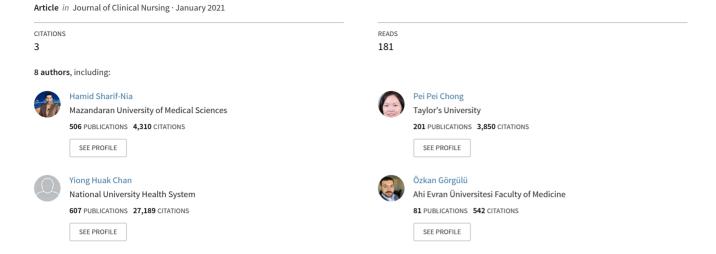
Clinical accuracy and agreement between tympanic and forehead body temperature measurements for screening of patients with COVID-19



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Clinical accuracy and agreement between tympanic and forehead body temperature measurements for screening of patients with COVID-19

Hamid Sharif Nia PhD, Associate Professor¹ | Pei Pei Chong PhD, Professor² | Chan Yiong Huak PhD, Professor³ Ozkan Gorgulu PhD, Professor⁴ Behzad Taghipour BSc. Nurse⁵ | Erika Sivaraian Froelicher PhD. Professor Emeritus⁶ Saeed Pahlevan Sharif PhD, Associate Professor | Pardis Rahmatpour PhD, Assistant Professor⁸ ©

Correspondence

Pardis Rahmatpour, School of Nursing, Golestan 1st, South Eshteraki St., Baghestan Blvd, Karaj, Iran. Email: Par.rahmatpour@gmail.com

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Abstract

Aim: To investigate the accuracy, reliability and agreement between infrared forehead thermometers versus infrared tympanic thermometers temperature, a cross-sectional study was conducted in April 2020.

Methods: The forehead and tympanic temperatures of 615 subjects were measured simultaneously in three exposed SARS-COV-2 groups at one hospital in Iran, during April 2020. These comparisons were evaluated by Bland-Altman Plot, repeatability, Passing-Bablok regression and Lin's concordance correlation coefficient. The receiver operating characteristic (ROC) analysis was done to describe the discrimination accuracy of a diagnostic test. The study adhered to STROBE checklist for cross-sectional

Results: A Bland-Altman plot indicated that the limits of agreement between the forehead and tympanic temperature were -0.259 to +0.19°C. Passing-Bablok regression analysis illustrated that the infrared forehead was not linearly related to tympanic temperatures (reference method), with a slope estimate that was significantly different from 1.00. The infrared forehead thermometer showed poor precision and lower accuracy than the tympanic. The forehead temperature readings had 60.0% sensitivity and 44.4% specificity (p > .05) to predict disease.

Conclusion: According to the results of study, there is no evidence that the assessment of temperature by infrared forehead thermometer could discriminate between the two groups (positive and negative).

KEYWORDS

agreement, body temperature, fever, forehead, hospital infection, nursing, SARS-COV-2, screening, thermometer, tympanic

¹School of Nursing and Midwifery Amol, Mazandaran University of Medical Sciences, Sari, Iran

²School of Biosciences, Faculty of Health and Medical Sciences, Taylor's University, Subang Jaya, Malaysia

³Yong Loo Lin School of Medicine, Singapore City, Singapore

⁴Kirsehir Ahi Evran University, Faculty of Medicine, Department of Biostatistics and Medical Information Kirsehir, Kirsehir,

⁵Imam Khomeini's Hospital of Amol, Mazandaran University of Medical Science, Sari, Iran

⁶Department of Physiological Nursing, School of Nursing and Department of Epidemiology & Biostatistics, School of Medicine, University of California San Francisco, San Francisco, California, USA

⁷Taylor's Business School, Taylor's University Lakeside Campus, Subang Jaya, Malaysia

⁸Department of Nursing, Alborz University of Medical Sciences, Karaj, Iran