



LETTER TO THE EDITOR

Comment on: Comparison of the ocular ultrasonic and optical biometry devices in different quality measurements



Dear Editor

We read with keen interest the recently published study titled “Comparison of the Ocular Ultrasonic and Optical Biometry Devices in Different Quality Measurements” author by M. Khorrami-Nejad.¹ We wish to commend the authors for their invaluable contribution to the field of ophthalmology. The study explores the comparability of axial length (AL), anterior chamber depth (ACD), and lens thickness (LT) measurements obtained from the IOLMaster700 optical biometer and the Echoscans US-4000 ultrasound biometer. While we appreciate the authors’ efforts, we would like to raise some questions and suggestions for further analysis.

Standardized Classification for Quality Measurements: The study introduces a novel approach for classifying the quality of measurements based on the standard deviation (SD) of AL measurements. This classification lacks standardization and may not be universally applicable. Future research could explore the development of a more widely accepted and standardized classification system for measurement quality.²

Variability in Cataract Types: The study does not take into account the various types and stages of cataracts that patients may have. Different cataract types could impact the quality of measurements differently. Future research could investigate how various cataract types influence the reliability and agreement of measurements.³

Effects of Cataract Density: Cataract density, or the severity of cataracts, was not considered in this study. The density of cataracts can vary among patients and might affect the quality of measurements differently investigating the relationship between cataract density and measurement reliability could be a valuable research direction.³

Comparisons with Other Biometric Devices: The study primarily compares measurements between the IOLMaster 700 and the Echoscans US-4000. Future research could extend these comparisons to include other commonly used biometric devices. This would help assess the generalizability of the findings to a broader range of devices.

Influence of Patient Characteristics: The study briefly mentions that the age of patients might affect the reliability of measurements. Further research could explore the potential influence of other patient characteristics, such as lens opacities, ocular diseases, or ocular biometry history, on measurement reliability and agreement.

Clinical Implications: The study does not discuss the clinical implications of the observed differences in measurements between the two devices. Future research could investigate how these differences might impact cataract surgery outcomes and IOL power calculations.

Repeatability and Interexaminer Analysis: The study lacks interexaminer repeatability analysis. Future studies could assess the repeatability of measurements taken by different examiners to evaluate potential sources of measurement variability. Standardization of this procedure in order to achieve higher test reliability might be the aim of relevant future studies, although there are a number of points that have to be addressed.⁴

We believe that the authors’ commitment to advancing optometry and ophthalmology will lead to further research and improvements in the field. Your guidance and consideration of these suggestions would be highly valuable in ensuring the study’s continued impact and relevance.

References

1. Khorrami-Nejad M, Khodair AM, Khodaparast M, Babapour Mofrad F, Dehghanian Nasrabadi F. Comparison of the ocular ultrasonic and optical biometry devices in the different quality measurements. *J Optom.* 2023;16:284–295. <https://doi.org/10.1016/j.optom.2023.05.001>.
2. Lu LW, Rocha-de-Lossada C, Rachwani-Anil R, Flikier S, Flikier D. The role of posterior corneal power in 21st century biometry: a review. *J Fr Ophtalmol.* 2021;44:1052–1058. <https://doi.org/10.1016/j.jfo.2020.11.031>.
3. González-Godínez S, Saucedo-Urdapilleta R, Mayorquín-Ruiz M, et al. Ocular biometry in dense cataracts: comparison of partial-coherence interferometry, swept-source optical coherence tomography and immersion ultrasound. *Indian J Ophthalmol.* 2022;70:107–111. https://doi.org/10.4103/ijo.IJO_854_21.
4. Tsinopoulos IT, Tsoulos KT, Symeonidis C, Chalvatzis N, Dimitrakos SA. Repeatability and reproducibility of a-scan biometry quantitative findings. *Curr Eye Res.* 2009;447–453. <https://doi.org/10.1080/02713680902913014>.

<https://doi.org/10.1016/j.optom.2023.100507>

1888-4296/© 2023 Spanish General Council of Optometry. Published by Elsevier España, S.L.U. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Suraj Kumar Chaurasiya^a, Mahendra Singh^{a,*}, Jayant Jha^b,
Radhika^c

^a *Department of Optometry and Vision Science, CL Gupta
Eye Institute, Moradabad, Uttar Pradesh, 244001,
India*

^b *SJ Vision Foundation, Muzaffarpur, Bihar, India*

^c *Department of Optometry and Vision Science, Uttaranchal
(PG) College of Bio-medical Sciences and Hospitals,
Dehradun, Uttarakhand, 248002, India*

^{*} Corresponding author at: C L Gupta Eye Institute, Ram
Ganga Vihar Phase II (Extn.), Moradabad, Uttar Pradesh,
244001, India.

E-mail address: optommahendrasing@gmail.com (M. Singh).