retention and adherence to ART programmes. It further noted that community-based adherence support is an effective way to improve patient retention amongst children on ART (Charurat et al., 2010; Grimwood et al., 2012).

The study identified LOC as a personality construct (Phares, 1976) that presents similar influence on adherence to treatment regimen in different chronic ailments such as Tuberculosis and HIV/AIDS. The result of LOC personality assessment is concluded to be independent of types of ailment while the influence of LOC perceptions or beliefs on medication adherence in different ailments presents similar outcomes. This findings agreed with WHO (2003), Rand and Weeks (1998), Bernard and Bloom (2001), Burnier (2006), Wallston and Wallston (1982), Lefcourt and Davidson-Keitz (1991), Lefcourt (2001), Cuneo and Snider (1989) and Strickland (1978) that LOC could play significant role in psychological personality assessment, predicting compliance and developing treatment packages for ensuring adherence to treatment regimen among patients irrespective of disease type and conditions (Singh, 2011; Wallston and Wallston, 1982).

However, this study may have a limitation that may affect generalization of the results. The study used non-probability purposive sampling to collect the data. Since the probability that a person would be chosen was unknown, it cannot be claimed that the sample is representative of the larger population of TB and HIV-positive patients. Like in many self-reported measures, recall bias arising from over-reporting of true adherence is possible. Future research could include individual drug collection record review. It is also possible that patients who came to the facilities during the clinic day were those who had better adherence. Data were therefore collected from five TB and ART out-patients clinics across seven facilities selected for the study. The number of respondents per clinic was proportional to the number of patients receiving DOTS and ART in each of the clinic. In addition, only seven facilities were selected which may limit application of the result to medical adherence of other DOTS and ART outpatients. These limitations may also limit the generalization of the study findings.

Conclusion

Medication non-adherence is currently a major health problem among low income earner mainly affected by tuberculosis and HIV/AIDS. The LOC construct has been one of the most widely considered predictors of health-related behaviour, especially adherence to treatment regimen, among patients. The results of this study highlight LOC beliefs and level of medication adherence among tuberculosis and HIV-positive patients in Edo State, Nigeria. The study findings provide evidence on the influence of locus of control in personality assessment of patients for predicting adherence to treatments. It was also confirmed that LOC as a personality construct is not determined or influenced by different disease conditions (TB or HIV/AIDS) as it was shown that there is no comparative difference in the LOC perceptions of TB and HIV patients. However, DOTS strategy whereby drugs use is administered and monitored by healthcare providers with support provided by family members to ensure compliance might have been responsible for more powerful others’ perception of control among TB patients when compared with the HIV-positive patients. It is concluded that comprehensive healthcare intervention programmes for patients need to take into account the personality factors of LOC perceptions in order to improve medication adherence for tuberculosis and HIV/AIDS control.

ACKNOWLEDGEMENTS

The researcher is grateful to the TB and HIV-positive outpatients selected in hospitals across Edo State for volunteering to participate in this study. Furthermore, the researcher is grateful to Dr. (Mrs.) Edith Kayode-Iyaseere, the Chief Medical Director of Central Hospital, Benin City for approving the study on 29th January, 2013. I also
appreciate the assistance of Rev. Sunday E.A. Ojotule, the Public Relations officer of Network of People Living with HIV/AIDS in Nigeria (NEPWHAN), Edo State chapter while administering the study instrument.

Conflict of Interests

The authors have not declared any conflict of interests.

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Full Length Research Paper

Posthumous marriage in Igbo land, Southeastern Nigeria and its effects on child development and education

Agbo Maria Charity
Department of Educational Psychology, Federal College of Education, Eha-Amufu, Enugu State of Nigeria.

Received 17 August, 2015; Accepted 16 October, 2015

Posthumous marriage is one of the traditional marriages being practiced in Igbo Land, Southeastern Nigeria. This is a type of marriage that offers men who had already died opportunities to have wives and descendants when they have already died even before the marriages are contracted. Consequently, many traditional families use this opportunity to solve the problems of childlessness, male child absence in the family etc. However, much has not been investigated about this type of marriage. This work investigated on the posthumous marriage in Igbo land and its effects on the developments and education of the posthumous children. Descriptive survey research guided the study. The population of the study was all the single parents in Igbo Land. Simple random sampling was used to select 400 respondents from three states in southeast of Nigeria (Igbo Land). Questionnaire and oral interviews were used for data collection. The data were analyzed using mean scores and standard deviations, while z-test statistic was used to analyze the hypotheses at 0.05 alpha level of significance. The findings revealed quest for male child, continuity of a lineage, love for the dead and others as the reasons for posthumous marriage. The findings also indicated that posthumous children's moral, social, and other developments and education are adversely affected due to poor conditions and social problems associated with posthumous marriage. The data also indicated that there is no significant difference between the mean scores of male single parents and their female counterparts on the reasons for posthumous marriage in Igbo land. There is also no significant difference between the mean scores of male single parents and the female single parents on the effects of posthumous marriage on child development and education; hence the two null hypotheses were accepted.

Key words: Quest for male child, continuity of a lineage, home keeping, prostitution, poverty, sexual abuse.

INTRODUCTION

All over the world, marriage patterns are arranged by demographic variables such as religion, wealth, culture, class and tradition (Duck, 1999). In Igbo land – Southeastern Nigeria, marriages are arranged to satisfy...
social norms, traditional beliefs and individual needs of the people. One of these marriages is posthumous marriage in which women and young ladies marry in proxy to men who have died even before the marriage proposals. No wonder in Igbo land, time is never too late for a man to marry, hence a dead man or even a miscarried male child can get a wife through posthumous marriage especially for the traditionalists.

Posthumous marriage is a type of marriage in which a woman or a girl is married to a man who had already died by the deceased’s family or relations so that the children raised through this relationship become children of the deceased. According to Free Encyclopedia (2015), it is a type of marriage in which one of the partners is deceased. Ogolla (2015) defines posthumous marriage as a marital arrangement in which one participating partners is deceased. Nnadozie (2013) defines it as a type of marriages where a woman or a girl is married to a man who had already died.

In Southeastern Nigeria (Igbo Land), there is a tradition in some families to marry wives for the deceased so as to raise children for them. In areas where this type of marriage exists, there is no special marriage ceremony attached to it, other than the normal wine carrying, the payment of dowries and other necessary marriage rites. After all these, the woman becomes the spouse of the deceased hence she is accepted and accorded respect as such. Traditionally, she is expected to procreate for the deceased, but she is not restricted by any cultural norms to choose her lover(s) from the immediate family of her ‘husband’ However, she may be expected to be a bit reserved, using her sexuality with self control but shall not be given orders about the number of men she will have sexual relationship with.

Posthumous marriage can be arranged in different forms. A marriage may be contracted for a dead man who had no male child so that his lineage will continue. In this case, it may be his widow, his daughters or relations who will marry a young woman of child bearing age to bear children for him. Secondly, posthumous marriage can take the form of a young lady marrying her boyfriend or finance who might not have started any marriage proposal before his death. In most cases, it is the parents or other relations of the deceased who will start the marriage proposal. Another form of posthumous marriage occurs when a woman marries a wife for her dead son or a miscarriage of a male fetus. This mostly happens in a polygamous family where a widow who has no male child is denied of her inheritance from her late husband by her co-wife with male children. The maltreated woman can marry a wife for her dead son or a miscarried male child (foetus) if there is any. If this wife bears a son, the maltreated woman can now become eligible to inherit her share of her late husband’s property through the posthumous son.

Some people may wonder if it is possible for a woman with all her senses to conscent to marry a man who has already died before the commencement of the marriage proposal, and raise children as a single parent for the dead man. However, posthumous marriage just like any other life endeavour has its reasons which are rooted in Igbo traditions and culture. These include, quest for male children. In Igbo land, parents prefer male children to female ones, hence the system of inheritance is patrilineal (Adegboye, 1998; Ugwu, 2001). A family without a male child is believed to have been doomed as the family’s property will be transferred to a kinsman with male children if the father of the family dies. As a result, both husband and wife desire male children to an extent that if they do not have male children and the husband dies, the wife (now a widow) can go to any length to get a male child for her late husband by marrying a woman for him. Through this means, she can inherit his property.

Another reason for posthumous marriage is for continuity of a lineage. In Igbo land, if a man dies before getting married, the next of kin or a relation may decide that the deceased’s family name will not go into extinction. The only way to help the situation is to marry a woman for the deceased to raise children for him. Through this means, the deceased will have descendants, and his lineage will have continuity.

Home keeping is another reason for posthumous marriage. In many rural areas in southeastern Nigeria, many families have relocated to the cities due to employment and urbanization, leaving their family houses deserted. Subsequently many families lose their property to thieves and strangers. In order to protect these properties, posthumous marriage may be used to get a woman to stay in the family house to look after the property and give situational reports to those in the cities. The woman is usually married for the dead head of the family. Love for the dead is also a reason for posthumous marriage. It has been revealed through oral interview and observation that some girls marry their boyfriends or fiancés who have died prematurely even though there has never been any marriage proposal prior to the lovers’ death. Many girls who engage in this type of marriage according to Copart (2010) do so to show their strength to overcome the emotional trauma of their lovers’ death. Although posthumous marriage has helped a lot of families to have descendants, and wiped the tears of many women who have marital problems by legitimizing their children and allowing them to have access to their late husbands’ inheritance, it has serious adverse effects on the all round developments and education of the posthumous children. For instance, posthumous marriage encourages prostitution. In Igbo Land, Southeastern Nigeria, a posthumous wife is free to exercise her sexuality as she likes in order to raise children. In doing so, she will be involved in silent or micro prostitution which may lead to high rate of sexual immorality and lack of discipline among the children who may see prostitution as normal and imitate their mother. This has adverse effect on children’s moral development.
Poverty has a female face in Africa (Ubek, 2010), more especially among posthumous wives. This is because majority of the woman who consent to this type of marriage are illiterates and school drop outs without adequate job skills. Furthermore, single parents find themselves trapped in a vicious circle of poverty. With all these pathetic conditions, posthumous children from pre-natal stage are plagued with impoverishment, malnutrition and finally, lack of education. As the children grow up they are forced to fend for themselves (for those whose pre-natal malnutrition did not destroy completely) and take to the street as street gangs, hawkers, beggars, robbers, and what more, they are sexually abused, lose interest in education and finally are emotionally and morally murdered.

Absent father syndrome (AFS) is another serious problem associated with posthumous marriage. Studies according to Awake (2002) and Nwachukwu (1995) reveal that boys raised without a father or father surrogate in their lives show insecurity about their gender identity. The boys also show high rate of identity diffusion, low self-esteem, lack of interest in social and school activities. As they grow up, the boys may have trouble in forming intimate relationship, and may face many unanswered questions about their background. These may lead to depression, worry, anger and so on. All these may expose them to emotional and physical risks such as behaviour disorders, high rate of chronic health problems and psychiatric disorders (Awake, 2002). Sexual abuse is another factor to be considered. Fatherlessness among posthumous children results to increased dangers of sexual abuse. Children of single parent families lack adequate parental care and supervision. Furthermore, the presence of multiple partners and other unrelated transient males in the families of posthumous wives increase the risk of child sexual abuse that results to unwanted teenage pregnancies, sexual transmitted infections (STI), and Human immunodeficiency virus infection and Acquired \ Immune Deficiency Syndrome (HIV/AIDS). All these can disrupt the development of children and terminate their education, and lives.

Statement of problem

In Igbo land, southeastern Nigeria, male children are highly valued and the more they are in a family, the more respect, and recognition the society accords that family. The reason behind this, is because the Igbos have tradition that only male children have the right to inherit the family property, occupy the family house, and perpetuate the lineage.

It is based on this tradition that almost every family is desperate to have male children for continuity of the family name. It is this tradition that pushes some families that lack male children to opt for posthumous marriage.

Unfortunately, families who engage in this type of marriage do not have the interest of the posthumous children at heart. The families do not consider the fate of the posthumous children who have no fathers to cater for their well being. Worse still, the posthumous families are mostly uneducated, as the posthumous wives are illiterates, unskilled school dropouts who live in an abject poverty.

Posthumous marriage is characterized by single parenthood, and when women of low socio-economic status involve themselves in this type of marriage, their children will suffer a lot of deprivations. It is these poor conditions of the posthumous children that motivated the researcher to investigate on whether posthumous marriage affects the development and education of posthumous children.

The purpose of the study

The purpose of the study was to investigate on the posthumous marriage in Igbo land and its effects on the child development and education. Specifically, the study sought to:

1. Identify the reasons for posthumous marriage in Igbo land.
2. Find out how posthumous marriage affects child development and education

Research Question

The following research questions guided the study:

1. What are the reasons for posthumous marriage in Igbo land?
2. What are the effects of posthumous marriage on child development and education?

Hypotheses

The following hypotheses were formulated to guide the study, and were tested at 0.05 level of significance.

1. HO1: There is no significance difference between the mean scores of male single parents and female single parents on what constitutes reasons for posthumous marriage in Igbo land.
2. HO2: There is no significance difference between the mean scores of male single parents and their female counterparts on the effects of posthumous marriage on child development and education.

METHODOLOGY

The study used a descriptive survey research. The population of
Table 1. Reasons for posthumous marriage.

<table>
<thead>
<tr>
<th>S/N</th>
<th>Reason</th>
<th>(\bar{X})</th>
<th>SD</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>When there is quest for male child in the family</td>
<td>3.62</td>
<td>0.75</td>
<td>*</td>
</tr>
<tr>
<td>2</td>
<td>For continuity of a lineage</td>
<td>4.00</td>
<td>0.00</td>
<td>*</td>
</tr>
<tr>
<td>3</td>
<td>When a family needs an expansion</td>
<td>2.05</td>
<td>0.69</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>To have someone to look after family house and property</td>
<td>2.89</td>
<td>0.68</td>
<td>*</td>
</tr>
<tr>
<td>5</td>
<td>When all avenues to get a child fail</td>
<td>1.90</td>
<td>0.89</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>When a woman loves a dead lover</td>
<td>2.56</td>
<td>0.79</td>
<td>*</td>
</tr>
<tr>
<td>7</td>
<td>When a companion is needed in a family</td>
<td>1.78</td>
<td>0.86</td>
<td></td>
</tr>
</tbody>
</table>

*Accepted grand mean: 2.69.

Table 2. The effects of posthumous marriage.

<table>
<thead>
<tr>
<th>S/N</th>
<th>Reason</th>
<th>(\bar{X})</th>
<th>SD</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Posthumous marriage encourages prostitution that affects children’s morality</td>
<td>3.62</td>
<td>0.49</td>
<td>*</td>
</tr>
<tr>
<td>2</td>
<td>Poverty effects the pre-natal and post-natal developments of children</td>
<td>3.62</td>
<td>0.79</td>
<td>*</td>
</tr>
<tr>
<td>3</td>
<td>Children of single parents experience poverty and malnutrition which affects their education and development</td>
<td>3.43</td>
<td>0.79</td>
<td>*</td>
</tr>
<tr>
<td>4</td>
<td>Lack of parental care and supervision affects children adversely.</td>
<td>2.93</td>
<td>1.20</td>
<td>*</td>
</tr>
<tr>
<td>5</td>
<td>Absent father syndrome affects personality and social development of male children</td>
<td>3.69</td>
<td>0.46</td>
<td>*</td>
</tr>
<tr>
<td>6</td>
<td>Prostitution among posthumous mothers leads to sexual abuse of their children</td>
<td>3.71</td>
<td>0.65</td>
<td>*</td>
</tr>
<tr>
<td>7</td>
<td>Children’s low self-esteem due to posthumous background affect their development</td>
<td>2.62</td>
<td>0.49</td>
<td>*</td>
</tr>
</tbody>
</table>

*Accepted grand mean: 3.37.

the study was the entire single parents in Igbo Land. The Igbos comprise all the five states in Southeastern Nigeria which include Abia, Anambra, Ebonyi, Enugu and Imo States. A simple random sampling technique was used to select 400 single parents in 4 states, 100 from each state. The instrument for data collection was self structured questionnaire. Mean scores, and standard deviations were used to analyse the data collected from the respondents. The questionnaire comprised of 14 items and had a four-point Likert scale of agree, strongly agree, disagree and strongly disagree. The criterion for mean scores was 2.50. So, any item with a mean score 2.50 and above were accepted, while those below were unaccepted. The z-test was used to test the two hypotheses at 0.05 level of significances.

RESULTS

Research question 1: What are the reasons for posthumous marriage?

The result in Table 1 indicated that the respondents rated No. 1, 2, 4 and 6 out of 7 items as the reasons for posthumous marriage in Igbo land – Southeastern Nigeria, since they have the mean ratings of 2.56 and above. Using the cut-off point 2.50 for agreement, the result revealed that the respondents perceived the 4 items as the reasons for posthumous marriage. This means that quest for a male child, continuity of a lineage; home keeping and love for a dead lover are the reasons for posthumous marriage in Igbo land.

Research question 2: What are the effects of posthumous marriage on child development and education?

The result in Table 2 revealed that the respondents rated all items as the effects of posthumous marriage on the development and education of children; hence they have mean ratings of 2.62 and above. Using the cut of point of 2.50 for agreement, the results revealed that the respondents saw the following: posthumous marriage encourages prostitution that affects children’s morality, lack of parental care and supervision affects children adversely, poverty affects the pre-natal and post-natal development of children. Children of single parents experience poverty and malnutrition that affects their development and education AFS affects personality and social development of children, prostitution among posthumous mothers leads to sexual abuse of their children, and low self-esteem due to posthumous background affects their development as the areas that
Table 3. Summary of the Z-test analysis for male and female respondents.

<table>
<thead>
<tr>
<th>Group</th>
<th>No</th>
<th>Mean</th>
<th>SD</th>
<th>Z-cal</th>
<th>Z-Crit</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>50</td>
<td>2.38</td>
<td>0.508</td>
<td>-</td>
<td>-</td>
<td>HO₁ accepted</td>
</tr>
<tr>
<td>Female</td>
<td>300</td>
<td>2.43</td>
<td>0.558</td>
<td>1.93</td>
<td>1.96</td>
<td></td>
</tr>
</tbody>
</table>

Table 4. Summary of the Z-test analysis for male and female respondents.

<table>
<thead>
<tr>
<th>Group</th>
<th>No</th>
<th>Mean</th>
<th>SD</th>
<th>Z-cal</th>
<th>Z-Crit</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>50</td>
<td>2.70</td>
<td>0.239</td>
<td>-</td>
<td>-</td>
<td>HO₂ accepted</td>
</tr>
<tr>
<td>Female</td>
<td>300</td>
<td>2.81</td>
<td>0.123</td>
<td>0.0001</td>
<td>1.96</td>
<td></td>
</tr>
</tbody>
</table>

children’s developments are affected.

In Table 3, the Z-calculated value of 1.93 which is less than the Z-Critical value of 1.96 at 0.05 level of significance indicates that it is not statistically significant. It then means that the hypothesis of no significant gender difference on the reasons for posthumous marriage is thus accepted. Table 4 shows that the calculated value of 0.001 is less than the critical value of 1.96 at 0.05 level of significance. This indicates that it is not statistically significant. Therefore, the null hypothesis on the effects of posthumous marriage on child development and education is accepted.

**DISCUSSION**

The data in Table 1 which revealed the reasons for posthumous marriage suggested that all respondents saw quest for male child, and continuity of a lineage as some of the reasons why people engage in posthumous marriage. This is true because Igbo land according to Ugwu (2001) defies gender boundaries and can do anything possible to have male children. No wonder Ogolla (2015) states that Africans do not want outsiders to inherit property in a home where they have no links. The respondents also saw the need to look after family house and property, and love for dead lovers as other reasons for posthumous marriage.

The data in Table 2 showed posthumous marriage as having effects on child development and education. For instance, the respondents perceived that prostitution by posthumous mothers can mar the moral development and education of the children. Poverty affects both the pre-natal and post-natal development of children. This finding supports Ugbor (2010) who opines that devastating effects of poverty on child development cannot be over emphasized. According to Ugbor (2010), a pregnant woman who does not take balanced diet endangers the normal all round developments of her baby as she exposes her baby to visual impairment, mental retardation and many other problems.

The problems may even worsen if after birth and the babies remain malnourished. Single parenthood causes poverty that affects all round development and education of children, so also lack of parental care and supervision. AFS affects male children’s personality and social development. Prostitution in the presence of children leads to sexual abuse that can result to sexually transmitted infections, and death, when children are cajoled due to their posthumous background, they can lose self-esteem.

**Conclusion**

Posthumous marriage, which can also be referred to as necrogamy (Writer, 2010) solves traditional problems of legitimizing children’s births, satisfying the needs of male children in families and others. However, its adverse effects on the development and education of children cannot be over emphasized. Furthermore, there is no genetic link between the deceased and the children. Consequently, Nigerian courts have concluded that all customary practices relating to posthumous marriage are invalid, and unenforceable under the repugnancy principle (Ewelukwa, 2013).

**RECOMMENDATIONS**

1. Seeing the effects of posthumous marriage on the well-being of children, the researcher recommends that this type of marriage should stop.
2. Women should be educated adequately to know their rights.
3. There should be laws to prohibit posthumous marriage.

**Conflict of Interests**

The author has not declared any conflict of interests.
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