

Tuberculosis among Nurses: Prevalence and Factors that Associated with Infection

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Background (1)

What is **tuberculosis (TB)** ?

“Tuberculosis is defined as an infectious disease caused by a bacterium, **Mycobacterium tuberculosis**; that most commonly affects the lungs.”



M. tuberculosis

Background (2)

TB & *Worldwide Public Health Issue*

◎ **TB** in the world

- 9 million infected
- more than 1 million died

◎ **TB** in Asia

- 40% of the world's cases were in India and China
- 130,000 cases with 64 million in Thailand; 0.2%

Background (3)

TB *among nurses*

⦿ **Prevalence**

- Central Brazil 69.5%; n = 128
- Puerto Rico 42.9%; n = 91

⦿ **Effect of TB infection**

- Health problem
- Stop working
- Shortage of medical personnel

Research question

- How many prevalence rate of Tuberculosis infection among nurses?
- Which factors that associated with Tuberculosis infection?



Objective

- To determine the prevalence of TB infection among nurses in Thailand
- To investigate factors that associated with TB infection among nurses



Materials and methods (1)

◉ Study design

- Cross-sectional study
- Part of the Thai Nurse Cohort Study (TNCS)

◉ Sampling method

- Stratified random sampling with probability proportional to size of nurses in each 10-year age intervals

◉ Study outcome

- TB infection during the operation that reported by nurses

Materials and methods (2)

Statistical analysis

- ◉ **Descriptive analysis**

- Percentage
- Mean \pm SD; Median (Min : Max)

- ◉ **Aim 1: To determine prevalence of TB**

- Number of TB infection as the numerator
- Total number of sample as the denominator
- The 95% confidence interval (CI) of the prevalence rate

Materials and methods (3)

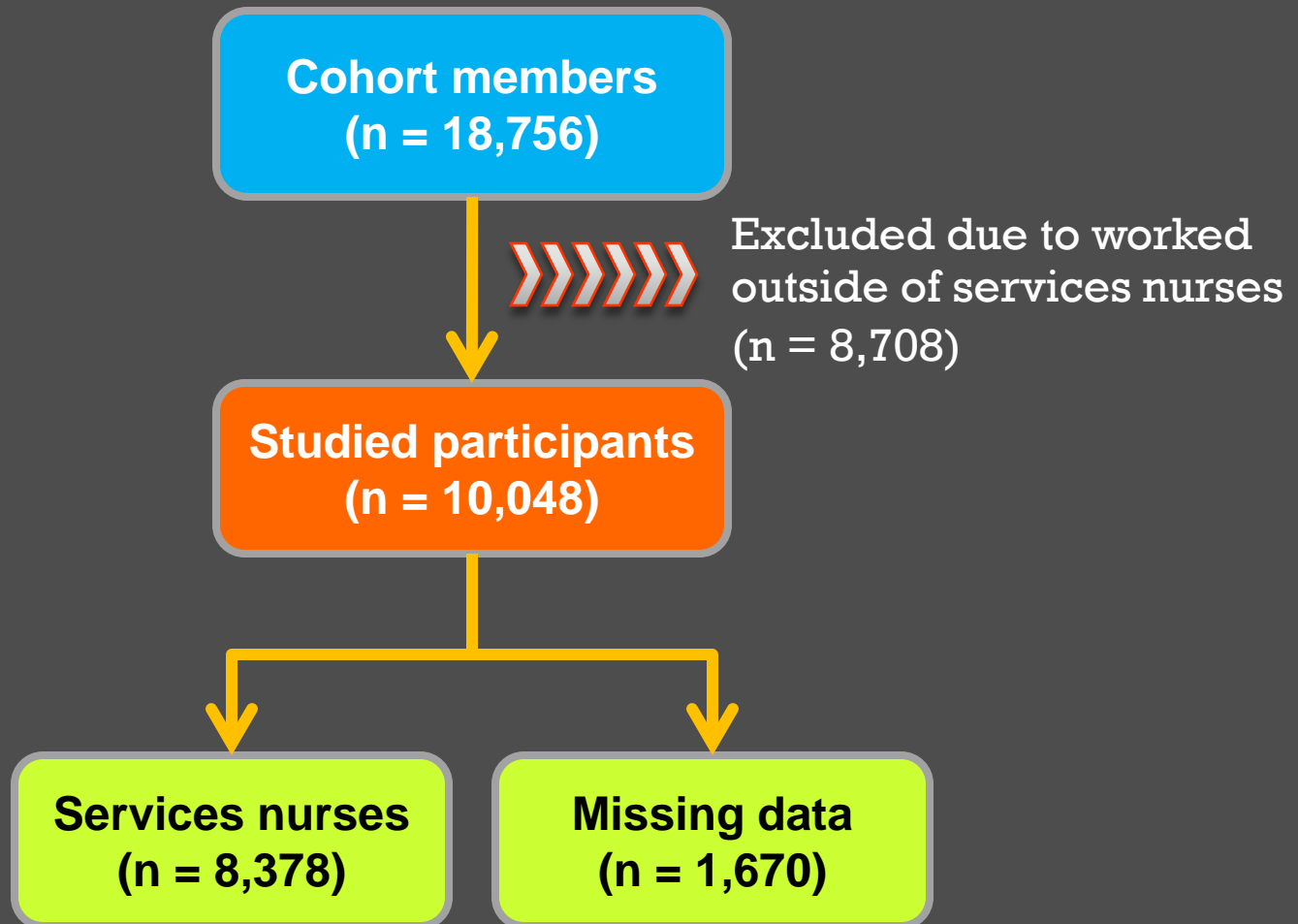
Statistical analysis (Cont.)

- **Aim 2: To investigate factors that associated with TB**
 - Bivariate analysis (Crude ORs)
 - Simple logistic regression
 - $p\text{-value} < 0.25$
 - Theories that affect the outcome

 - Multivariable analysis (Adjusted ORs)
 - Multiple logistic regression
 - Backward elimination method
 - $p\text{-value} > 0.05$ were exclude
- **Statistics software**
 - STATA version 12.0 (*StataCorp, College Station, TX*)

Results (1)

Consort diagram of samples

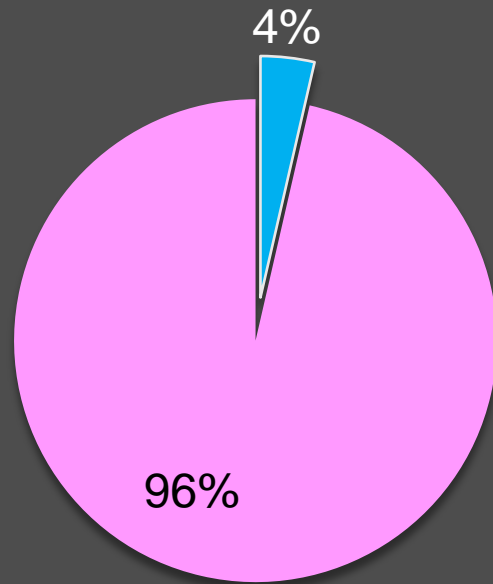


Results (2)

Characteristics of sample

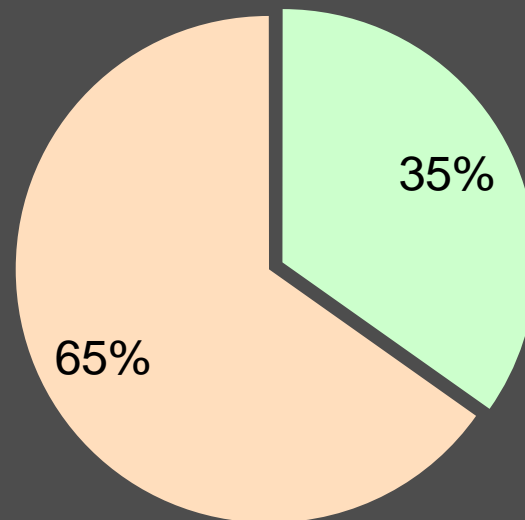
Gender (n = 9,990)

■ Male ■ Female



Marital status (n = 10,002)

■ Single ■ Married

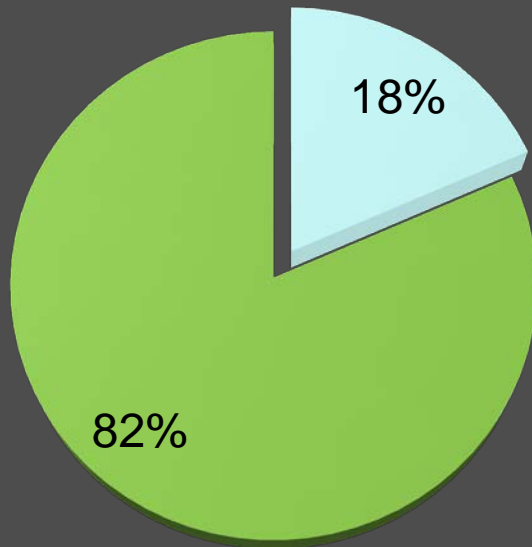


Results (3)

Characteristics of sample (Cont.)

Age

■ < 30 years ■ ≥ 30 years

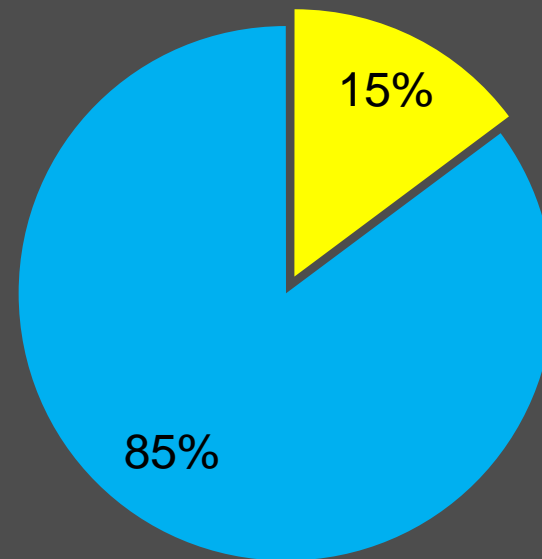


Mean \pm SD 40.8 ± 9.9

Median (Min : Max) 41.2 (20.5 : 64.9)

Working experienced (n = 8,348)

■ ≤ 3 years ■ > 3 years

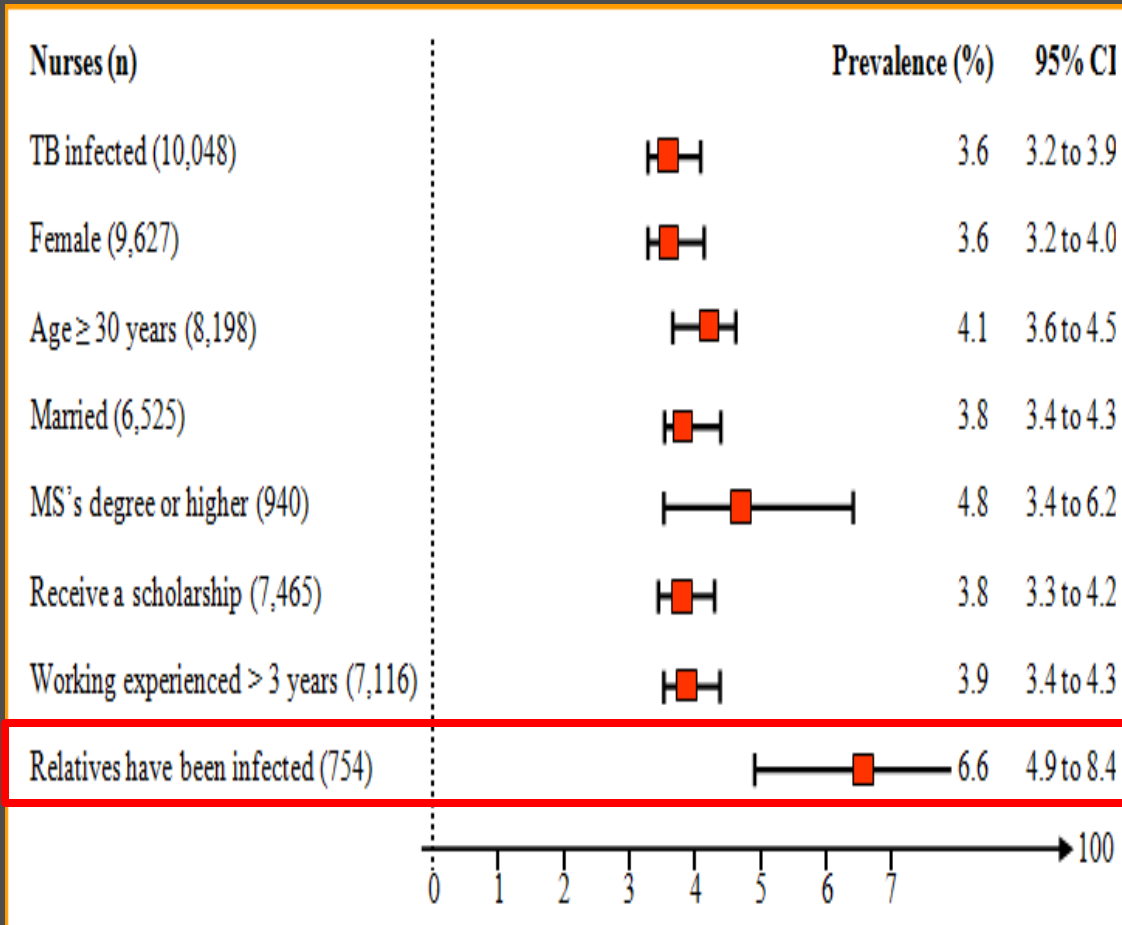


Mean \pm SD 15.5 ± 10.2

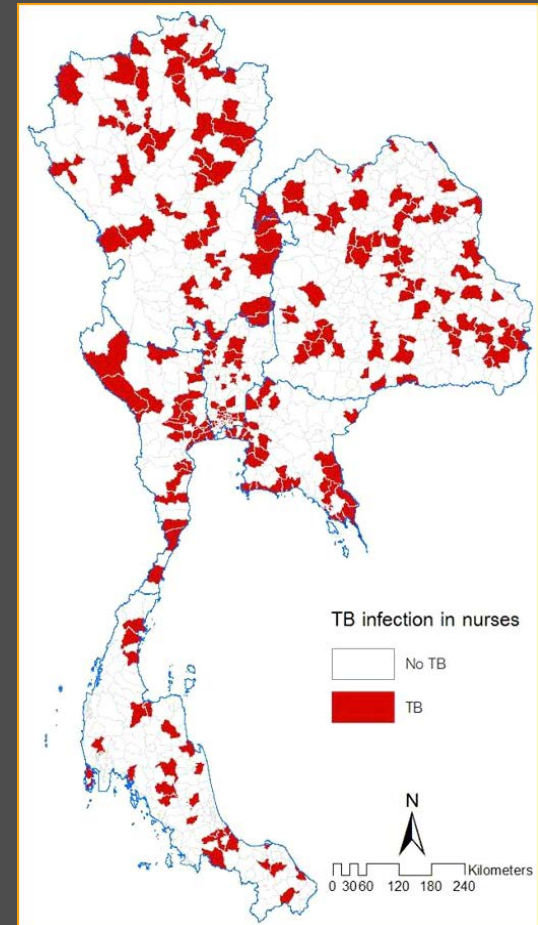
Median (Min : Max) 15 (0.5 : 53)

Results (3)

Prevalence of TB infection



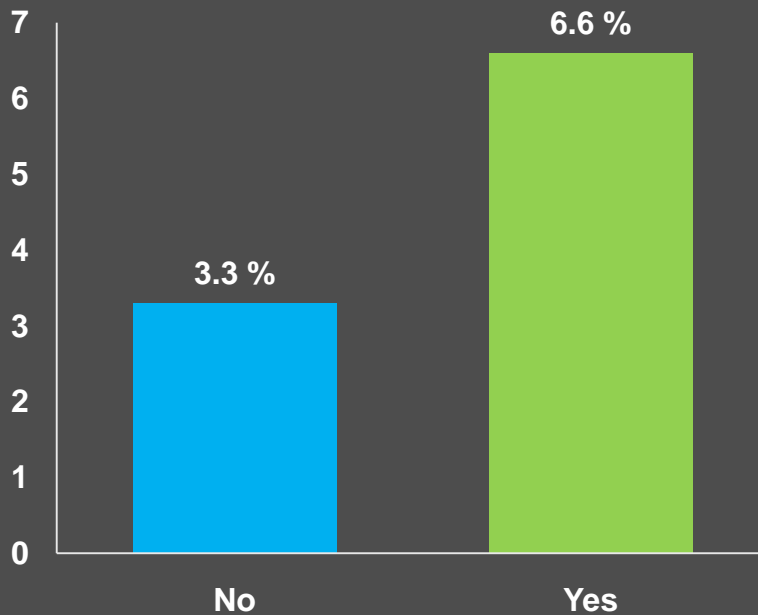
TB Distribution



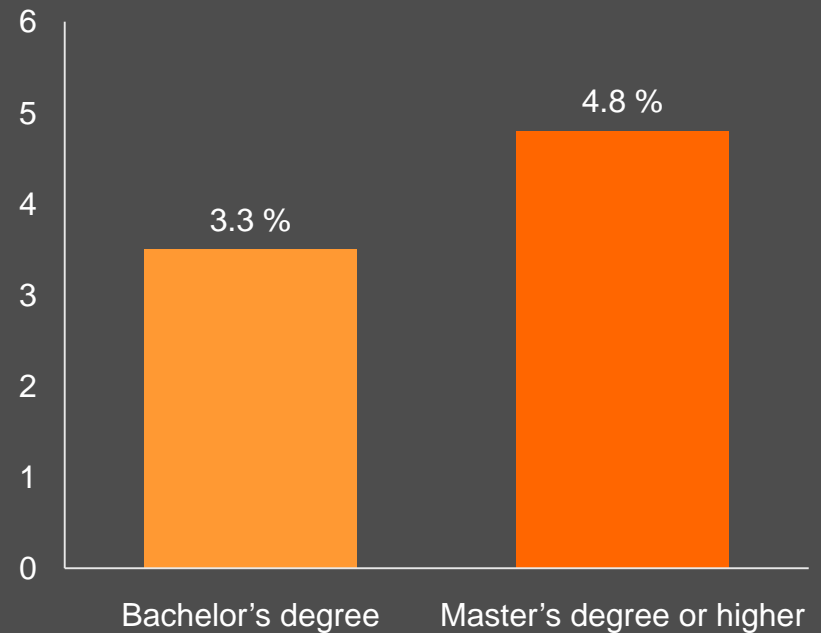
Results (4)

Prevalence of TB infection

Relatives have been infected



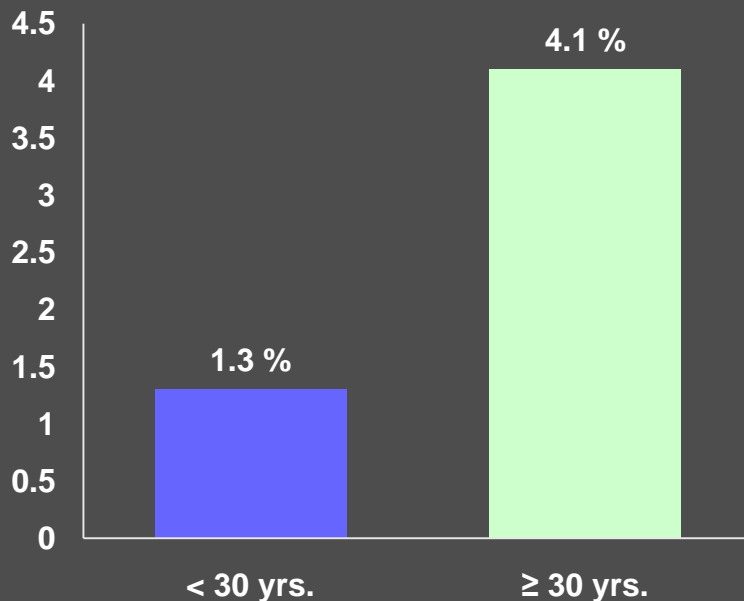
Highest education attainment



Results (5)

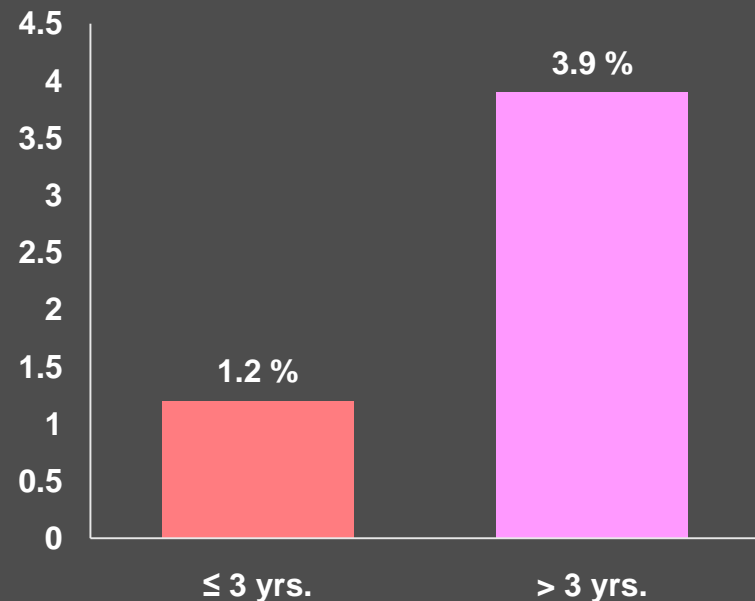
Prevalence of TB infection (Cont.)

Age



Mean \pm SD 42.4 \pm 8.2
Median (Min : Max) 43 (22.9 : 60.7)

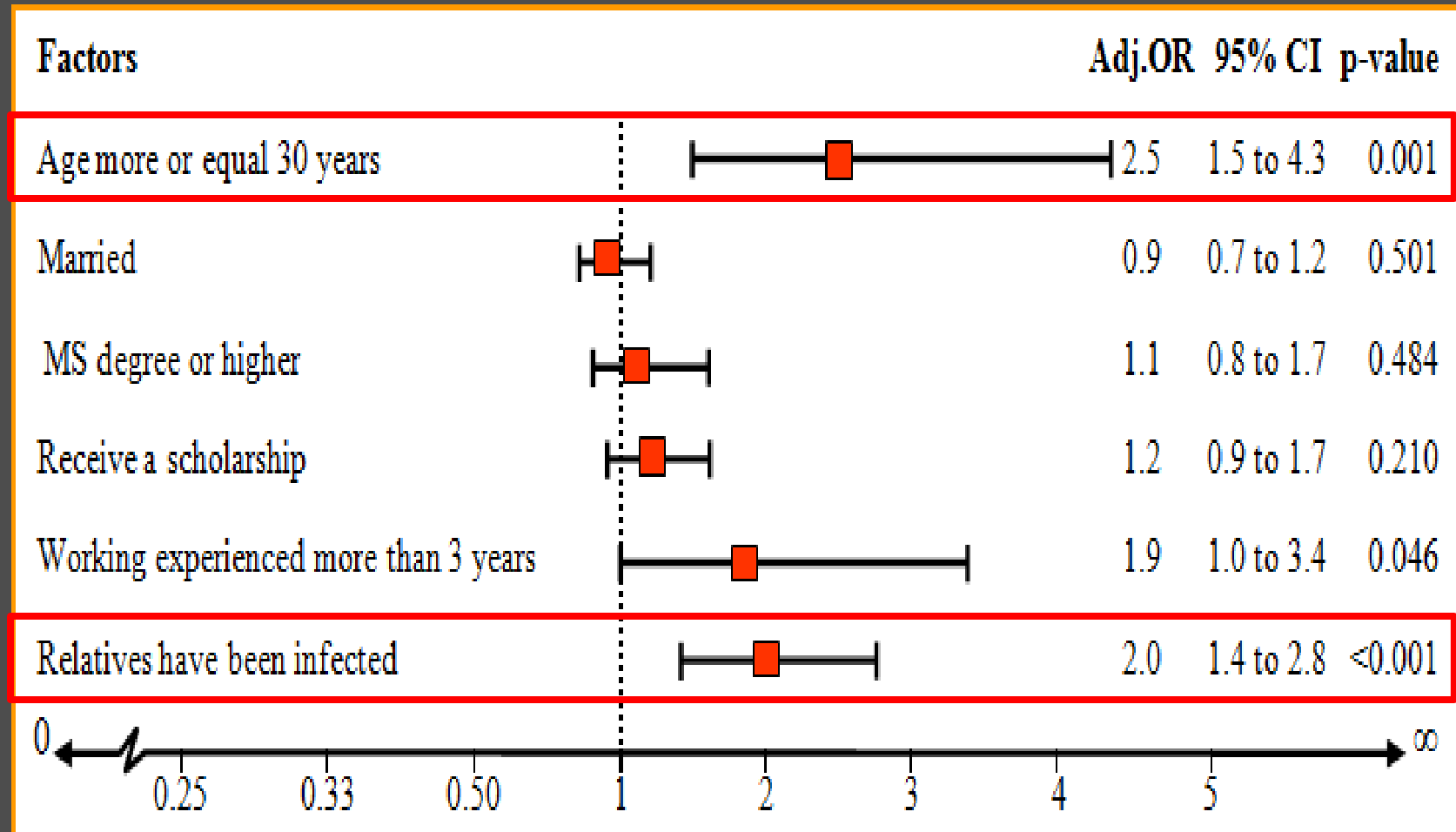
Working experienced



Mean \pm SD 17.5 \pm 8.9
Median (Min : Max) 17 (0.5 : 42)

Results (6)

ORs of Factors that Associated with TB



Discussion

- Earlier studies found TB infection rates among nurses were high as opposed to this study that found only 3.6% (357/10,048).
- Two factors were most associated with TB
 - Age more or equal 30 years old,
 - Relatives have been TB infected.

Strength

- Large sample size
- Variety of cultural, well-being and environmental
- Can be a good representative of the population, which will be able to study and reference.

Limitation

- A large samples may be varying in terms of statistics.
- Data from the study were derived from self-administered questionnaire.
- TB infection was reported by nurses who respondents without medical diagnosis result to confirmed.

Conclusions

- ◉ Prevalence of TB infection was high in service nurse whose relatives have been TB infected
- ◉ To solve problem, researcher should concentrate to
 - High age group
 - Relatives have been TB infected group

However, this study shows that prevalence of TB infection remain high and remains a health problem that needs to be burned. Especially, in medical personals who spend a majority of time with patients

Thank you

for your attention

