

Research Article

Development and Validation of Artificial Intelligence (AI)-Generated Visual Clinic for Supplementing Clinical Teaching in Resource-Limited Settings: A Proof of Concept Study

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Abstract

Background: Clinical teaching integrates theoretical knowledge with direct patient contact. However, in resource-limited settings, adequate patient contact is often compromised by inadequate clinical facilities, perennial industrial actions by healthcare workers, and limited access to rare or under-referred cases. The aim of this study was to develop an AI-generated visual clinic (a curated catalogue of videos) depicting motor rehabilitation in patients with stroke to help supplement real-world clinical teaching. **Methods:** An AI platform, Topmediai (<https://www.topmediai.com/app/text-to-video/>) was used to generate videos on constraint-induced movement therapy (CIMT), motor imagery, sit-to-stand, over-ground gait training and treadmill gait training. The videos were edited and combined into an AI-generated visual clinic using CapCut (<https://www.capcut.com/>). Students and teachers were asked to rate the AI-generated visual clinic for: 1) Anatomical plausibility, 2) Procedural fidelity, 3) Rehabilitation accuracy, 4) Pedagogical clarity, and 5) Risk of learner misconception on a 5-point Likert scale, where, 1=low, 2= fair, 3=moderate, 4=high, and 5=very high. **Results:** A complete visual clinic demonstrating CIMT, motor imagery, sit-to-stand, over-ground gait training and treadmill gait training was produced. In addition, majority of the participants (both teachers and students), rated anatomical plausibility, procedural fidelity, rehabilitation accuracy and pedagogical clarity of the AI-generated visual clinic as high or very high; and risk of learner misconception as low or fair. **Conclusion:** It seems possible to generate clinically relevant videos of disease management using current AI text-to-video tools that can be catalogued into a “visual clinic” and used to support traditional clinical teaching.

Keywords

Artificial intelligence, Clinical teaching, Simulation, Self-efficacy, Stroke rehabilitation, Resource-limited settings

1. Introduction

Clinical teaching comprises two essential components: didactic instruction and experiential learning through direct patient contact (Ramani & Leinster, 2008; Spencer, 2003). The latter is critical for developing clinical reasoning, procedural skills, and professional attitudes. Combining both didactic instruction and experiential learning helps strengthen learning effect (Wijnen-Meijer, Brandhuber, Schneider & Berberat, 2022). However, the quality and quantity of patient contact are highly variable and depend on multiple contextual factors. One of these factors is that, patient presentations are inherently unpredictable (Lingard, Garwood, Schryer & Spafford, 2003; Meyer, Giardina, Khawaja & Singh, 2021); and as such, students may complete rotations without encountering specific diseases or conditions.

Second, certain diseases are geographically restricted (for example, Ebola and monkeypox), which can limit exposure for students in non-endemic regions. Third, specialist hospitals may focus narrowly on particular conditions, leaving gaps in generalist training. Fourth, in resource-limited countries such as Nigeria, recurrent labor disputes and strikes by healthcare workers can halt clinical services for weeks or months, which may cause massive losses of learning opportunities. Fifth, even under optimal conditions, traditional clinics operate only for limited hours per day, which limit students' cumulative patient contact time. In clinical education, regular and repeated patient contact is a prerequisite, as it enhances students' self-efficacy, the belief in one's ability to execute clinical tasks successfully (Bandura, 1997). Conversely, inadequate contact may diminish self-efficacy, and impairs skill acquisition.

Consequently, different strategies are used to increase students-patients contact. One of these strategies used, is the simulation-based education, which helps maximize students' clinical contact virtually or prepare them for real-world clinical contact. This strategy has been shown to improve clinical competencies and confidence (Wang, Yang, & Hu, 2024). However, the problems with such a type of education are that, high-fidelity simulators, standardized patients, and simulation centers are often prohibitively expensive for low-income institutions. The second strategy used to increase students' clinical contact is the traditional videos (Forbes, Opreescu, Downer, Phillips, Mctier, Lord, Barr, Alla, Bright, Dayton, Simbag & Visser, 2016; Krumm, Miles, Clay, Carlos & Adamson, 2022; Morgado, Botelho, Machado, Mendes, Adesope & Proença, 2024). However, video production often takes many days and may require high technical expertise. Currently, another emerging strategy is the use of artificial intelligence (AI) to generate videos (Hai, Mai & Hanh, 2026; Zhang, Lucas, Bem-haja

& Pedro, 2024). Unlike traditional simulation and videos, AI-generated videos can be produced rapidly, updated easily, and distributed at near-zero marginal cost (Chen, Zhu, Zhou, Zhou, Tao & Chen, 2026). They are reported to stimulate and enhance self-efficacy in clinical education (Abdullahi, 2025).

To make good use of the potentials AI presents, countries in resource-limited settings such as Nigeria have jumped on the train and produced a National Artificial Intelligence Strategy (NAIS) (Federal Ministry of Communications, Innovation and Digital Economy, 2023). The strategy sets a five-year vision (2025-2029) to make Nigeria a leader in ethical and inclusive AI innovation, which includes improving access to healthcare services and education (Federal Ministry of Communications, Innovation and Digital Economy, 2023). This article presents a proof-of-concept for an AI-generated visual clinic, a curated library of AI-generated videos demonstrating rehabilitation of motor function in patients with stroke that can be translated to the management of other common, rare, and even high-risk conditions, as an innovation for clinical teaching in resource-limited settings.

The specific objectives of this article are: 1) To demonstrate the feasibility of generating clinically accurate videos using text-to-video AI tools, 2) To catalogue these videos into a coherent “visual clinic” for stroke rehabilitation, and 3) To determine the level of anatomical plausibility of the AI-generated visual clinic, 4) To determine the level of procedural fidelity of the AI-generated visual clinic, 5) To determine the level of rehabilitation accuracy of the AI-generated visual clinic, 6) To determine the level of pedagogical clarity of the AI-generated visual clinic, and 6) To determine the level of risk of learner misconception of the AI-generated visual clinic. It is therefore hoped that, AI-generated visual clinic can serve to support observational preparation in which demonstration supports procedural representation and repeated review before supervised authentic practice among other things.

2. Method

2.1. Study design

The study has two phases: the AI-generated visual clinic development phase and the validation of the AI-generated visual clinic phase by teachers and students. Consequently, the study design of the development phase is tool development research design; and that of the validation phase is cross-sectional descriptive survey.

2.2. Study population

For the development phase, no participants were required, as only videos were generated using AI. For the validation phase, seven physiotherapy students (who were taught stroke rehabilitation) and six physiotherapists (who specialized in stroke rehabilitation) each were used.

2.3. Study inclusion and exclusion criteria

Participants were included in the validation phase of the study if they were: 1) Physiotherapy students at Bayero University Kano, Nigeria who were taught stroke rehabilitation, and 2) Physiotherapists working in Kano, Nigeria that specialized in the arts of stroke rehabilitation. However, participants were excluded from the study if they have visual impairment that will not allow them to watch the AI-generated videos.

2.4. Study instruments

For the development phase, two instruments, an AI video generation tool and a video editing tool were used. The AI platform used for the video generation was Topmediai (<https://www.topmediai.com/app/text-to-video/>). The video editing tool used was CapCut (<https://www.capcut.com/>).

For the validation phase, a researcher-designed questionnaire was used. The questionnaire consists of five items: 1) Anatomical plausibility (movements resemble real-world movements), 2) Procedural fidelity (whether the intervention is delivered the way it should ordinary be delivered), 3) Rehabilitation accuracy (How closely the interventions resemble real-world intervention), 4) Pedagogical clarity (are the instructions clear, and whether the video will achieve its goal of making students learn), and 5) Risk of learner misconception (will its use likely be resisted by students?). Each of the items was rated based on a 5-point Likert scale, where, 1=low, 2= fair, 3=moderate, 4=high, and 5=very high.

In addition, data on the participants' personal characteristics such as sex, age and years of experience were also collected using a demographic data collection sheet.

2.5. The clinical scenario selected for the generation of the videos

The clinical scenario selected was stroke rehabilitation. It was selected as a model condition because it is common, requires repetitive task practice, and involves observable motor tasks that are well-suited to video demonstration. Specifically, the videos generated were for constraint-induced movement therapy (CIMT), motor imagery, sit-to-stand, over-ground gait training and treadmill gait training.

For the CIMT, a video of a patient with mild-to-moderate right upper limb motor impairment performing CIMT was generated. Constraint-induced movement therapy (CIMT) is an evidence-based intervention that involves constraining the unaffected limb, while intensively training the affected limb (Abdullahi, 2018; Taub, Miller, Novack, Cook, Fleming, Nepomuceno, Connell & Crago, 1993; Wolf, Winstein, Miller, Taub, Uswatte, Morris, Giuliani, Light, Nichols-Larsen & EXCITE Investigators, 2006). Motor imagery is a rehabilitation technique for patients with severe impairment in motor function, where patients are made to observe a second person performing tasks, and afterwards imagine practicing the same tasks in their minds (Abdullahi, Wong & Ng, 2022; Liu, Cheng, Rao, Yu,

Lin, Wang, Wang, Liu & Gao, 2024; Monteiro, Cardoso, Cabral, Santos, Silva, Castro & Vale, 2021). It is said to activate brain areas responsible for movement, the same ways as active movement (Abdullahi et al., 2022).

Sit-to-stand exercise is a repetitive training of sitting and standing up that is reported to improve lower limb motor function following stroke (de Sousa, Harvey, Dorsch, Varetas, Jamieson, Murphy & Giaccari, 2019). Over-ground gait training is a rehabilitation technique in patients with stroke that involves patients walking on the surface of the ground, while the therapist observes the pattern and provide feedback to help improve lower limb motor control (Osundiya, Joseph & Olawale, 2023). Treadmill gait training is a machine assisted gait training that has been reported to improve movement and walking ability post stroke.²⁴

2.6. Text prompts design for the generation of the videos

All prompts specified a calm, sunlit therapy room with a therapist guiding the patient.

For CIMT, the text prompt used was: The left hand was constrained (in a sling or mitt), while the right hand performed the tasks. The following five tasks were prompted: 1) Toothbrush task: Pick up a toothbrush with the right hand and perform slow, deliberate brushing motions in the air, 2) Pincer grasp task: Use a pincer grasp with the right hand to pick up small, smooth stones one by one from a table, 3) Lap-to-head task: Slowly lift the right hand from resting on the lap all the way up to gently touch the top of the head, 4) Drawing task: Draw with the right hand a series of small, then large, circles on a sheet of paper, and 5) Shoe strap task: With the right hand, practice fastening and unfastening the strap of a shoe or sneaker.

For motor imagery, the text prompt used was: Patient and therapist sit on chairs facing each other. The following tasks were prompted: 1) In sitting, the right hand of the therapist is raised to his mouth. The patient sits still and watches. Afterwards, the patient is asked to imagine in his mind raising his right hand to his mouth. This task is repeated 20 times in the morning, afternoon and evening each, 2) In sitting, the right hand of the therapist is raised to his head. The patient sits still and watches. Afterwards, the patient is asked to imagine in his mind raising his right hand to his head. This task is repeated 20 times in the morning, afternoon and evening each, 3) In sitting, the right hand of the therapist is used to draw cycles using pencil. The patient sits still and watches. Afterwards, the patient is asked to imagine drawing with his right hand in his mind using a pencil. This task is repeated 20 times in the morning, afternoon and evening each, 4) In sitting, the therapist used his right hand to transfer a bottle of water from the right side to the left side of a table. The patient sits still and watches. Afterwards, the patient is asked to imagine transferring a bottle of water from the right side to the left side of a table. This task is repeated 20 times in the morning, afternoon and evening each, and 5) In sitting, the therapist used his right hand to brush his teeth. The patient sits still and watches.

Afterwards, the patient is asked to imagine brushing his teeth in his mind with his right hand. This task is repeated 20 times in the morning, afternoon and evening each.

For sit-to-stand exercise, the text prompt used is: The therapist supervises the patient. The following task was prompted: 1) The patient stands from a chair and sits again. This task is repeated 30 times, in the morning, afternoon and evening with 3 minutes after each five bouts.

For over-ground gait training, the text prompt used is: The therapist supervises the patient. The following tasks were prompted: Using a walking aid, the patient walks on the floor with the therapist by his side for 30 minutes, with 3 minutes rest after each 4 minutes, and 2) Without a walking aid, the patient walks on the floor with the therapist by his side for 30 minutes, with 3 minutes rest after each 4 minutes.

For treadmill gait training, the text prompt used is: The therapist supervises the patient. The following task was prompted: 1) The patient walks on a treadmill with the therapist by his side for 30 minutes, with 3 minutes rest after each 5 minutes.

2.7. Video Compilation

Individual tasks videos for constraint-induced movement therapy (CIMT), motor imagery, sit-to-stand, over-ground gait training and treadmill gait training were imported into CapCut, trimmed for timing consistency, and concatenated into a single MP4 file, demonstrating a complete stroke rehabilitation session. No additional post-production effects were added to preserve the raw output quality for evaluation.

2.8. The validation phase

2.8.1. Ethics consideration

Ethical clearance was obtained from the Research Ethics Committee of Kano Ministry of Health (approval number, NHREC/17/03/2018). In addition, the study was conducted according to the provisions of Alma Ata Declarations (Primary health care, 1979).

2.8.2. Data collection procedure

Consents of the study participants were sought before the commencement of the study. Following that, the participants were asked to watch the video three times and rate the anatomical plausibility, procedural fidelity, rehabilitation accuracy, pedagogical clarity and risk of learner misconception of the AI-generated visual clinic on a 5-point rating scale using the researcher designed questionnaire.

2.9. Data analysis

For the development phase, feasibility of generating the videos was analyzed descriptively based on the number of trials used in generating the videos, number of successfully generated videos,

regenerations required, generation time and the observed artifacts/errors. The results were presented in a table.

Similarly, for the validation phase, both the data from the personal characteristics of the study participants and the responses obtained from the survey were analyzed using descriptive statistics of frequency and percentage. The analysis was carried out using SPSS software version 20. The results obtained were presented using tables.

3. Results

3.1. Feasibility of developing the AI-generated visual clinic

All task videos for the constraint-induced movement therapy (CIMT), motor imagery, sit-to-stand, over-ground gait training and treadmill gait training were successfully generated. Generation time per video ranged from approximately 2–5 minutes, and this could have been much faster if not because of low strength of the internet connection. However, it should be noted that, in most cases, the text prompts had to be revised twice or more times in order to get the desired video. In addition, the generation of the videos was possible only after several trials.

The combined videos showed a patient performing the tasks in sequence, with reasonable anatomical accuracy and task-specific movements. However, a minor artifact involving absence of constraint in the left upper limb during shoe strap task was noted; but it did not obscure the clinical demonstration. See supplementary MP4 file 1 for more detail.

In addition, the entire process from prompt writing to final compiled video (including the revision of the text prompts and the trials of video generation) was completed in under two hours. This demonstrates high efficiency compared to traditional video production (which would require filming, consent, editing, and post-production that could last for several to many days). See Table 1 for the details on the feasibility of generating the videos.

Furthermore, it cost only \$12 USD for a month topmediaai subscription and internet data subscription of 11GB, which cost N3500 (Nigerian Naira), approximately equal to \$2.3 to generate the videos.

Table 1

Feasibility of the AI-generated visual clinic

Rehabilitation technique	Number of generation trials	Number successfully generated	Regenerations required	Generation time (5 minutes)	Observed artifacts/errors
CIMT	3	1	2	5	No constraint in the left upper limb during shoe strap task
Motor imagery	2	2	0	5	None
Sit-to-stand	1	1	0	2	None
over-ground gait training	2	2	0	3	None
Treadmill gait training	2	1	1	3.5	None

3.2. Patenting of the AI-generated visual clinic

The invention of the visual clinic and its method were patented in Nigeria by the Federal Republic of Nigeria, registration number, NG/PT/NC/O/2026/20918 in accordance with the provisions of Patents and Designs Act (Cap 344 Law of the Federation of Nigeria 1990).

3.3. The validation phase

3.3.1. Characteristics of the study participants

13 people, seven students and 6 teachers participated in the study. See Table 2 for the details on the characteristics of the study participants.

Table 2

Characteristics of the study participants

Participants	Age	Sex	Years of experience	Highest qualification	Type of practice
1	41	M	14	MSc	Academic
2	37	M	12	BSc	Clinical tutor
3	35	F	9	MSc	Academic
4	31	F	9	BSc	Clinical tutor
5	40	M	16	MSc	Clinical tutor
6	33	M	7	BSc	Clinical tutor
7	29	M	Final year student	Five year of studies	Student
8	23	M	Final year student	Five year of studies	Student
9	25	M	4 th year student	Four year of studies	Student
10	23	M	Final year student	Five year of studies	Student
11	24	M	Final year student	Five year of studies	Student
12	23	M	Final year student	Five year of studies	Student
13	25	M	Final year student	Five year of studies	Student

Note. M=Male, F=Female, MSc=Master of Science, BSc=Bachelor of Science

3.3.2. Validation of the AI-generated visual clinic

Anatomical plausibility (movements resemble real-world movements)

100% of the teachers rated it as high. For the students, 14.3%, 71.4% and 14.3% rated it as moderate, high and very high respectively. See Table 3 for more details.

Procedural fidelity (whether the intervention is delivered the way it should ordinary be delivered)

33% of each of the teachers rated it as moderate, high or very high. For the students, 71.4.3%, and 28.6% rated it as high and very high respectively. See Table 3 for more details.

Rehabilitation accuracy (How closely the interventions resemble real-world intervention)

33.3%, 50.0% and 16.7% of the teachers rated it as moderate, high or very high respectively. For the students, 42.9% and 57.1% rated it as high and very high respectively. See Table 3 for more details.

Pedagogical clarity (are the instructions clear, and whether the video will achieve its goal of making students learn)

50.0% each of the teachers rated it as high or very high. For the students, 14.3%, 28.6% and 57.1% rated it as moderate, high and very high respectively. See Table 3 for more details.

Risk of learner misconception (will its use likely be resisted by students?)

50.0% each of the teachers rated it as low or fair. For the students, 57.1% and 42.9% rated it as low and fair respectively. See Table 3 for more details.

Table 3

Scores of the rating on the items of the Researcher-designed Questionnaire for the Validation of the AI-generated visual clinic

Item	Scores												
	Teachers						Students						
	1	2	3	4	5	6	1	2	3	4	5	6	7
1	4	4	4	4	4	4	4	4	4	3	5	4	4
2	3	3	4	5	5	4	5	4	5	4	4	4	4
3	4	3	5	4	3	4	5	5	4	5	4	4	5
4	4	4	5	5	4	5	5	4	4	3	5	5	5
5	1	2	1	1	2	2	1	2	2	2	1	1	1

4. Discussion

Using freely available or low-cost AI tool, a complete video demonstration of techniques of stroke rehabilitation including CIMT, motor imagery, sit-to-stand, over-ground gait training and treadmill gait training was produced. This proof-of-concept demonstrates that AI-generated video clinics seem to be feasible, rapid, and low-cost. In addition, majority of the participants (both teachers and students), rated anatomical plausibility, procedural fidelity, rehabilitation and pedagogical clarity of the AI-generated visual clinic as high or very high; and risk of learner misconception as low or fair. Thus, it seems that, the same approach can be extended to virtually any clinical condition such as surgical procedures, physical examinations, patient-provider communication, rare disease presentations, and emergency responses. This may be adjunctive in clinical education since digital teaching tools are important for acquiring clinical skills (McGee, Wark, Mwangi, Drovandi, Alele & Malau-Aduli, 2024).

Before the advent of AI-video generation technology, traditional clinical simulation used include standardized patients, mannequins, virtual reality (VR), and recorded patient encounters (Koukourikos, Tsaloglidou, Kourkouta, Papathanasiou, Iliadis & Fratzana, 2021; Wang et al., 2024). Each of the afore-mentioned has strengths, but all face barriers in resource-limited settings that include cost

(high-fidelity mannequins), personnel (standardized patient training), infrastructure (VR equipment), and time (video production). In contrast, AI-generated video clinics can overcome many of these barriers by requiring only an internet connection and basic digital literacy. In addition, unlike static video libraries (for example, YouTube educational clips) (Duncan, Yarwood-Ross & Haigh, 2013); Jackson, Hung, Potarazu, Habboosh, DeAngelis & Amdur 2022). AI-generated videos can be customized to specific learning objectives, updated instantly, and generated in local languages or cultural contexts. This adaptability is particularly valuable for low-resource settings, where pre-made content from high-income countries may be culturally or clinically inappropriate. However, it should also be acknowledged that, AI-generation of the videos can similarly face barriers such as unstable bandwidth, subscription fees, device limitations (the device used for the generation such as personal computers or cell phones), service availability, storage/streaming requirements, staff AI literacy, data governance, and the need for qualified clinical experts to verify generated contents.

Nevertheless, the AI-generated visual clinic may offer additional distinct advantages for clinical teaching in resource limited settings: 1) Access to rare and non-endemic conditions, 2) Access to under-referred conditions, 3) Theory-practice bridging, 4) Safety, 5) 24/7 availability and 6) Resilience during strikes. For access to rare and non-endemic conditions, diseases or conditions such as Huntington's chorea, Ebola, or monkeypox can be learnt by students without requiring local or physical patients. This can help address a fundamental limitation of location-based clinical training, as use of videos have become important teaching and learning tool (Brame, 2016).

Secondly, many diseases are under-recognized or under-referred probably due to diagnostic gaps. Consequently, to provide access to under-referred conditions, AI-generated videos can ensure all students encounter these conditions regardless of referral patterns. Thirdly, to enhance theory-practice bridging, watching a well-executed clinical demonstration before real-world patient contact, may enhance self-efficacy and reduce anxiety (Abdullahi, 2025). In addition, by providing a safe environment with the use of AI-generated visual clinic, students can learn about highly infectious diseases (for example, Ebola and COVID-19) or dangerous procedures without infection risk or potential harm to themselves or their patients. Certain conditions and/ or procedures can endanger students and teachers life (Ören & Zengin, 2019).

Furthermore, by providing unlimited availability 24/7, unlike traditional clinics which are limited to 8–12 hours daily, AI-generated visual clinics can be accessed anytime, enabling self-paced learning and review before assessments. Moreover, by serving as a tool for resilience when teaching and learning are interrupted by unforeseen events such as industrial strikes, pandemics or natural disasters, AI-generated visual clinic would allow educational continuity during such disruptions. Historically, pandemics and natural disasters have been reported to disrupt teaching and learning, especially in resource-limited settings (Blackwell, Mansolf, Deoni, Ganiban, Leve, Margolis, McGrath, Nozadi,

O'Shea, Sherlock, Zhao & LeWinn, 2024). In addition, in resource-limited settings such as Nigeria, they face other unique challenges like recurrent public sector industrial strikes, underfunded teaching hospitals, and a growing clinical student population (Negm, Mersal, Fawzy, Rajennal, Alanazi & Alanazi, 2024). Such challenges can be partly overcome with the use of AI-generated visual clinics, as they can offer a low-cost, scalable intervention that can be deployed immediately. Similarly, even high-income settings may also benefit. For example, providing overnight or holiday access to clinical demonstrations, or supplementing rare disease teaching. Thus, the importance of AI-generated visual clinics cannot be overemphasized.

4.1. Limitations of the study

Although this study has provided an opportunity for producing a seemingly supplementary or adjunctive solution for clinical education, it seems to have several limitations. First, AI-generated videos may contain anatomical or procedural inaccuracies (Buzzaccarini, Degliuomini, Borin, Fidanza, Salmeri, Schiraldi, Di Summa, Vercesi, Vanni, Candiani & Pagliardini, 2024; Haider, Prabha, Gomez-Cabello, Borna, Pressman, Genovese, Trabilisy, Galvao, Aziz, Murray, Parte, Yu, Tao & Forte (2025). In this study, a minor artifact or error in the absence of a constraint in the unaffected limb during CIMT limb was observed. Thus, educators need to carefully review all AI-generated contents before students use them. Second, the generated videos lack interactivity as students cannot ask questions or receive feedback. Third, over-reliance on video-based learning could reduce development of clinical reasoning, physical examination skills, and empathy. For this reason, the visual clinic should be an adjunct, not a replacement, for real-world patient contact.

Fourth, the long-term impact on learning outcomes (e.g., objective structural clinical examination (OSCE) performance, and clinical competency) remains unknown. Thus, high quality validation studies are urgently needed. High quality validation studies are important for confirming evidence (Patterson, Whelan & Worth, 2021). Consequently, in the future, the following research agenda for AI-generated visual clinics should be considered: 1) Validation studies: Randomized controlled trials comparing the effects of traditional teaching with AI-generated visual clinic and blended approaches on measurable learning outcomes, 2) Content expansion: Developing libraries for internal medicine, surgery, pediatrics, psychiatry, and other specialties, 3) Localization: Generating videos in local languages (for example in Nigeria, this can be in the three major languages, Hausa, Igbo and Yoruba) and culturally appropriate settings, 4) Interactivity: Integrating AI-generated visual clinic with chatbot-based questioning (e.g., why was the mitt used during CIMT?) to enhance engagement, and 5) Cost-effectiveness analysis: Comparing AI-generated visual clinic with traditional simulation and standard clinical teaching.

5. Conclusion

In conclusion, it is possible to generate clinically relevant videos of disease management using current AI text-to-video tools that can be catalogued into a “visual clinic” and used to support traditional clinical teaching. The approach may offer particular advantages for resource-limited settings such as access to rare conditions, resilience during industrial strikes, 24/7 availability, and low cost.

6. Lessons for Practice

- It is possible to produce artificial intelligence (AI)-generated visual clinic for clinical teaching for resource-limited settings
- Use of AI-generated visual clinic can provide unlimited access to clinical experience in these settings
- However, future endeavours should focus on the quality of the visual clinic, with the view of making it perfectly resemble real-world situation

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Author contributions

Auwal Abdullahi is the sole author

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Data availability

The data generated in the study are available on request to the corresponding author.

Declarations

Conflict of interest

The author declares that there is no conflict of interest.

Ethics approval

Ethical clearance was obtained from the Research Ethics Committee of Kano Ministry of Health (approval number, NHREC/17/03/2018).

Consent to participate

All participants provided written informed consent to participate in the study.

Consent for publication

All authors have given their consent.

Additional information

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