Factors Reported By Tuberculosis Patients Lost to Follow-Up during Treatment at Port Moresby General Hospital, Papua New Guinea: A Cross-Sectional Study

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ABSTRACT

Background: Tuberculosis (TB) treatment loss to follow-up (LTFU) is an important public health problem because treatment interruption may contribute to unsuccessful treatment outcomes and ongoing transmission. This study describes characteristics and issues reported by TB patients who were lost to follow-up during treatment at Port Moresby General Hospital (PMGH), Papua New Guinea.

Methods: A cross-sectional descriptive study was conducted among confirmed pulmonary and extrapulmonary TB patients who had received TB treatment for more than one month and subsequently stopped treatment for more than two months. Eighty-eight patients were selected from the medical ward, TB ward and TB clinic at PMGH between May 2015 and May 2016. Data were collected using a standardized questionnaire through face-to-face interviews after informed consent. Descriptive statistics were used.

Results: Of 88 participants, 54 (61%) were female and 34 (39%) male. The largest age group was 23–32 years (36, 41%). Primary education was reported by 46 (52%) and no formal education by 14 (16%). HIV infection was reported in 20 (23%), alcohol use in 40 (46%), smoking in 39 (44%), and betel-nut chewing in 60 (68%). Personal factors were reported in 64 (72%), socioeconomic factors in 37 (42%), and health-system factors in 76 (86%). Symptom resolution was reported in 31 participants, belief in sorcery in 18, and TB-drug adverse effects in 15. Treatment interruption occurred during the continuation phase in 51 (58%) and intensive phase in 37 (42%).

Conclusion: Health-system factors were the most frequently reported category among TB patients experiencing LTFU, followed by personal and socioeconomic factors. Patient education, adverse-effect management, treatment support, improved follow-up systems and attention to transportation barriers may improve treatment continuity. Because the study included only patients who experienced LTFU, the findings should be interpreted as descriptive rather than as statistically demonstrated risk factors.

Keywords: tuberculosis; loss to follow-up; treatment interruption; Papua New Guinea; treatment adherence

INTRODUCTION

Tuberculosis remains a major global public health problem. Successful TB treatment requires timely diagnosis, appropriate therapy and completion of the prescribed regimen. Treatment interruption and loss to follow-up may result in unsuccessful treatment outcomes and continued transmission.[1–3]

Previous studies have identified socioeconomic difficulties, transportation barriers, inadequate treatment support, poor communication, symptom improvement, adverse effects, alcohol use and cultural beliefs among factors that may contribute to treatment interruption.[4–12]

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Papua New Guinea faces important challenges in TB control, including geographical and transportation barriers and unequal access to health services. A later study from rural PNG found that 97 of 722 patients receiving treatment for drug-susceptible TB were lost to follow-up and that male sex and travel time of more than three hours to the treatment facility were independently associated with LTFU.[13]

The present study was conducted at PMGH and describes the characteristics and issues reported by patients who had interrupted TB treatment.

Aim And Objectives

Aim: To describe factors reported by tuberculosis patients who were lost to follow-up during TB treatment at Port Moresby General Hospital.

Objectives: (1) To describe demographic characteristics; (2) to describe personal and behavioural factors; (3) to describe socioeconomic factors; (4) to describe health-system and treatment-related factors; and (5) to describe transportation, treatment phase and treatment-support characteristics.

METHODS

Study design and setting

A cross-sectional descriptive study was conducted among confirmed TB patients who had been lost to follow-up during treatment at Port Moresby General Hospital. Participants were recruited from the medical ward, TB ward and TB clinic.

Study period and sample

The study was conducted from May 2015 to May 2016. A total of 88 patients were included.

Eligibility

Inclusion criteria were age 13 years or older, pulmonary or extrapulmonary TB, TB treatment for more than one month, and stopping TB treatment for more than two months. Exclusion criteria were age below 13 years, inability to communicate adequately without a guardian, TB treatment for less than one month, stopping treatment for less than two months, and being under the care of the researcher at the time of study.

Data collection and analysis

A standardized questionnaire was administered through face-to-face interviews after informed consent. The original study used Epi Info, SPSS version 22 and an Excel spreadsheet for analysis. Descriptive statistics were used to summarize frequencies and percentages.

Because the original patient-level Excel dataset is no longer accessible due to file corruption, this final manuscript does not introduce reconstructed patient-level analyses, odds ratios or multivariable regression. The results are restricted to numerical information preserved in the original research presentation.

Ethics

Ethical clearance was obtained from the Research and Ethics Committee of the School of Medicine and Health Sciences, University of Papua New Guinea, and permission was obtained from the Director of Medical Services at Port Moresby General Hospital. Informed consent was obtained before interviews.

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RESULTS

Demographic characteristics

Characteristic	n	%
Female	54	61
Male	34	39
13–22 years	21	24
23–32 years	36	41
33–42 years	19	22
43–52 years	3	3
53–63 years	9	10

Education

Education	n	%
Primary	46	52
Secondary	24	27
University/college	4	5
No formal education	14	16

Selected clinical and behavioural characteristics

Variable	n	%
HIV	20	23
Alcohol use	40	46
Smoking	39	44
Betel-nut chewing	60	68
Employment/income	25	28
No employment/income	63	72

Reported issues

Issue/category	n	%
Personal factors	64	72

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Socioeconomic factors	37	42
Health-system factors	76	86
Symptom resolution	31	48*
Belief in sorcery	18	28*
TB-drug adverse effects	15	23*
Symptoms-resolution education reported	22	25

*Percentages for symptom resolution, sorcery belief and adverse effects are calculated from the 64 participants classified under personal factors in the original presentation.

Transportation

Transport	**n**	**%**
Walking	21	24
Public motor vehicle/taxi/bus	62	70
Private transport	5	6

Treatment phase

Treatment phase	**n**	**%**
Intensive phase	37	42
Continuation phase	51	58

Treatment supporter

Support	**n**	**%**
Self-administered	53	60
Family member	32	36
Health worker	3	4

Number of LTFU episodes

Number of episodes	**n**	**%**
One	77	87
Two	5	6
Three	5	6
Four	1	1

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DISCUSSION

The study describes 88 TB patients who experienced treatment LTFU at PMGH. Health-system factors were the most frequently reported category, followed by personal and socioeconomic factors. This supports the concept that treatment continuity is influenced by patient, social and service-delivery factors rather than by patient behaviour alone.[1–3]

Symptom resolution was reported by 31 participants. Clinical improvement can lead some patients to believe treatment is no longer necessary. Patient counselling should therefore emphasize that improvement in symptoms does not mean that treatment is complete. The original presentation also recorded that only 22 participants reported receiving an explanation about symptom resolution.

Cultural beliefs were reported among participants, including belief in sorcery. Such beliefs should be approached respectfully through culturally appropriate health education rather than stigmatization. Family and community structures may be useful partners in supporting treatment continuity.

Adverse effects of TB medication were reported by 15 participants. Clear counselling about expected adverse effects and prompt access to clinical review are important components of patient-centred TB care.

Transportation was also relevant: 70% of participants used public motor vehicles. Although this study did not quantify travel time or cost, a later PNG study found that travel time exceeding three hours was independently associated with LTFU.[13]

More participants interrupted treatment during the continuation phase (58%) than during the intensive phase (42%). This may indicate an important point for reinforcing adherence messages because clinical improvement may be more apparent after the initial phase.

Sixty percent self-administered treatment, while 36% received family support and only 4% health-worker support. Strengthening treatment-support systems and identifying patients who miss appointments may help reduce treatment interruption.

The behavioural findings—alcohol use, smoking and betel-nut chewing—should be interpreted descriptively. Since there was no comparison group of treatment completers, this study cannot establish that these characteristics increased the risk of LTFU.

Strengths and Limitations

The study provides patient-reported information from an important referral hospital in PNG and examines multiple domains, including personal, socioeconomic and health-system issues. Its main limitation is that only patients who experienced LTFU were included. Therefore, the study cannot demonstrate comparative risk factors. The original patient-level Excel dataset is also unavailable because of file corruption, preventing additional statistical analysis. The study was single-centre, conducted in 2015–2016, and included self-reported information that may be affected by recall or social-desirability bias.

Public Health Implications and Recommendations

TB programmes should strengthen patient education before and during treatment, emphasize completion of therapy despite symptom improvement, provide clear counselling and management of adverse effects, strengthen appointment-missed follow-up, and consider transportation barriers. Family and community treatment support should be encouraged. Culturally appropriate communication should involve relevant community leaders and organizations where appropriate. Larger prospective studies including both treatment completers and patients who experience LTFU are recommended.

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CONCLUSION

Among TB patients who experienced LTFU at PMGH, health-system factors were the most frequently reported category, followed by personal and socioeconomic factors. Symptom resolution, cultural beliefs, adverse effects, transportation and treatment-support arrangements were important issues identified. The findings support a patient-centred approach combining effective TB treatment with education, counselling, treatment support, accessibility and active follow-up. Because there was no comparison group, these findings should be interpreted as descriptive characteristics rather than statistically demonstrated independent risk factors.

Declarations

Ethics approval: Ethical clearance was obtained from the Research and Ethics Committee of the School of Medicine and Health Sciences, University of Papua New Guinea, with institutional permission from Port Moresby General Hospital.

Consent to participate: Informed consent was obtained from participants.

Competing interests: The authors declare no competing interests.

Funding: No external funding was reported.

Data availability: The original patient-level Excel dataset is no longer accessible because the file became corrupted. Results are based on the preserved study presentation and records.

Author contributions: Mateus Pinheiro—study conception, data collection, analysis, interpretation and manuscript preparation. Isi H. Kevau—supervision, critical review and academic guidance. Rendi Moke—study development and interpretation. Valahu Valahu—data collection and study administration.

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