

# Improved knowledge and clinical practice as a result of virtual Nurse Residency Program.

## Online-learning Nurse Residency Program Improves Knowledge And Expertise In Low- and Middle-Income Countries.

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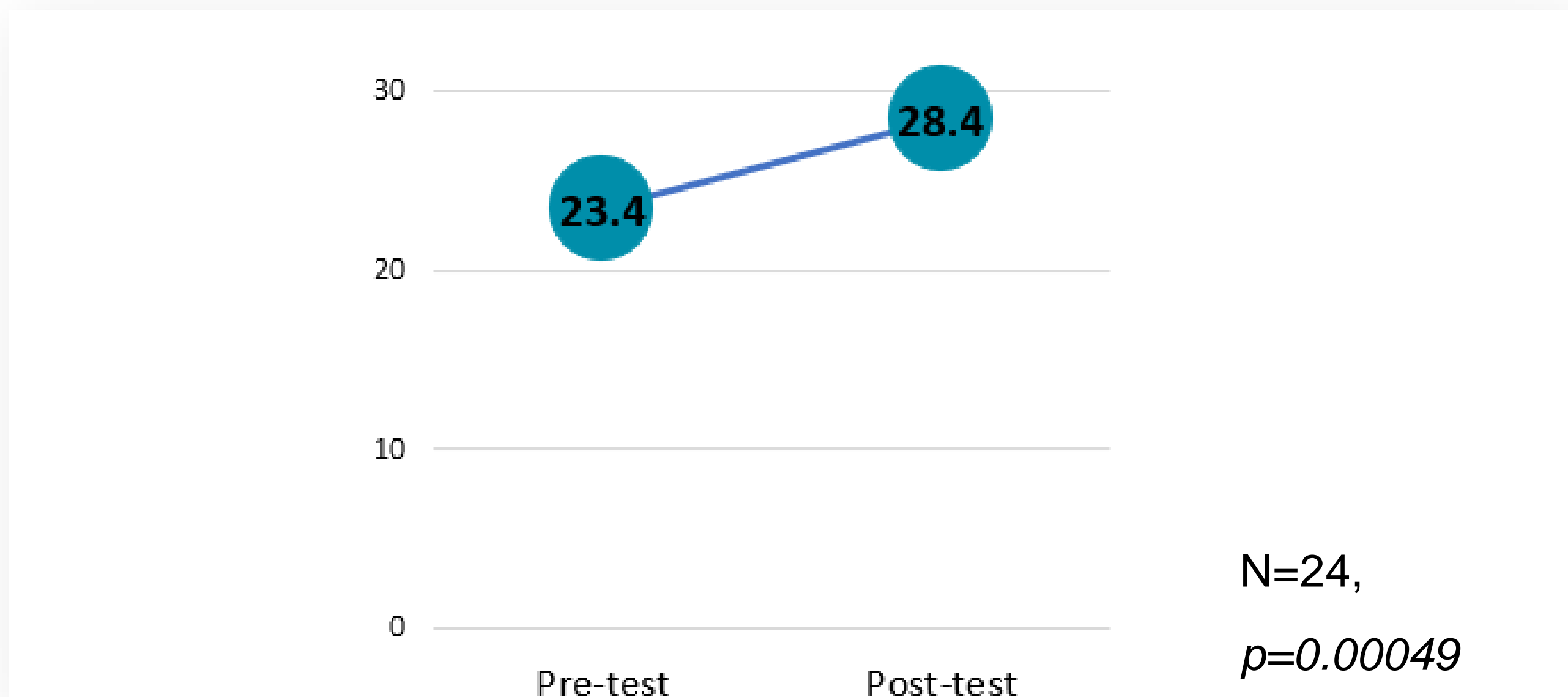


**Background:** Children's HeartLink worked with a team of dedicated nurse volunteers to develop the Nurse Residency Program (NRP). NRP seeks to improve nursing performance behaviors (including knowledge, skills, and competence) and is tailored to supporting nurses in low- and middle-income countries and the contexts in which they work. Due to the COVID-19 pandemic, Children's HeartLink's nurse education programs were adapted to remote learning. We redesigned our NRP to be a multi-modal online learning program for nurses. Our online curriculum consisted of 54 self-study videos and monthly instructor-led remote training sessions over the course of a year. The objective of our project was to evaluate nursing knowledge and expertise before and after the NRP.

### Participant Profile

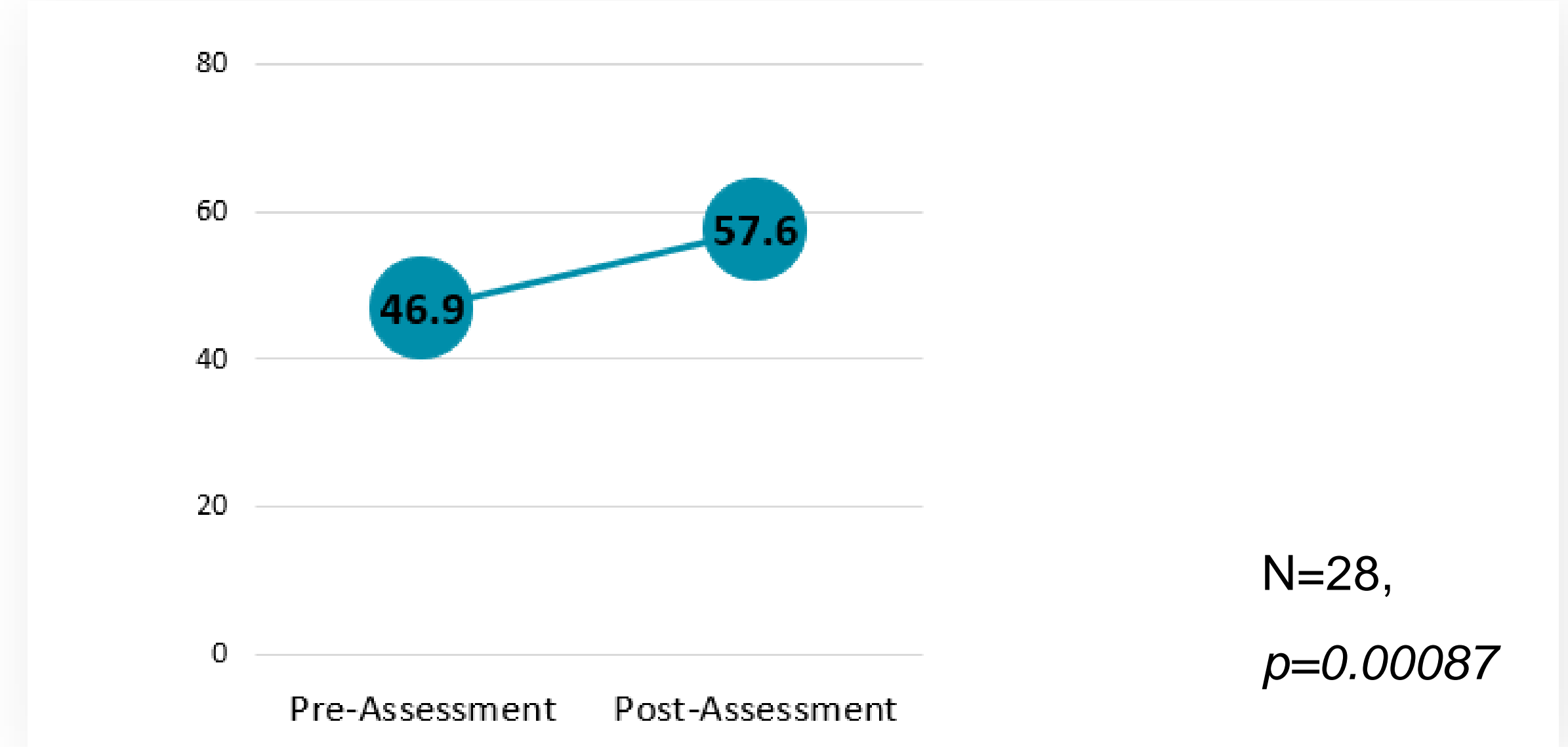
Site	City, Country	N, %	Years of experience	N, %
Amrita	Kochi, India	3, 14%	0-1 years	5, 24%
GKNMH	Coimbatore, India	5, 24%	1-3 years	5, 24%
IJN	Kuala Lumpur, Malaysia	5, 24%	3-5 years	3, 14%
NSH	Howrah, India	4, 19%	5-7 years	1, 5%
RTIICS	Kolkata, India	4, 19%	7 years+	7, 33%

**Result 1:** Mean knowledge scores increased from 23.4 (64%, SD=8.74) to 28.4 (78%, SD=7.63) points.



**Result 2:** Expertise level assessment

revealed a clinically meaningful increase from 46.9 points (aligned with “intermediate” expertise) to 57.6 points (aligned with “expert” expertise).



## Methods

Pre-/Post-test

Pre-/Post-Clinical Assessment

Nurse knowledge and expertise were measured using a pre-/post-study design, using knowledge tests and expertise assessment completed by their nurse supervisor or intensivist. Our measurement tools were used during in-person NRP training sessions and only required minor adaptation for remote learning. Our pre- and post-knowledge test contained 25 questions representing our learning objectives. Participants completed the pre-test within 30 days of the start of training sessions and completed the post-test within 60 days of completion of training. Our expertise assessment contained 21 items for a supervisor to rate each participant's expertise level (i.e., novice to trainer scale). The pre-assessments were completed within 30 days of the start of training sessions, and a post-assessment were completed by the same supervisor within 60 days of training completion. Total scores were computed to represent participant knowledge and expertise gain. Knowledge test and expertise assessment results were analyzed using a paired Student t-test and expressed in means (and SDs). Knowledge scores were transformed into 0-100% scale.

## Conclusion

**We found knowledge and expertise level improved after NRP education and training. The ability to successfully train pediatric cardiac nurses remotely offers a promising solution for improving care quality in low- and middle-income countries.**

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