

Learning and Revision Strategies of Clinical Examination Skills among Post-Graduate Pediatric Medicine Residents at Children's Hospital and University of Child Health Sciences Lahore, Pakistan

Wajeeha Rizwan¹, Amna Khalid² and Muhammad Khalid Masood^{3*}

¹Associate Professor of Pediatrics, University of Child Health Sciences, Lahore, Pakistan

²Final Year Student KEMU, Lahore, Pakistan

³Professor of Pediatrics, University of Child Health Sciences, Lahore, Pakistan

*Corresponding Author: Muhammad Khalid Masood, Professor of Pediatrics, University of Child Health Sciences, Lahore, Pakistan.

Received: February 09, 2024; Published: March 01, 2024

Abstract

Background: The decline in clinical examination skills among medical professionals poses concerns due to its impact on accurate diagnosis and patient care. Understanding the strategies employed by postgraduate Pediatric Medicine residents for learning and revising these skills is crucial.

Objectives: This study aimed to identify prevalent methodologies, tools, and preferences in acquiring clinical examination skills among pediatric medicine residents at the UCHS.

Study Design: cross-sectional observational.

Place and Duration of Study: The study was conducted at UCHS Lahore, over the month of October 2022.

Materials and Methods: A cross-sectional survey was conducted over a period of one month in October 2022 at University of Child Health Sciences. The Google form based questionnaire was shared via the official academic WhatsApp group of Pediatric medicine residents (200 in number), at UCHS. The collected data from 128 respondents (a response rate of 64%) were analyzed using statistical software (SPSS version 25). Descriptive statistics, including frequencies and percentages, were calculated for categorical variables.

Results: Out of 200 residents, 128 participated (response rate 64%). Initial learning predominantly occurred through bedside teaching by UCHS faculty (78.1%), with clinical method books being the most used revision tool (52.3%). Peer-assisted learning (24.2%) and random YouTube videos (12.5%) were also reported as revision aids.

Conclusion: The study highlights the reliance of Pediatric Medicine residents on traditional bedside teaching for initial learning, while emphasizing the significant use of clinical method books for revision. Despite limited utilization, peer-assisted learning and YouTube videos were also identified as good revision tools. These findings underscore the need for guiding residents toward effective and validated revision techniques to enhance their clinical examination skills during postgraduate training.

Keywords: Clinical Examination Skills; Pediatric Residents; Postgraduate Training; Learning Strategies and Revision Techniques

Introduction

The art of thorough clinical examination profoundly impacts patient care, evidence exists that proper physical examination helps making accurate diagnosis and management plan [1]. Despite its pivotal role, concerns loom over a decline in these skills. Factors like increased reliance on investigations and technology, time constraints during patient visits, and extensive documentation requirement may contribute to this trend [2]. Moreover, educators and physicians lacking confidence in these clinical examination skills might inadvertently undervalue them, leading to delay in diagnosis and unnecessary diagnostic tests [1,2]. Experts advocate for more emphasis on clinical examination education, yet there is limited knowledge about how it's currently taught across various medical schools [1].

There is strong evidence that best way of teaching clinical examination skill is bedside teaching in medical education. While acknowledging the benefits of new teaching methodologies including simulation-based or video-based learning, research proves that such methods cannot fully replicate the immersive experience and unique learning opportunities derived from direct patient interaction [3]. Nevertheless, bedside teaching sessions frequently fall short in adequately imparting clinical examination skills, particularly during post-graduate training. This deficiency arises from the unpredictable teaching environment in bustling wards and constraints imposed by limited resources [4]. Moreover, to acquire clinical examination skill, a learner requires continual honing and revision to ensure moving from the novice to the competent stage in clinical skills acquisition that in turn improves patient care and outcome [5]. Among medical students and residents, the approach to revising these critical techniques varies widely, with an array of tools and methods available for study and practice. Mostly clinical skills are taught at bed side during face to face teaching and then student engage in revision using clinical method books and various e-learning tools including online videos [6]. Recently, simulators are also widely used in medical education to teach psychomotor skills [7].

There is lack of evidence how post-graduate residents learn and revise the clinical method skills. The clinical examination skill is dependent on knowledge of proper examination technique and clinical judgment based on knowledge of subject and correlating it to examination findings to reach proper diagnosis. Hence this study aims to illuminate the diverse strategies of learning clinical methods adopted by Pediatric medicine residents at University of Child Health Sciences (UCHS). By understanding the prevalent revision tools and practices, this study seeks to offer insights into the preferences, trends, and effectiveness of different learning approaches among postgraduate pediatric medicine residents. Identifying the favored revision tools and practices among residents can not only shed light on prevalent learning methods but also offer valuable guidance for enhancing the effectiveness of pedagogical approaches within the residency program.

Objectives of the Study

This study aimed to identify prevalent methodologies, tools, and preferences in acquiring clinical examination skills among pediatric medicine residents at the UCHS.

Materials and Methods

A cross-sectional survey was conducted throughout October 2022. This survey, centered on Pediatric medicine residents' learning and revising strategies for Pediatric clinical examination skills, utilized a questionnaire. The questionnaire, initially refined through a pilot study involving ten participants, underwent further modifications by two medical education experts and a senior Pediatrician based on the pilot study results. The Google form questionnaire, designed to collect demographic details like age, gender, post-graduate program, and residency year, along with insights into the learning and revision methods of pediatric medicine residents, was disseminated via the official academic WhatsApp group of UCHS comprising of 200 Paediatric Medicine residents. Participants were provided with informed consent, assuring anonymity and specifying the use of data solely for enhancing the clinical teaching of Pediatric medicine residents.

Collected data were then inputted and analyzed using SPSS version 25. Frequencies and percentages were computed for categorical variables such as gender, residency year, initial learning approaches, and revision tools to derive insights into the residents’ preferences and practices in acquiring clinical examination skills.

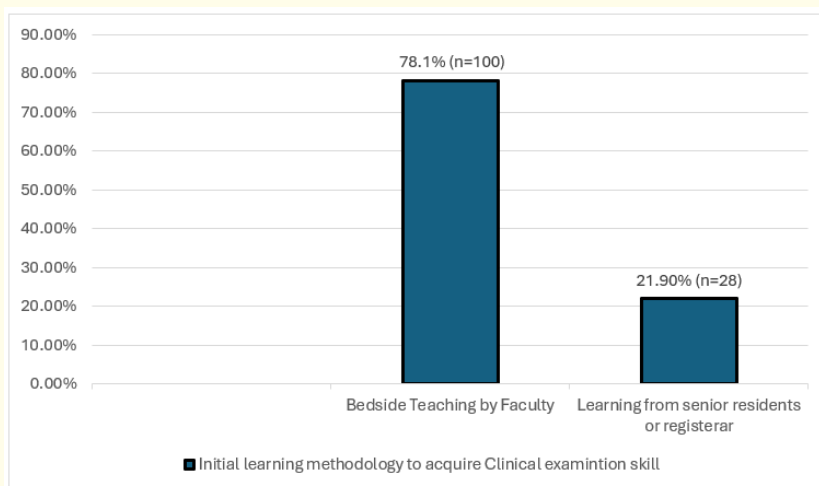
Results

The response rate was 64%, 128 residents out of total 200 filled the form. The males constituted 59.4% (n = 76) and females 40.6% (n = 52) of study participants. UCHS is dealing with two types of Programs in Paediatric Medicine one of College of Physicians and Surgeons (FCPS) and other is University program (MD, Doctor of Medicine). The 47.7% PGR (n = 61) were registered in MD (Doctor of Medicine), and 52.3% (n = 67) in FCPS (Fellow of College of Physicians and Surgeon), Pediatric medicine program. The 23.4% (n = 30) were first year, 24.2% (n = 31) second year, 23.4% (n = 30) third year, 24.2% (n = 31) fourth year and 4.7% (n = 6) training complete residents (Table 1).

Sr. No	Characteristic of participants	Number	Percentage
1	Gender		
	Male	76	59.4%
	Female	52	40.6%
2	Residency Program		
	FCPS	67	52.3%
	MD	61	47.7%
3	Year of Residency		
	First Year	30	23.4%
	Second Year	31	24.2%
	Third Year	30	23.4%
	Fourth Year	31	24.2%
	Training Complete	6	4.7%
	Total	128	100%

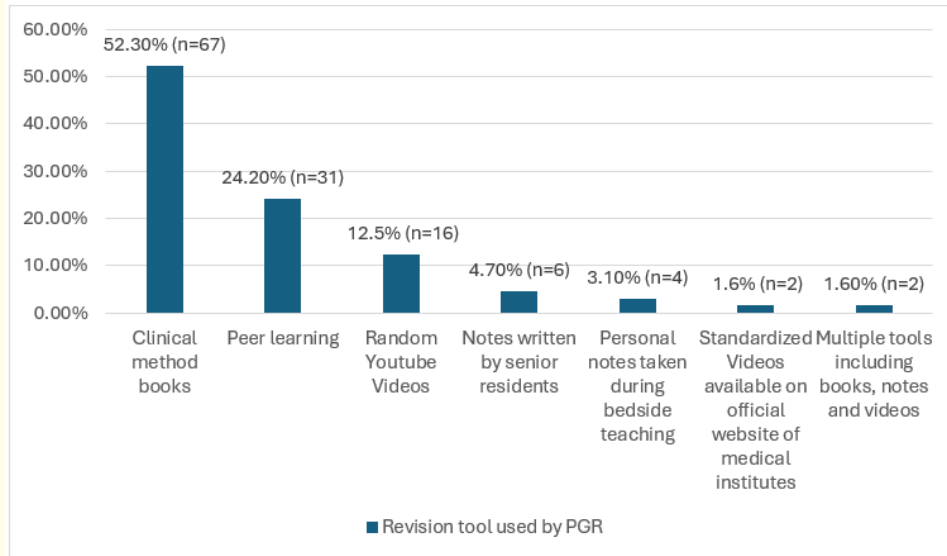
Table 1: Characteristics of participants of study.

The 78.1% (n = 100) PGR responded that during residency initially they learned clinical methods taught by UCHS faculty during proper clinical method class on bedside of patients while 21.9% (n = 28) learned it from senior residents or registrars (Graph 1).



Graph 1: Initial learning methodology to acquire clinical examination skill.

The PGR usually revised clinical methods from clinical method books (52.3%, n = 67), peer learning (24.2%, n = 31) and by watching random YouTube videos (12.5%, n = 16) (Graph 2).



Graph 2: Usual revision tools used by Pediatric residents at UCHS.

Discussion

The clinical examination skills of a physician is essential for the effective patient care, yet research data indicates serious deficiencies in the clinical examinations skills among medical students and residents [1,9]. The most important method of teaching these skill is bedside teaching, though simulation technologies and video based learning is also gaining popularity in medical education [9]. Considering fact, that acquisition of psychomotor skill requires deliberate practice [5], current study was conducted to find out how Pediatric Medicine residents learn and revise clinical examination skill.

In our study, Pediatric Medicine residents inducted in two post-graduate programs participated i.e. MD pediatrics that is degree program of University of Health Sciences, Lahore and FCPS, a fellowship program of College of Physicians and Surgeons of Pakistan. Almost equal number of residents from two post graduate residency programs participated in the study. Majority (78.1%, n = 100) of the PGR reported that initial learning methodology to acquire clinical examination skill involved bedside teaching by faculty at UCHS. In a previous study it was reported that medical students, interns and residents perceive bedside teaching as an important way of learning clinical examination skills, but only 48% of them reported that they had sufficient bed side learning experience [10]. The majority of interns, residents as well clinical teachers, also think bedside teaching is effective in teaching art of history taking, physical examination and communication skill [10,11].

According to our study findings 52.3% residents used clinical methods books to revise clinical method skill, whereas only 14.1% of residents watched videos to revise clinical methods out of which majority viewed random You Tube videos and only 1.6% of total participants reported that they used standardized videos available at official websites of medical institutes as revision tool. A randomized control trial conducted by Hogg, *et al.* found that text based material better helps in acquisition of knowledge whereas psychomotor skill

acquisition can be better facilitated by provision of educational videos [12]. An online international survey reported that medical students and residents often turn to YouTube videos to improve their clinical skills, although these resources aren't mostly officially accredited or vetted. The credibility and reliability of these videos are limited because they are user-generated and not subject to formal review. Additionally, YouTube's content isn't organized by quality but rather by popularity and keyword relevance, which might not prioritize accurate or verified information [13]. On the contrary, in another randomized control trial provision of standardized videos of clinical method by a medical school as a revision tool significantly improved performance of 3rd year medical students' endocrinology clinical skills compared to ones using usual revision tools [14]. These study findings highlight that video-based learning among pediatric medicine residents need to be addressed and to guide them about proper revision techniques. The second most common strategy to revise clinical skill opted by our study participants (24.2%) was peer assisted learning (PAL). A systematic review suggested that medical students experiencing PAL show better academic performance compared to those not engaged in PAL especially when it comes to practical skills [15].

Limitation of the Study

The limitations of our study include that we did not evaluate the reason of preference of particular revision tools by Pediatric Medicine residents at our center and as it is single center study and results give a limited insight into methodologies opted by PGRs to acquire expertise in clinical examination skill. Still it gives us valuable data to improve teaching and training at our University that is biggest training center for pediatric medicine residents in Pakistan.

Conclusion

The study highlights the reliance of Pediatric Medicine residents on traditional bedside teaching for initial learning, while emphasizing the significant use of clinical method books for revision. Despite limited utilization, peer-assisted learning and YouTube videos were also identified as revision tools. These findings underscore the need for guiding residents toward effective and validated revision techniques to enhance their clinical examination skills during postgraduate training.

Acknowledgments

All the supervisors of pediatric medicine department at UCHS who helped us in data collection.

Conflict of Interest

None.

Bibliography

1. Uchida T, *et al.* "Approaches to teaching the physical exam to preclerkship medical students: results of a national survey". *Academic Medicine* 94.1 (2019): 129-134.
2. Verghese A, *et al.* "Inadequacies of physical examination as a cause of medical errors and adverse events: a collection of vignettes". *The American Journal of Medicine* 128.12 (2015): 1322-1324.
3. Narayanan V and Nair BR. "The value of bedside teaching in undergraduate medical education: a literature review". *MedEdPublish* 9 (2020): 149.
4. Ragsdale JW, *et al.* "Developing physical exam skills in residency: comparing the perspectives of residents and faculty about values, barriers, and teaching methods". *Journal of Medical Education and Curricular Development* 7 (2020): 2382120520972675.

5. Hibbert EJ, *et al.* "A randomized controlled pilot trial comparing the impact of access to clinical endocrinology video demonstrations with access to usual revision resources on medical student performance of clinical endocrinology skills". *BMC Medical Education* 13 (2013): 135.
6. Wynter L, *et al.* "Medical students: what educational resources are they using?" *BMC Medical Education* 19.1 (2019): 36.
7. Offiah G, *et al.* "Evaluation of medical student retention of clinical skills following simulation training". *BMC Medical Education* 19.1 (2019): 263.
8. Cassell EJ. "Doctoring: The nature of primary care medicine". Oxford University Press (2002).
9. Karnath B, *et al.* "Teaching and testing physical examination skills without the use of patients". *Academic Medicine* 77.7 (2002): 753.
10. Peters M and Ten Cate O. "Bedside teaching in medical education: a literature review". *Perspectives on Medical Education* 3.2 (2014): 76-88.
11. Ramani S. "Twelve tips to improve bedside teaching". *Medical Teacher* 25.2 (2003): 112-115.
12. Hogg HJ, *et al.* "A non-randomised trial of video and written educational adjuncts in undergraduate ophthalmology". *BMC Medical Education* 20.1 (2020): 10.
13. Chauvet P, *et al.* "What is a good teaching video? Results of an online international survey". *Journal of Minimally Invasive Gynecology* 27.3 (2020): 738-747.
14. Hibbert EJ, *et al.* "A randomized controlled pilot trial comparing the impact of access to clinical endocrinology video demonstrations with access to usual revision resources on medical student performance of clinical endocrinology skills". *BMC Medical Education* 13 (2013): 135.
15. Brierley C, *et al.* "Peer-assisted learning in medical education: a systematic review and meta-analysis". *Medical Education* 56.4 (2022): 365-373.

Volume 13 Issue 3 March 2024

©All rights reserved by Muhammad Khalid Masood, *et al.*