

GENDER DIFFERENCES IN DELAYS IN INITIATING  
*DIRECTLY* OBSERVED TREATMENT AMONG NEW SPUTUM  
SMEAR-POSITIVE PULMONARY TUBERCULOSIS PATIENTS IN NEPAL

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TARA SINGH BAM: GENDER DIFFERENCES IN DELAYS IN INITIATING DIRECTLY OBSERVED TREATMENT AMONG NEW SMEAR-POSITIVE PULMONARY TUBERCULOSIS PATIENTS IN NEPAL, THESIS ADVISOR: ROBERT S CHAPMAN, M.D., M.P.H., THESIS CO-ADVISOR: PROFESSOR DONALD A ENARSON, M.D., 233 pp

**Background:** Lengthened delays in diagnosis and treatment increase morbidity and mortality from tuberculosis (TB), risk of TB transmission, and risk of treatment failure. The aims of this study were: (1) to characterize and compare delays in initiating directly observed TB treatment, and (2) to investigate associations of gender and other factors with these delays, among new smear-positive pulmonary TB patients in Nepal.

**Methods:** The study was conducted in all three districts of the Kathmandu valley. Qualitative and quantitative methods were employed. Face to face interviews, using a standardized questionnaire, were conducted among 379 male and 237 female TB patients, who were enrolled at 37 randomly selected DOTS centres between January and August 2006. Delay intervals were calculated as patient delay (time interval from the onset of symptoms until the first visit to any type of provider), health system diagnosis delay (time interval from this first visit until date of diagnosis), and total delay (time interval from the onset of symptoms until start of treatment). Bivariate analysis, multivariable linear regression, and multilevel mixed models were employed in identifying the factors affecting delay intervals.

**Results:** The median total delay was 115 days for females and 95 days for males. Patient delay was significantly longer in females than in males (60 vs. 45 days,  $p < 0.001$ ). The health system diagnosis delay was also longer in females than males (34 vs. 29 days,  $p = 0.013$ ). A higher proportion (21.4%) of females than males (2.8%) entered the medical system by first accessing traditional healers. The mean frequency of visits to different health care providers, before start of treatment, was substantially higher in females than males (7.5 vs. 5.3). Self-recognition of symptoms as possible TB, and ability to decide by oneself to seek medical help, were strongly associated with shortened patient delay. Loss of income and perception of social isolation were associated with lengthened patient delay in females. In males, higher education and self-recognition of symptoms were associated with shortened patient delay. HIV-positive status, loss of income, and perception of coughing as not a serious matter were associated with lengthened patient delay. Consultation with traditional healers was associated with lengthened diagnosis delay. Visiting multiple providers, and not being advised to obtain a sputum test, were associated with lengthened diagnosis delay among females.

**Conclusion:** Gender inequalities in early access to DOTS should be remedied by increasing public awareness, promoting female autonomy in decision making, and developing effective cooperation between public and private sectors.

Field of study: .....Public Health.....

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## ABBREVIATION

TB	Tuberculosis
DOTS	Directly Observed Treatment Short-course
DOT	Directly Observed Treatment
WHO	World Health Organization
NTP	National Tuberculosis Programme
HIV	Human Immunodeficiency Virus
MoH	Ministry of Health
IUATLD	International Union Against Tuberculosis and Lung Disease
LHL	Norwegian Association of Heart and Lung Patients
GoN	Government of Nepal
NGO	Non-governmental Organization
CBS	Central Bureau of Statistics
NTC	National Tuberculosis Centre
UNDP	United Nation Development Programme
AFB	Acid-fast bacilli
ARTI	Annual Risk of TB Infection
FGD	Focus Group Discussion
GLM	General linear model