# FACTORS ASSOCIATED WITH PULMONARYTUBERCULOSIS TREATMENT OUTCOMES AT POTCHEFSTROOOM PRISON IN NORTH WEST PROVINCE, SOUTH AFRICA.

**By**

**Joseph Thabo Mnisi**

Submitted in partial fulfillment of the requirements for the degree M. Fam. Med in the Department of Family Medicine in the Faculty of Medicine at the University of Limpopo, Medunsa campus.

Submission date: 09 September 2010

Medunsa.

Supervisor: Dr John Tumbo (MBChB, MFam.Med)

## DECLARATION

I, Joseph Thabo Mnisi

Hereby declare that the work on which this research is based is original (except Where acknowledgement indicate otherwise) and that neither the whole work nor Any part of it has been, is being or is to be submitted for another degree at this or any other university.

Signed:

……

Dated: 09 September 2010

**ACKNOWLEDGEMENTS**

I would like to thank God for enabling me to do all that I could in this research.

I would like to thank my mother for her supportive role.

I would like to thank Dr J Tumbo for being an excellent supervisor throughout my course and research.

I would like to thank Prof G Ogunbanjo for the encouragement and support.

I would like to thank my mentors Dr H Mabuza and Dr Mbokazi for their inspiration.

## ABSTRACT

### BACKGROUND AND OBJECTIVE

Tuberculosis remains an important curable disease particularly in the developing world.

One third of the world's population is infected with TB and new infections are occurring at a rate of about one per second(Tuberculosis Wikipedia Encyclopedia 2009).The distribution globally is not uniform with eighty percent of cases in Africa and Asia(Tuberculosis Wikipedia Encyclopedia 2009).

Treatment is challenging because it requires compliance to long courses of multiple antibiotics.

WHO highlights the global failure of health service providers to deal with the burden of tuberculosis (Fourie et al 1999).

The researcher observed that socio-economic factors, political and intrapersonal aspects associated with TB infection might as well be important to the treatment outcome.

It was therefore important to explore factors that could be associated with treatment outcomes in the prison environment where the full impact of these factors could be found. This study was conducted at Potchefstroom prison in North Westprovince of South Africa.

### METHODS

A quantitative cross-sectional study was done. A record review of all TB patients in Potchefstroom prison who initiated their treatment in 2007 and ending their treatment up to 2010 was conducted.

Data was recorded on data collection sheet and results were then analyzed.

Descriptive analysis was done to provide frequencies, mean and standard deviation.

Measures of association between characteristics and treatment outcome using odds ratio was done.

## RESULTS

202 TB patients in this prison had TB during the period covered by the study. The age group distribution of the patients shows that majority, 142(70.3%) belong to the age group 21- 37 years while those aged 38 – 53 years was 48(23.8%) and their mean age was 33.7yrs. There were 197(97.5%) male and 4(2.0%) female and 1(0.5%) no records.

Of these, therewere 92(45.5%) patients cured 4 (2%) death, 1 (0.5%) treatment failure and 102 recorded as other outcomes belonging to the transferred and treatment interruption cluster.

Factors compared with these outcomes were, age, gender, initial body weight, level of education, treatment initiation time, regimen type, social support, co morbidities, smoking, application of DOT ant the type of TB. Factors that were significantly associated with favorable outcomes were occasional visits providing some social support (39.4%, OR 3.78, 95% CI 1.25-11.54), DOT application (37.4%, OR 3.99, 95% CI 2.35-11.23), young age (32.6% OR 3.14, 95% CI 2.1-5.3) and Regimen 1 (34.0%, OR 1.5, 95% CI 0.11-12.61)

Social habits like smoking were significantly higher in patients with other treatment outcome(OR=1.56, 95% CI=1.92 to 2.05), other factors found to be aligned to negative outcomes but lacking statistical significance were extra-pulmonary tuberculosis, non application of DOT, regimens other than regimen 1, and lack of social visits. Factors like co-morbidity and gender were found not to be significantly associated with any treatment outcome because there was no point of difference in the association of different grouping in these categories with particular outcome.

## CONCLUSION

Many factors could be associated with treatment outcomes to some varying degree, but only significant factors explored in this study were considered important.

Factors that were ultimately identified as important in determining treatment outcome were age, smoking status, social support, DOT and regimen type. These were factors that were found to be contributory to the pathology of TB in many other studies and which are amenable to interventions that would improve the outcomes.

## CONTENTS

TITLE……I

DECLARATION……..II

ACKNOWLEDGEMENT……III

ABSTRACT…….IV

CONTENTS……...VI

LIST OF TABLES……...VII

**1. INTRODUCTION……1**

1.1 Clinical background of TB……1

1.2 Risk factors associated with TB……10

1.3 Factors relevant to TB treatment……11

1.4 The global picture of TB……13

1.5 The South African picture of TB……17

1.6 The researcher's concern……20

1.7 The researcher's hypothesis……21

**2 LITERATURE REVIEW**……21

2.1 Introduction……21

2.2 Community awareness on tuberculosis ……21

2.3 Attitude toward TB……22

2.4 Barriers to adherence to TB treatment……19

2.5 Challenges of TB control in South Africa……26

2.6 HIV/TB Challenge……27

2.7 TB in "closed" environment……28

**3. METHODS**

3.1 Aim……30

3.2 Research question……30

**3.3** Study design……31

**3.4** Research team……31

**3.5** Study population……32

**3.6** Sampling……32

**3.7** Variables……32

**3.8** Data collection……32

**3.9** Data analysis……..……..…..32

3.10 Reliability……..…….…37

3.11Validity…….37

3.12 Objectivity……...37

3.13 Bias…….....38

3.14 Ethical consideration……...38

4. **RESULTS…….……..……39**

**4.1 Introduction…….…….....39**

**4.2 Demographic characteristics……..……..39**

**4.3 Factors related to outcome……..…….....51**

**5. DISCUSSIONS…….....55**

5.1Discussion of methods……..…..…..…..55

5.2 Discussion of results…….……56

**6.1 CONCLUSIONS.....66**

**6.2 RECOMMENDATIONS.....67**

**6.3** FURTHER RESEARCH.....68

REFERENCES……..…68

APPENDICES
Research approval from prison
Research clearance from university
Data sheet.