



International Journal of Medical and All Body Health Research

Insights and Perspectives of Neuro Physiotherapists Towards the use of Virtual Reality in Neurorehabilitation

Mohini Kamble ^{1*}, Dr. Chitra Mridha ², Dr. Jaywant Nagulkar ³

¹ Bachelor of Physiotherapy, Dr. Ulhas Patil College of Physiotherapy, Jalgaon. 425001, Maharashtra University of Health Sciences, India

² Professor and HOD, Department of Neuroscience, Jalgaon 425001, Maharashtra University of Health Sciences, India

³ Principal, Department of musculoskeletal physiotherapy, Jalgaon.425001, Maharashtra University of Health Sciences, India

* Corresponding Author: **Mohini Kamble**

Article Info

ISSN (online): 2582-8940

Volume: 07

Issue: 04

Received: 03-08-2026

Accepted: 02-09-2026

Published: 01-10-2026

Page No: 21-29

Abstract

Background: Virtual Reality (VR) is increasingly being explored as a technology-based adjunct in neurorehabilitation. Its clinical integration may depend not only on technological availability but also on physiotherapists' awareness, knowledge, practical exposure, perceptions, recognition of barriers, and readiness.

Aim: To explore the insights of neuro physiotherapists regarding the use of Virtual Reality in neurorehabilitation.

Methods: A cross-sectional study was conducted among neuro physiotherapists in Maharashtra over 6 months. Participants were recruited using purposive sampling with a snowball technique. A self-structured questionnaire assessing awareness, knowledge, usage/exposure, perspectives, perceived barriers, and readiness toward VR was administered online. Data were entered into Microsoft Excel and analysed using descriptive statistics; categorical responses were expressed as frequency and percentage.

Results: The study included 112 participants. The majority were aged 23–28 years (52.68%) and female (59.82%). Most participants had 1–5 years of professional experience (50%). Positive responses for awareness ranged from 66.1% to 84.8% and for knowledge from 67.6% to 83.8%. In contrast, practical usage/exposure was limited, with “No” responses ranging from 41.4% to 66.7%. Perspectives were generally positive (66.1%–72.3%), while barriers were commonly identified (51.4%–78.6%). Readiness was high, with “Yes” responses ranging from 75.9% to 83.9%.

Conclusion: Participants demonstrated good awareness and knowledge of VR, but practical exposure was comparatively limited. They generally expressed positive perspectives and high readiness toward VR, while identifying several barriers to implementation.

DOI: <https://doi.org/10.54660/IJMBHR.2026.7.4.21-29>

Keywords: Virtual Reality, neurorehabilitation, neuro physiotherapy, awareness, knowledge, perspectives, barriers, readiness

1. Introduction

Neurorehabilitation is a specialized area of physiotherapy focused on improving movement, function, participation, and independence in individuals with neurological conditions. Conditions such as stroke, Parkinson's disease, cerebral palsy, and spinal cord injury may result in impairments in movement, balance, coordination, and functional independence. Neurorehabilitation therefore plays an important role in promoting recovery and functional improvement through principles of neuroplasticity.

Neurological recovery may be complex and can require prolonged, repetitive, and meaningful practice. Maintaining patient motivation, active participation, and consistent practice is important during rehabilitation. Conventional rehabilitation remains the foundation of treatment, while technological developments have introduced additional approaches that may complement therapeutic practice. One such approach is Virtual Reality (VR).

VR is a computer-generated interactive environment that allows users to experience and interact with surroundings in real time. In neurorehabilitation, VR can provide an engaging and task-oriented environment in which patients may practise repetitive and meaningful movements, with potential applications in motor recovery, balance, coordination, and functional performance.

VR can be broadly classified as non-immersive, semi-immersive, or fully immersive. Non-immersive VR commonly uses screens such as computers or televisions with input devices, whereas semi-immersive systems may use large displays or projection systems. Fully immersive VR commonly uses head-mounted displays to create an interactive three-dimensional environment. VR may provide repeated practice with visual or auditory feedback, which can support motor learning.

The use of VR may also increase engagement by making therapeutic activities interactive and goal-oriented. Virtual tasks can be adapted to functional ability and graded as the patient progresses. However, implementation in clinical practice may depend on factors such as physiotherapists' knowledge and awareness, equipment availability, cost, training requirements, clinical setting, and acceptance by therapists and patients. Understanding neuro physiotherapists' insights is therefore relevant to the potential integration of VR into neurorehabilitation practice.

2. Aim and Objectives

Aim: To explore the insights of neuro physiotherapists regarding the use of Virtual Reality (VR) in neurorehabilitation.

Objectives:

- To assess the awareness of neuro physiotherapists towards Virtual Reality.
- To assess their knowledge regarding the use of Virtual Reality in neurorehabilitation.
- To assess their usage and exposure to Virtual Reality.
- To explore their perspectives towards the use of Virtual Reality in neurorehabilitation.
- To identify perceived barriers to the implementation of Virtual Reality.
- To assess their readiness to learn and integrate Virtual Reality into neurorehabilitation practice.

3. Materials and Methods

3.1. Study Design: A Cross-Sectional Study

3.2. Study Setting and Duration: The Study Was Conducted in Maharashtra Over A Period Of 6 Months

3.3. Study population and sample size: The study population consisted of neuro physiotherapists. The project results included 112 participants.

3.4. Sampling: Purposive sampling with a snowball technique.

3.5. Materials: Digital gadget (smartphone/tablet/laptop) and an online questionnaire.

3.6. Inclusion criteria: Postgraduate students of Neuro Physiotherapy; clinical or academic neuro physiotherapists; Ph.D. scholars in Neuro Physiotherapy; and participants willing to participate.

3.7. Exclusion criteria: BPT interns; undergraduate BPT students; and participants unwilling to participate.

3.8. Outcome measure: A self-structured questionnaire was developed to assess awareness, knowledge, usage/exposure, perspectives, perceived barriers, and readiness regarding VR in neurorehabilitation.

3.9. Validity and Reliability: Content validity was reviewed by senior faculty members from Dr. Ulhas Patil College of Physiotherapy and Dr. Ulhas Patil Medical College and Hospital. Reliability was assessed using the split-half method. Pearson's correlation coefficient between the two halves was 0.68, and the Spearman-Brown reliability coefficient for the complete questionnaire was 0.81.

3.10. Procedure: Ethical clearance was obtained from the Institutional Ethics Committee of Dr. Ulhas Patil College of Physiotherapy, Jalgaon, prior to commencement. Eligible participants were recruited according to the selection criteria. The validated questionnaire was converted into a Google Form and shared online through email or WhatsApp. Responses were collected online and analysed statistically.

3.11. Statistical analysis: Data were entered into Microsoft Excel and analysed using descriptive statistics. Categorical variables, including demographic characteristics and questionnaire responses, were expressed as frequency and percentage. Responses were categorized as Yes, No, and Maybe/Unsure. No inferential statistical tests were performed because the study was descriptive in nature.

4. Results

A total of 112 participants were included in the analysis.

4.1. Age-Wise Distribution

Table 1

Age group (years)	Frequency	Percentage
23–28	59	52.68%
29–34	35	31.25%
35–40	11	9.82%
41–46	4	3.57%
47–52	1	0.89%
53–58	2	1.79%

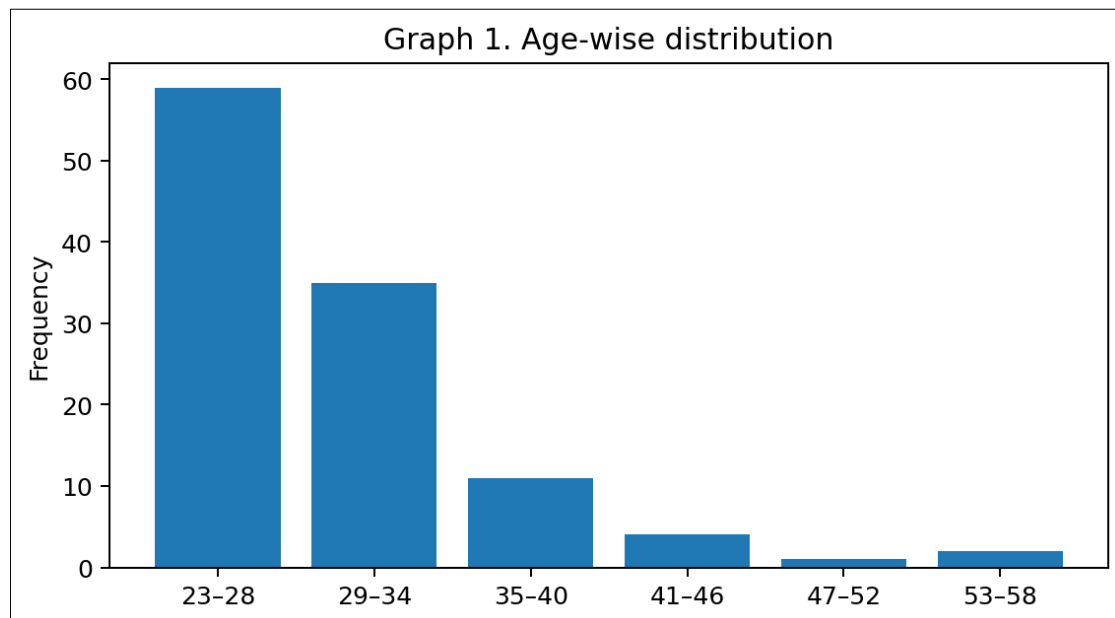


Fig 1

Graph 1: Age-Wise Distribution

Interpretation: The majority of participants were aged 23–28 years (59; 52.68%), followed by 29–34 years (35; 31.25%). The remaining participants were distributed across the other age groups. The mean age reported in the project was 29.95 ± 6.23 years.

4.2. Gender-Wise Distribution

Table 2

Gender	Frequency	Percentage
Male	45	40.18%
Female	67	59.82%

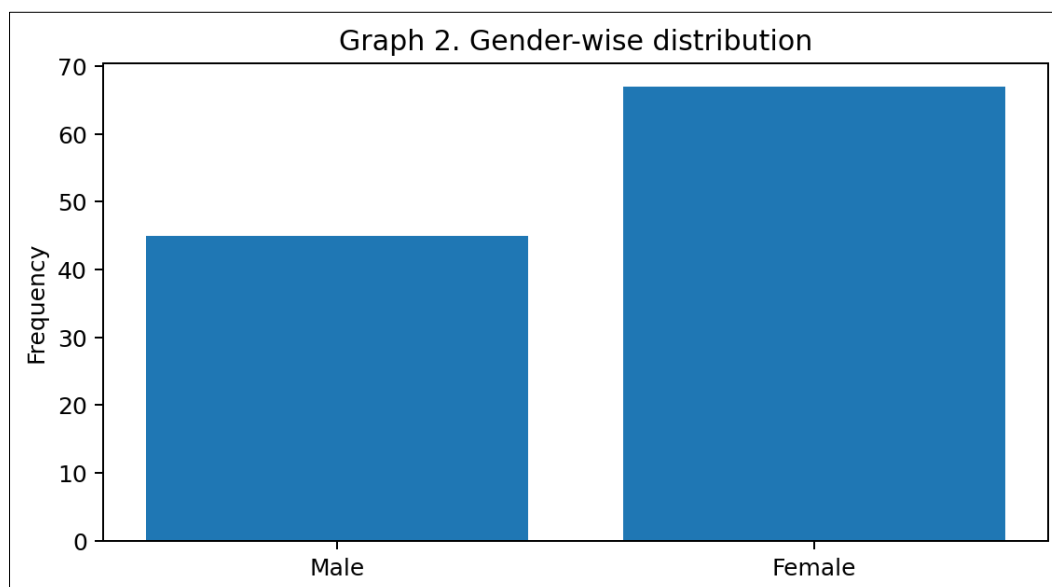


Fig 2

Graph 2. Gender-Wise Distribution

Interpretation: Of the 112 participants, 45 (40.18%) were male and 67 (59.82%) were female.

4.3. Years of Professional Experience

Table 3

Experience	Frequency	Percentage
<1 year	32	28.57%
1–5 years	56	50.00%
6–10 years	15	13.39%
11–15 years	3	2.68%
>15 years	6	5.36%

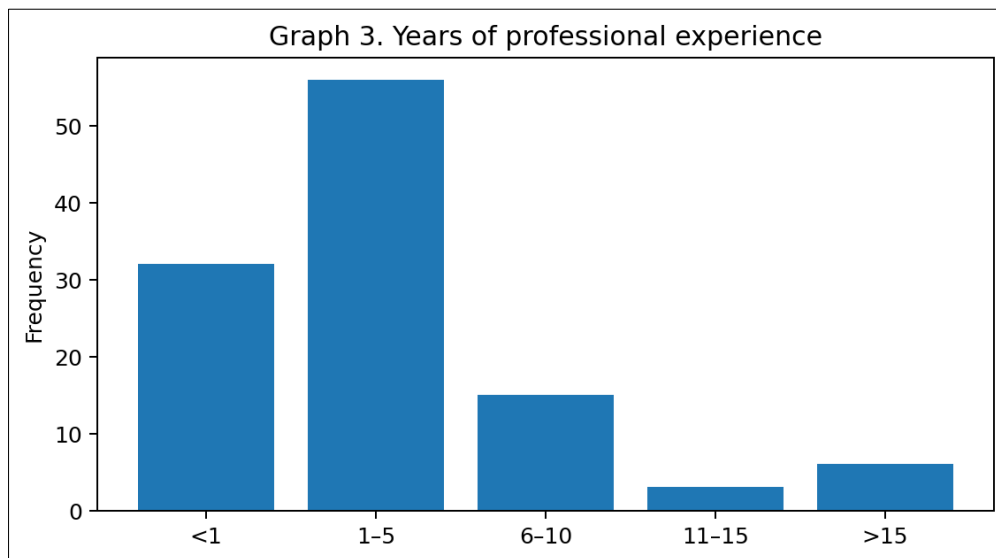


Fig 3

Graph 3. Years of Professional Experience

Interpretation: Half of the participants (56; 50.00%) had 1–

5 years of experience. The mean years of experience reported in the project was 3.92 ± 4.02 years.

4.4. Qualification-Wise Distribution

Table 4

Qualification	Frequency	Percentage
MPT Neurology student	42	37.50%
MPT Neuro Physiotherapist	63	56.25%
Other	7	6.25%

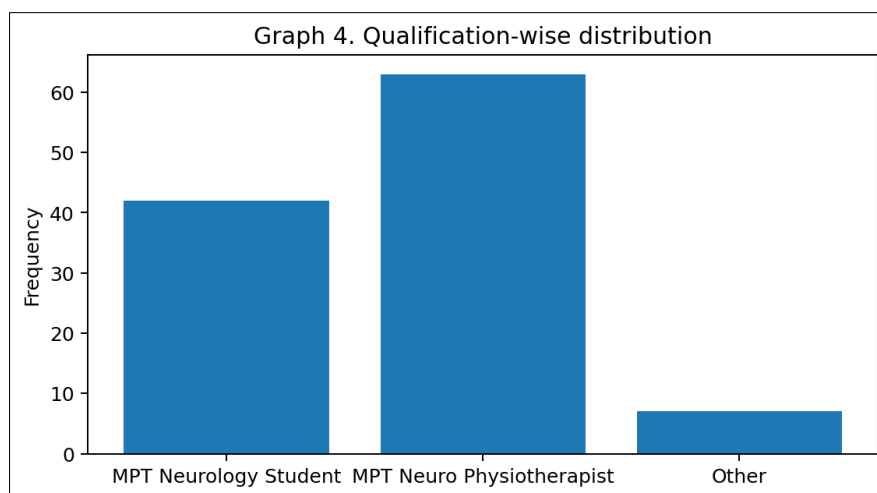


Fig 4

Graph 4. Qualification-Wise Distribution

Interpretation: Among the participants, 63 (56.25%) were

MPT Neuro Physiotherapists, 42 (37.50%) were MPT Neurology students, and 7 (6.25%) were categorized as other.

4.5. Awareness

Table 5

Question no.	Yes	No	Maybe/Unsure
1	84.8%	10.7%	4.5%
2	66.1%	23.2%	10.7%
3	75.0%	18.8%	6.3%
4	72.3%	16.1%	11.6%

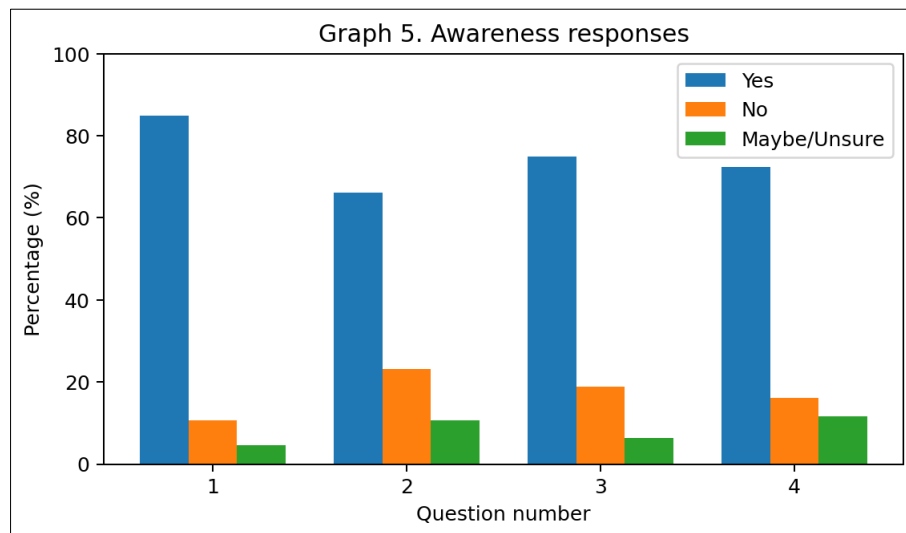


Fig 5

Graph 5. Awareness Responses

Interpretation: Positive responses ranged from 66.1% to 84.8% across the four awareness questions. The highest

affirmative response was for Question 1 (84.8%), while the lowest was for Question 2 (66.1%).

4.6. Knowledge

Table 6

Question no.	Yes	No	Maybe/Unsure
1	76.4%	4.5%	19.1%
2	83.8%	4.5%	11.7%
3	68.5%	6.3%	25.2%
4	67.6%	6.3%	26.1%

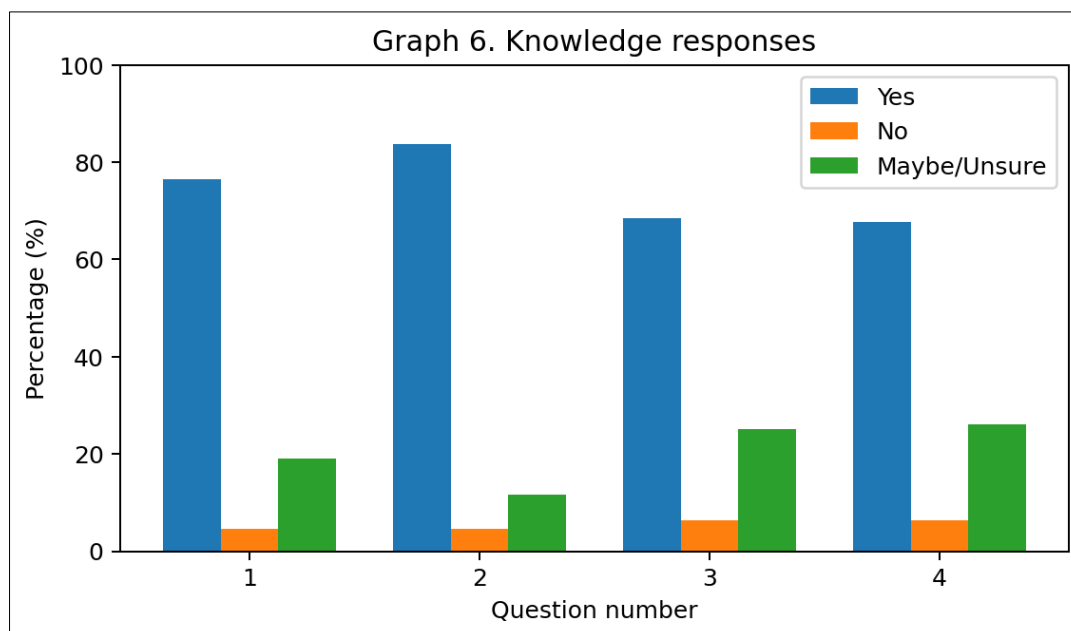


Fig 6

Graph 6. Knowledge Responses

Interpretation: Positive responses ranged from 67.6% to

83.8%. The highest affirmative response was for Question 2 (83.8%), while the lowest was for Question 4 (67.6%).

4.7. Usage/Exposure

Table 7

Question no.	Yes	No	Maybe/Unsure
1	36.9%	59.5%	3.6%
2	36.0%	58.6%	5.4%
3	46.8%	41.4%	11.7%
4	26.1%	66.7%	7.2%

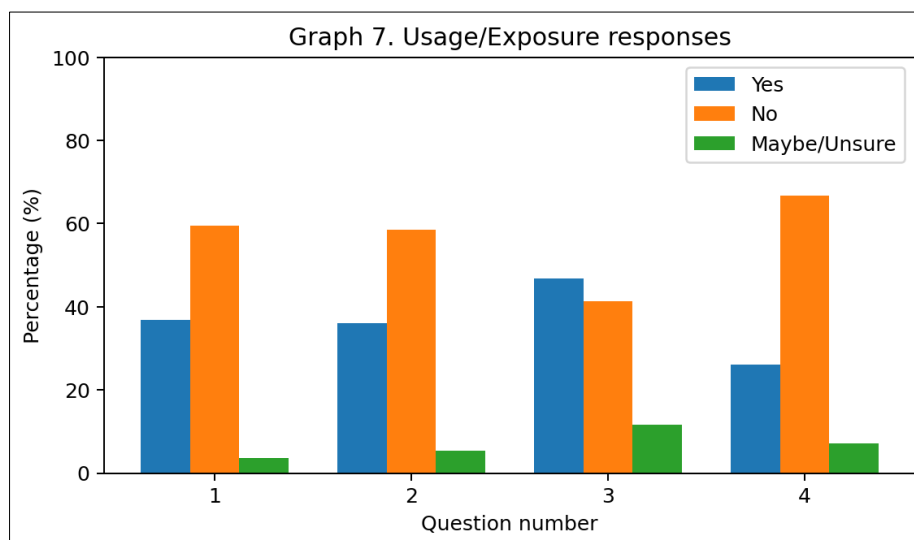


Fig 7

Graph 7. Usage/Exposure Responses

Interpretation: Practical exposure was comparatively limited. “No” responses were predominant across the four

questions, ranging from 41.4% to 66.7%, while “Yes” responses ranged from 26.1% to 46.8%.

4.8. Perspectives

Table 8

Question no.	Yes	No	Maybe/Unsure
1	69.6%	4.5%	25.9%
2	66.1%	8.9%	25.0%
3	68.8%	4.5%	24.1%
4	72.3%	2.7%	25.0%

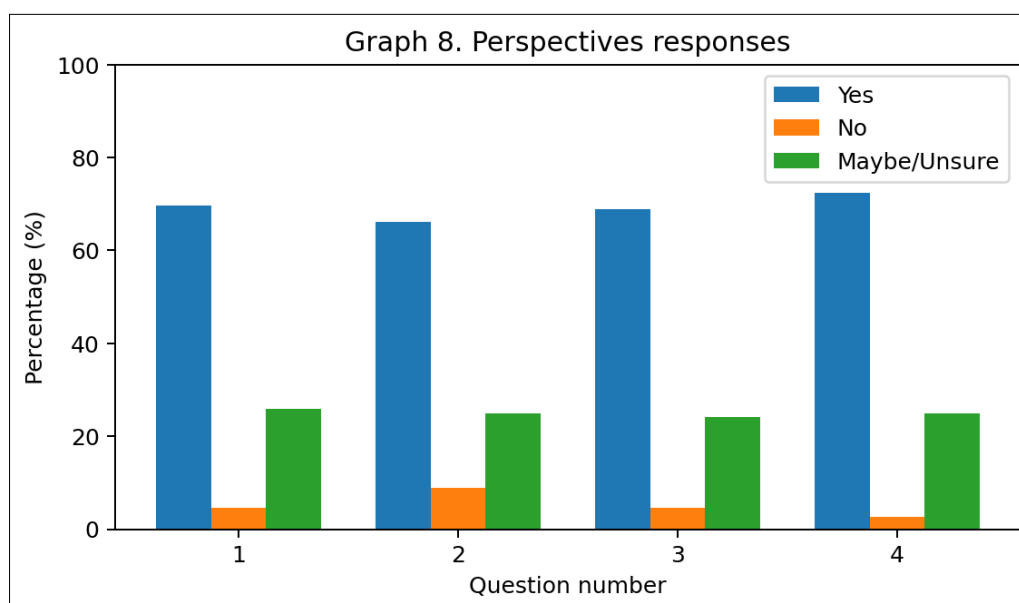


Fig 8

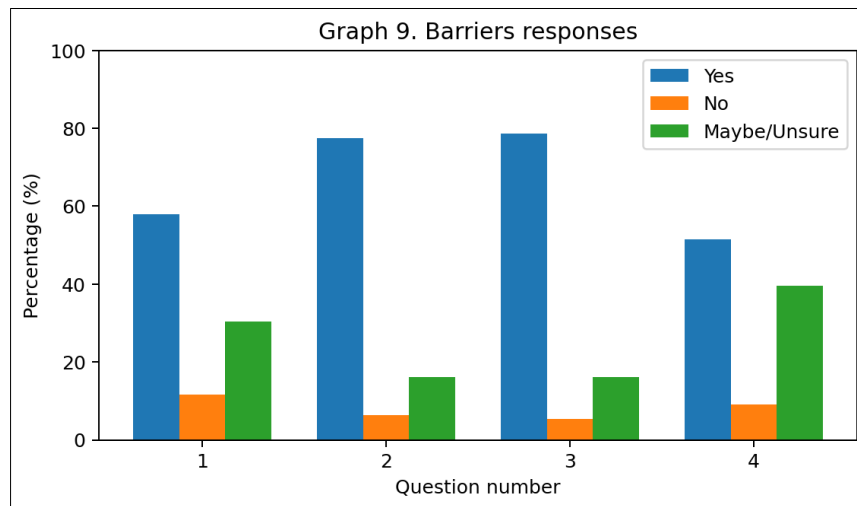
Graph 8. Perspectives Responses

Interpretation: Participants generally expressed positive

perspectives. “Yes” responses ranged from 66.1% to 72.3%, with relatively low “No” responses of 2.7% to 8.9%.

4.9. Barriers**Table 9**

Question no.	Yes	No	Maybe/Unsure
1	58.0%	11.6%	30.4%
2	77.5%	6.3%	16.2%
3	78.6%	5.4%	16.1%
4	51.4%	9.0%	39.6%

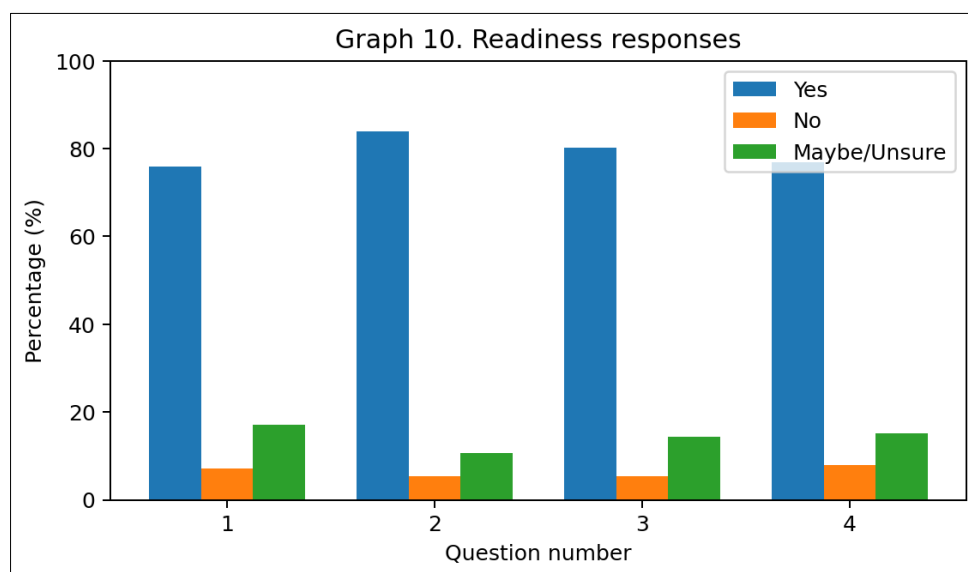
**Fig 9****Graph 9. Barriers Responses**

Interpretation: Participants commonly identified barriers to VR implementation. “Yes” responses ranged from 51.4% to

78.6%, while “Maybe/Unsure” responses ranged from 16.1% to 39.6%.

4.10 Readiness

Question no.	Yes	No	Maybe/Unsure
1	75.9%	7.1%	17.0%
2	83.9%	5.4%	10.7%
3	80.2%	5.4%	14.4%
4	76.8%	8.0%	15.2%

**Fig 9**

Graph 10. Readiness Responses

Interpretation: Readiness was high, with affirmative responses ranging from 75.9% to 83.9%. Negative responses remained low, ranging from 5.4% to 8.0%.

5. Discussion

The present cross-sectional study explored awareness, knowledge, usage/exposure, perspectives, perceived barriers, and readiness regarding the use of Virtual Reality in neurorehabilitation among neuro physiotherapy participants. The overall pattern showed good awareness and knowledge, comparatively limited practical exposure, generally positive perspectives, recognition of implementation barriers, and high readiness.

Awareness: The present study demonstrated a high level of awareness regarding VR, with affirmative responses ranging from 66.1% to 84.8%. The variation between individual items indicates that familiarity with VR may not be uniform across all aspects of its clinical application. These findings are comparable with Joshi and Musale (2024) ^[1], who reported awareness of VR and AR applications among physiotherapists and highlighted the need for further education to support clinical implementation.

Knowledge: The knowledge domain showed predominantly positive responses, ranging from 67.6% to 83.8%. However, the proportion of uncertain responses reached 26.1% for one item, suggesting that some participants may require additional exposure to specific clinical applications of VR. Vasanthi *et al.* (2023) similarly examined physiotherapists' perceptions of the usefulness and ease of VR and emphasized the importance of clinicians' familiarity with the technology. **Usage and exposure:** In contrast to awareness and knowledge, actual usage and exposure were comparatively limited. "No" responses predominated in all four questions. This distinction between knowing about VR and having hands-on clinical exposure is consistent with findings reported by Elser *et al.* (2025) ^[3] regarding VR use in physiotherapy in Germany and by Slatman *et al.* (2024) ^[6], who reported limited VR use in primary-care physiotherapy for chronic pain.

Perspectives: Participants generally expressed positive perspectives, with affirmative responses ranging from 66.1% to 72.3% and relatively low negative responses. These findings are in line with literature examining physiotherapists' beliefs and clinicians' perspectives regarding VR-supported rehabilitation, including Brady *et al.* (2022) ^[2] and Felsberg *et al.* (2025).

Perceived barriers: Participants identified several factors that may limit VR implementation, with affirmative responses ranging from 51.4% to 78.6%. The project identified cost, technological knowledge, patient discomfort, and setup time as relevant barriers. Elser *et al.* (2025) ^[3] likewise reported implementation-related barriers, including cost and awareness, highlighting that successful integration may require more than simply making technology available.

Readiness: Readiness showed strongly positive responses, ranging from 75.9% to 83.9%. This finding is notable alongside the limited practical exposure. It indicates that limited current use does not necessarily correspond to unwillingness to consider VR. Participants may have limited hands-on experience while remaining willing to learn about and potentially integrate VR into future practice.

6. Conclusion

The study found that neuro physiotherapy participants demonstrated good awareness and knowledge regarding Virtual Reality in neurorehabilitation, while actual usage and practical exposure were comparatively limited. Participants generally expressed positive perspectives and high readiness toward learning and using VR. At the same time, several barriers to implementation were recognized. Overall, the findings indicate a gap between familiarity with VR and practical exposure, together with considerable readiness to consider VR as an adjunct to neurorehabilitation practice.

7. Limitations

1. The study mainly assessed awareness, knowledge, perspectives, barriers, and readiness and did not explore participants' detailed personal experiences with VR.
2. The study used descriptive statistics and did not examine associations between participant characteristics and questionnaire responses.
3. The findings may not be generalizable to all neuro physiotherapists because participants were recruited using purposive sampling with a snowball technique.

8. Future Scope

1. Future research may include neuro physiotherapists from different geographical regions and healthcare settings.
2. Comparative studies may examine perspectives across different professional and clinical settings.
3. Future studies may investigate training requirements and structured educational programs for VR use in neurorehabilitation.
4. Interventional studies may evaluate the effectiveness and feasibility of VR integration alongside conventional neurorehabilitation.

Acknowledgements

The authors acknowledge Dr. Chitra Mridha and Dr. Jaywant Nagulkar for their guidance and support, and all participants for their valuable time and cooperation.

Disclosure Statement

The authors declare that there are no conflicts of interest related to this study.

Funding

No external funding was received for this study.

Ethics Statement

Ethical clearance was obtained from the Institutional Ethics Committee of Dr. Ulhas Patil College of Physiotherapy, Jalgaon, prior to commencement of the study. Participants provided consent before participation.

References

1. Joshi G, Musale R. Awareness, knowledge and attitude about virtual reality and augmented reality in physiotherapy practice among physiotherapists. *Int J Multidiscip Res.* 2024;6(2).
2. Brady N, Lewis J, McCreesh K, Dejacó B, McVeigh JG. Physiotherapist beliefs and perspectives on virtual reality-supported rehabilitation for the assessment and

- management of musculoskeletal shoulder pain: a focus group study protocol. *HRB Open Res.* 2022;4:40. doi:10.12688/hrbopenres.13239.2.
3. Elser A, Ohse M, Frankenstein C, Leeuw M, Schiebler S, Schmieder S, *et al.* Usage of virtual reality technology in physiotherapy in Germany: results from a survey. *Bioengineering (Basel).* 2025;12(2):106.
 4. Bateni H, Carruthers J, Mohan R, Pishva S. Use of virtual reality in physical therapy as an intervention and diagnostic tool. *Rehabil Res Pract.* 2024;2024:1122286.
 5. Elser A, Kopkow C, Schäfer AG. Implementation of a virtual reality intervention in outpatient physiotherapy for chronic pain: protocol for a pilot implementation study. *JMIR Res Protoc.* 2024;13(1):e58089.
 6. Slatman S, Staal JB, van Goor H, Ostelo R, Soer R, Knoop J. Limited use of virtual reality in primary care physiotherapy for patients with chronic pain. *BMC Musculoskelet Disord.* 2024;25(1):168.
 7. Alahmari AH, Alwagdi BE, Altheeb TA, Al Shehri MA, Alahmri YS, Alsihman HA, *et al.* Exploring the impact of virtual reality in physiotherapy: a review of current applications. *J Int Crisis Risk Commun Res.* 2024;7(S6):1465.
 8. Kaituabane T. Exploring the uncharted terrain: harnessing virtual reality in neurological physiotherapy for uncommon movement disorders. *J Wetenskap Health.* 2023;4(3):1-9.
 9. Alrashidi M, Tomlinson RJ, Buckingham G, Williams CA. Virtual reality current use, facilitators and barriers to implementation in paediatric physiotherapy: cross-sectional online survey of UK paediatric physiotherapists. *Disabil Rehabil Assist Technol.* 2025;20(3):585-589.
 10. Lou J, Li J, Fan Y, Zhang C, Huang N. Effects of virtual reality on analgesia in wound care and physical therapy for burn patients: a systematic review and meta-analysis. *Pain Manag Nurs.* 2024;25(4):377-388.
 11. Lohse KR, Hilderman CG, Cheung KL, Tatla S, Van der Loos HM. Virtual reality therapy for adults post-stroke: a systematic review and meta-analysis exploring virtual environments and commercial games in therapy. *PLoS One.* 2014;9(3):e93318.
 12. Sharma A, Sharma N, Chahal A. Impact of virtual reality on pain, ROM, muscle strength and quality of life among breast cancer patients: an integrative review of literature. *Pain Manag Nurs.* 2024;25(5):538-548.
 13. Phelan I, Furness PJ, Matsangidou M, Carrion-Plaza A, Dunn H, Dimitri P, *et al.* Playing your pain away: designing a virtual reality physical therapy for children with upper limb motor impairment. *Virtual Real.* 2023;27(1):173-185.
 14. Javvaji CK, Reddy H, Vagha JD, Taksande A, Kommareddy A, Reddy NS. Immersive innovations: exploring the diverse applications of virtual reality (VR) in healthcare. *Cureus.* 2024;16(3):e56137.
 15. Ghrouz A, Herbawi F, Abualkhair D, Jaber R, Dhaidel H, Salah H, *et al.* Awareness and perceptions of virtual reality in physiotherapy: a cross-sectional study among students and clinicians in Palestine. *BMC Med Educ.* 2025;25(1):1524.
 16. Wojtowicz Z, Czech K, Lechowska A, Paprocka J. The impact of virtual-reality-based physiotherapy on upper limb function in children with cerebral palsy. *J Clin Med.* 2025;14(19):7040.

How to Cite This

Kamble M, Mridha C, Nagulkar J. Insights and perspectives of neuro physiotherapists towards the use of virtual reality in neurorhabilitation. *Int J Med All Body Health Res.* 2026;7(4):21-29. doi:10.54660/IJMBHR.2026.7.4.21-29.

Creative Commons (CC) License

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution NonCommercial-ShareAlike 4.0 International (CC BY-NC-SA 4.0) License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.