

Tongue Swab User Acceptance for Tuberculosis Diagnosis in the Era of COVID-19

A case study in Cape Town, South Africa

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Introduction

Tuberculosis disease (TB), caused by Mycobacterium tuberculosis (MTB), remains a major global cause of morbidity and mortality [1]. The standard sample for TB diagnosis is sputum, a viscous material derived from patient airways. Sputum collection presents safety risks to health care workers (HCW). Exposure can occur by various routes. In low resource settings infrastructure or procedures for aerosol containment are often incomplete, presenting additional risks for aerosol containment.

This study assessed risk perceptions among healthcare workers using oral swab analysis (OSA) for TB diagnosis in South Africa during a pandemic. We explored how local context and current events (for example, COVID-19) influence participants' perceptions of risk.

Aims

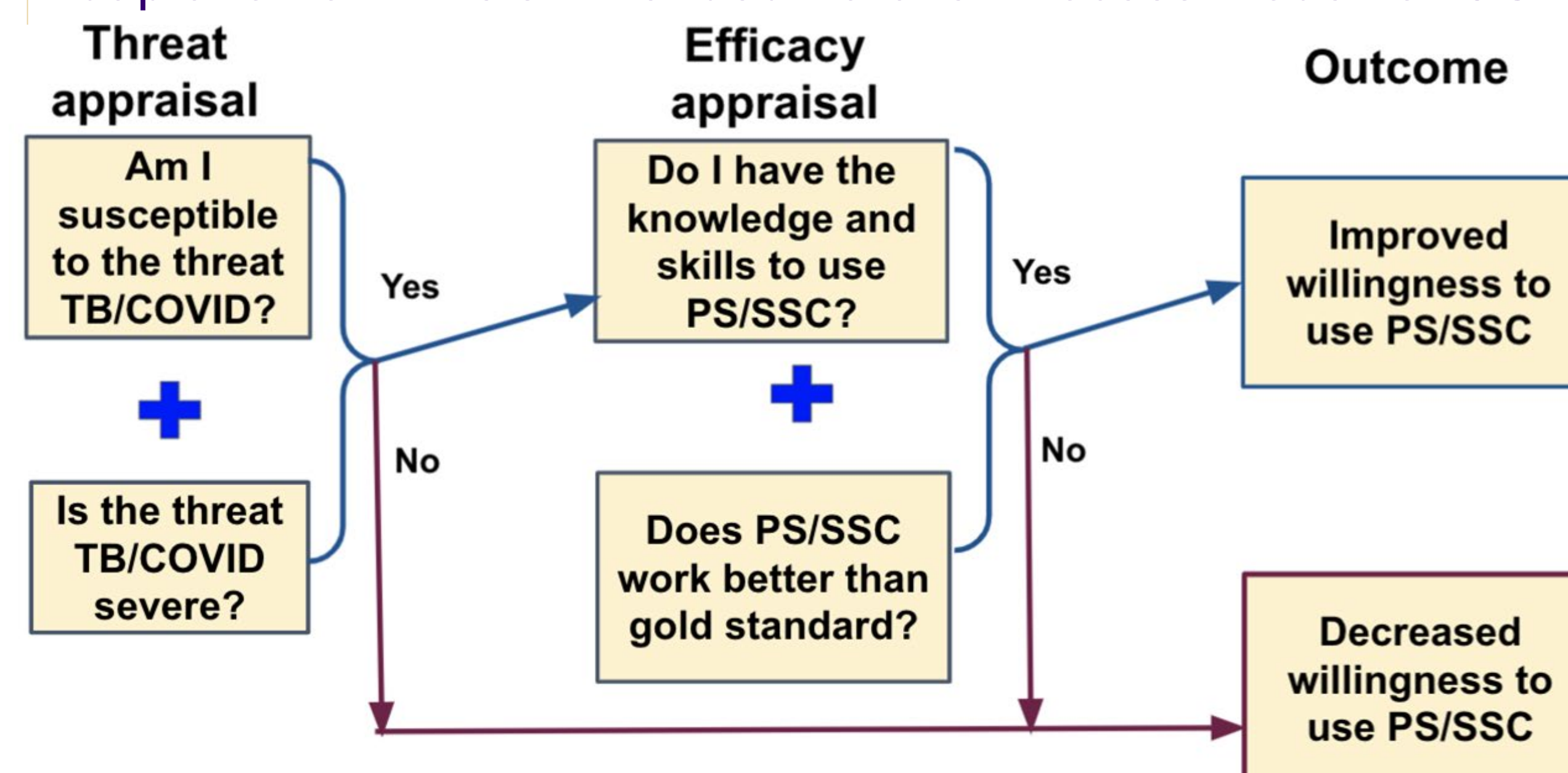
- 1) Understand user attitudes toward the new method of OSA
- 2) Understand and anticipate perceived occupational safety risks, if any, associated with OSA
- 3) Collect user ideas for improving the method, such as, is supervised self swabbing feasible?

Human Subjects Approval

IRB approval was completed and approved for with the UW and our partners at South African Tuberculosis Vaccine Initiative (SATVI) through the University of Cape Town, South Africa.

Theoretical Framework

Adaptation of Witte's Extended Parallel Process Model for OSA



Witte's Extended Parallel Process Model was created to convey risk communication [2]. This model was adapted for the purposes of assessing *risk perceptions* using OSA with provider swabbing or supervised self collection for TB diagnosis.



Methods

Mixed methods-Participants (n=18) were selected through purposive sampling of health care workers from our partner study site at SATVI. Interviews were professionally transcribed. Employed a deductive coding process and developed analysis matrices and memos to summarize key themes within and across coded text. The first four transcripts will be co-coded to ensure Cohen's Kappa Inter-rater reliability score greater than 0.75. Interviews explore each construct related to threat and efficacy.

- > Inclusion criteria: All had to be experienced in both sputum sampling and OSA sampling methods for TB diagnostics
- > Semi-structured individual interviews with HCW in the clinical setting and those who make home visits.
- > Interviews conducted using a semi structured interview guide developed based on the study aims and Extended Parallel Process Model (EPPM) conceptual framework.

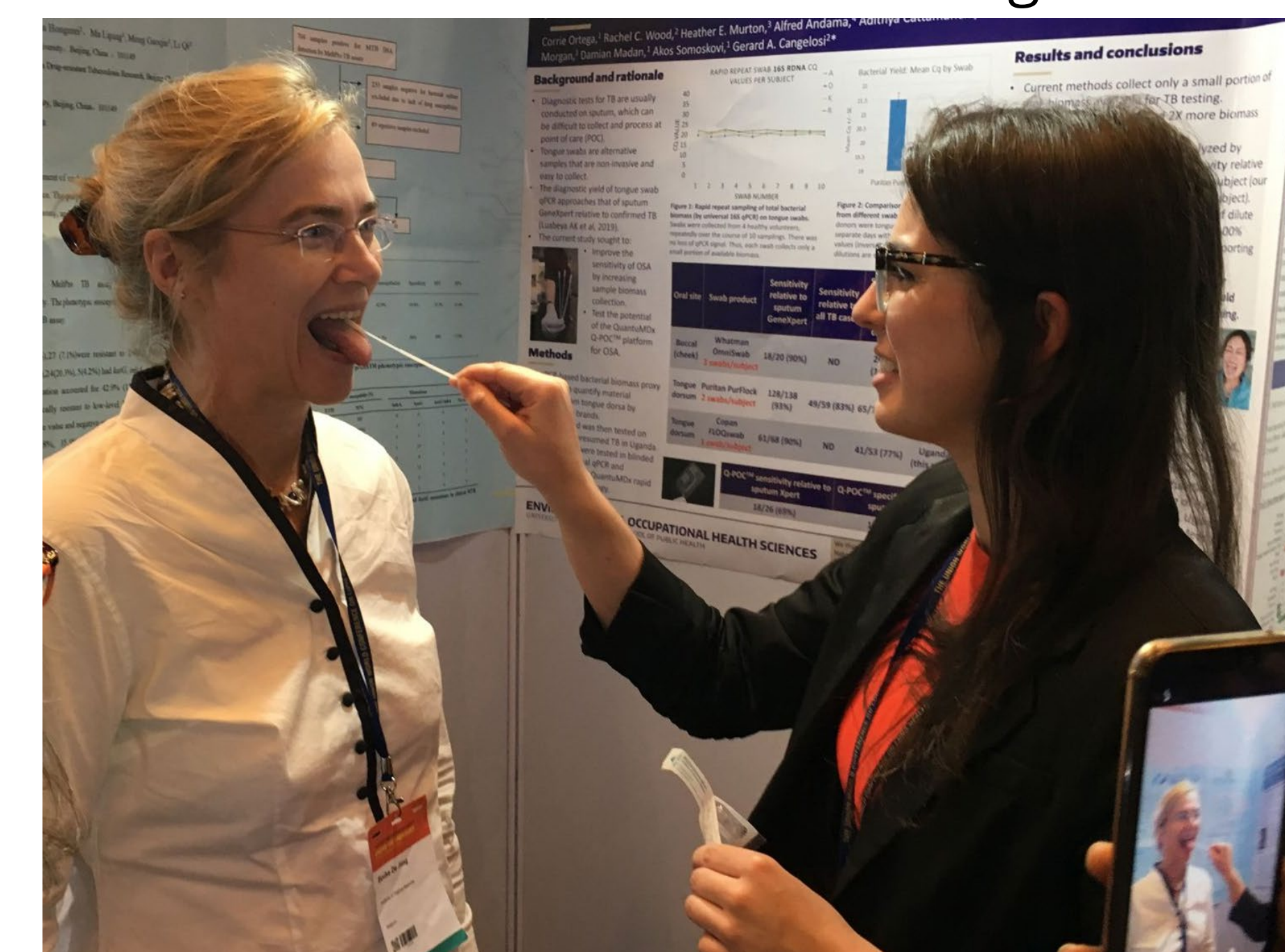
Data Analysis and Further Research

Data analysis will guide the creation of a decision tree with context specific guidelines for when to use the gold standard vs provider swabbing vs supervised self swabbing. Data has contributed to development of a self swab protocol. Standard operating procedure (SOP) for OSA were amended to reduce impact of barriers to implementation. Analysis of implementation of the protocol is needed.

>Improve training for health care workers administering OSA and to patients on how to perform a supervised self swabbing protocol.

> Evaluate training materials for implementation efficacy.

Findings will guide the development of training materials and/or policies and procedures that enhance worker safety and comfort when using OSA in different contexts such as at home visits or in clinical settings.



Acknowledgements

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References

1. Organization WH. Global Tuberculosis Report 20202020 2020.
2. Witte, K. 1992. Putting the fear back into fear appeals: The extended parallel process model. Communication Monographs 59:329-349.

