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Article

A Survey on the Use of Online Health Videos in Medical Education: Insights from Mozambican Students

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Abstract

The proliferation of digital health education content (DHEC) offers a transformative opportunity for medical training worldwide. While students in high-income countries routinely integrate these tools, their use and impact in low-resource settings such as Mozambique remain poorly understood. Exploring this topic offers interesting possibilities at the intersection of global health equity, digital literacy, and pedagogical innovation. This study assessed how Mozambican medical students engage with online health videos, examining the types of content they search for, preferred platforms, perceived benefits, and attitudes toward integrating these materials into medical training. A quantitative cross-sectional survey was administered to 151 second-year medical students at the Catholic University of Mozambique and Alberto Chipande University. A structured online questionnaire, comprising multiple-choice, Likert-scale, and open-ended questions, was used. Data were analyzed using descriptive statistics, cross-tabulation, chi-square test, and Cramer's V effect size. All students (100%) reported searching for online health videos. They primarily do so via YouTube (92.1%) and use mobile phones (98.7%). Students mainly searched topics related to basic biomedical sciences (60%). They reported that video enhances their learning (86.8%), academic work (11.3%), and other skills (2.0%). Mean scores for utility (4.06), Self-reported knowledge gain (4.05), and interest in continuing use (4.30) reflected positive perceptions. Furthermore, an overwhelming majority (91.4%) supported the institutional production of educational videos, whereas 8.6% disagreed, citing video as a source of limitations and a preference for traditional classes. No statistically significant gender-based differences were observed in usefulness, learning levels, or core interest in continuing to search for online videos ($p > 0.05$). Online health videos are widely used and positively perceived by Mozambican medical students as a supplementary learning tool. The findings highlight the need for institutions to create curriculum-aligned video libraries and strengthen students' digital literacy, an affordable strategy for enhancing medical education in low-resource contexts.

Keywords: DHEC; medical education; online platforms; video use; low-resource settings

1. Introduction

Online health videos have become learning tools in medical education worldwide, yet their use and impact in low-resource settings such as Mozambique remain underexplored. Medical students are increasingly relying on these videos as flexible, self-paced supplements to their formal learning [1–4]. This practice has become deeply integrated into their learning process, as students value the

content for its ability to complement their knowledge and provide flexible, self-paced access at any time and from anywhere.

Health education videos provide notable benefits. They enhance both theoretical and practical understanding, improve decision-making skills, and develop psychomotor abilities [5–9]. Platforms such as YouTube, Dailymotion, TikTok, and Facebook provide such content freely, enhancing access for learners. Their ability to disseminate health information has transformed traditional learning methods, giving rise to video-based learning as an emerging pedagogical approach [10]. YouTube has been identified as the most widely used social media platform for accessing health-related videos [11], for exam preparation [12], and other topics of interest. [13]

Although online health videos have educational value, many lack scientific validation or institutional approval, and popularity metrics such as views or likes often don't indicate quality [11–18]. Multiple studies have found that many health-related videos lack peer review [19], omit quality checks [13], or serve commercial interests while purporting to be educational [20]. Even institutional videos can face challenges with creativity and reach, limiting their educational effectiveness [21,22], suggesting a need for pedagogical innovation that combines accuracy with engagement. Therefore, Medical schools and faculty members are essential in this effort. They should act as facilitators, guiding students in assessing credible sources and integrating high-quality videos into structured curricula. Additionally, they can also safeguard their health education videos for authorized learners by leveraging privacy settings and integrated learning platforms [23,24]. This can be achieved by including curating credible resources, producing in-house educational content, and partnering with vetted video libraries to ensure quality and accuracy [25,26], as well as implementing awareness programs that teach students to evaluate online resources critically [27].

In this context, the issues mentioned earlier also intersect with larger challenges concerning technology infrastructure, bandwidth expenses, and institutional capacity [28]. Despite a significant rise in smartphone use in recent years, disparities in access to the internet and digital devices persist [29] and continue to influence how students engage with online learning materials. Therefore, understanding how medical students in this setting utilize, evaluate, and perceive educational videos is crucial for developing fair and effective e-learning strategies.

This study examines how Mozambican medical students search for, utilize, and perceive the educational value of health education videos in their institutions. It assesses their preferred platforms and devices, most-accessed content types, perceived benefits, learning outcomes, and attitudes toward educational videos produced by their institutions. By exploring these aspects, the study adds to ongoing discussions about digital inclusion, quality assurance, and innovation in medical education across Africa.

2. Method

2.1. Study Design

This study employed a quantitative, descriptive, cross-sectional design among second-year medical students at the Catholic University of Mozambique and Alberto Chipande University. The chosen method is well-suited to efficiently collect behavioral and attitudinal data within a single timeframe, making it suitable for exploratory assessments of digital learning practices. The survey aimed to measure students' search behaviors, the frequency and purpose of video use, and self-reported knowledge-gain effects. This approach was particularly appropriate in the Mozambican context, where inconsistent internet connectivity and student availability might restrict the feasibility of longitudinal research.

2.2. Participants Recruitment and Data Collection

Recruitment was conducted at two universities in Beira, Central Mozambique, as previously referred, both of which offer the region's only undergraduate medical training programs. The study population comprised all second-year medical students enrolled in the 2025 academic year. This

cohort was purposively selected as they had completed their foundational science curriculum and were advancing to the pre-clinical stage, which entails increased educational resource requirements. Furthermore, second-year students were more logistically accessible than those in later years, who were often engaged in external clinical rotations.

The final dataset consisted of 151 students, corresponding to a response rate of 37%. This participation level was judged acceptable given the study's design as a voluntary online survey administered in a bandwidth-constrained context.

Students participated on a voluntary and anonymous basis after providing informed consent. No student explicitly declined to take part. Prior to data collection, the research team visited both institutions to present the study's objectives and ethical safeguards, emphasizing that participation was entirely optional and would have no impact on students' grades or academic standing. The survey was administered online using Google Forms between March and April 2025. The link was disseminated through the university WhatsApp class groups, which are the primary channel students use to receive academic announcements [30,31]. Weekly reminder messages were posted to mitigate the rapid turnover of content typical of these platforms and to maximize the survey response rate.

2.3. Questionnaire Design

The questionnaire contained five multiple-choice items, three Likert-scale items, and three open-ended items. The final questionnaire consisted of four structured sections, such as: (1) Sociodemographic information (covering age, gender, university of enrollment), (2) Video usage patterns (platforms, devices, frequency of use, and topics viewed); (3) Perceived efficacy and preferences (Likert-scale on usefulness, knowledge gained, and continued interest); and, (4) Suggestions and Opinions (views on faculty-produced educational videos).

The questions were designed in accordance with best practices outlined by Zimba & Gasparyan [32], emphasizing clarity, internal consistency, and relevance to the research aims. To ensure accuracy and comprehensibility, the authors applied the Expert Review Technique [33], in which they reviewed and refined each question to reduce ambiguity and measurement errors. The questionnaire was initially developed in Portuguese to ensure linguistic accessibility and avoid misunderstandings. Reliability was assessed using Cronbach's alpha ($\alpha = 0.844$), which indicated high internal consistency.

3. Data Management and Statistical Analysis

All data collected via the Google Form was exported to Microsoft Excel for preliminary cleaning. No duplicate or incomplete submissions were identified. Categorical responses were standardized to ensure consistency across the dataset. The cleaned data were then imported into IBM SPSS Statistics (version 30.0.0.0) for analysis.

Descriptive statistics, including frequencies, means, and standard deviations, were used to summarize demographic characteristics and main outcomes. Relationships between gender and perception variables were examined using cross-tabulations, and the significance of these associations was assessed using chi-square tests (χ^2) at the 95% confidence level ($p < 0.05$). To enhance statistical transparency, Cramer's V was computed alongside each Chi-square test to quantify association strength, with effect sizes interpreted according to Cohen's guidelines. [34]

The study was reviewed and approved by the Comit  Interinstitucional de Bio tica para Sa de (CIBS/Sofala) on December 17, 2024 (ref. 032/CIBS-Sofala/2024). The committee confirmed that no further ethical approval was required because the study involved an anonymous survey that contained no personally identifiable or sensitive information. All participants provided informed written consent and were informed that participation was voluntary and could be withdrawn at any time without penalty. Survey data were stored securely and used solely for academic research purposes.

4. Results

A total of 151 medical students from both universities participated in the study by completing the questionnaire. Of these, 38.4% were males and 61.6% females. The participant rate was 37%. About 73.5% (n=111) of students ranged from 18 to 24 years old, 22.5% from 25 to 35 years old, and 4.0% (n = 6) were 36 years old and older. Overall, 100% of respondents affirmed using online health videos. YouTube emerged as the dominant platform (92.1%), followed by other social media (7.9%). The majority preferred searching for videos on mobile phones (98.7%), followed by the use of other devices (1.3%), such as desktop computers and tablets. Some accessed the videos weekly (39.1%), while others viewed them as needed (31.8%), rarely (25.2%), or occasionally (4%).

Table 1. Sociodemographic description of the students.

Variables	Categories	Frequency (N)	Percent (%)
Age	18-24	111	73.5
	25-35	34	22.5
	36 +	6	4.0
Gender	Female	93	61.6
	Male	58	38.4
Study location	University Alberto Chipande	53	35.1
	Catholic University of Mozambique	98	64.9

The responses to the open-ended questions were categorized. First, all the responses were reviewed and selected based on similarity or repetition. The number of respondents per category was also counted. This process provided a clear overview of the most frequently expressed viewpoints among respondents (see Table 2). Moreover, this approach was crucial for assessing the most frequently searched health topics among students and their benefits for the learning process. Furthermore, their stance on institution-led video production was also evaluated.

Regarding topics students researched, 39.7% searched for videos on fundamental biomedical sciences, such as anatomy, histology, physiology, and embryology, whereas 27.2% preferred lectures focused on healthcare in general. Other topics, whose content varied significantly, accounted for 33.1%: weight loss, first aid, and mass muscle recovery. The perceived benefits of videos were commonly reported by the vast majority of participants as maximizing learning (86.8%) and supporting academic work (9.9%).

As previously indicated, the survey assessed students' opinions on whether the medical faculty should produce educational health videos for classroom use. An overwhelming majority (91.4%) agreed, while 8.6% did not. Among those in favor, students preferred locally produced videos addressing core biomedical science subjects (e.g., embryology, anatomy, histology, and biochemistry), recorded lectures, and additional topics such as physical exercise, autopsy, anxiety, and diagnosis.

Table 2. Health Video Topics Searched by Students, Associated Benefits, and Attitudes Toward University-Led Production.

Variables	Types of videos	Frequency (N)	Percent (%)
Video topics searched	Basic biomedical sciences	60	39.7
	Lectures	41	27.2
	Others	50	33.1
Benefit of health videos	Support academic work	17	9.9
	Enhance understanding	3	2.0

In support of institution-led video production	Maximize learning	131	86.8
	Basic biomedical sciences	48	31.8
	Lectures and tutorials	55	36.4
	Others	35	23.2

Conversely, those who opposed institution-led video production reported that video was a source of limitations (5.3%) and that they preferred traditional learning methods (3.3%). The participants reported video-led limitations, including a lack of interaction between students and the lecturer, reduced focus, passivity, and monotony.

Three Likert-scale items were used to assess students' perceptions of utility, learning, and interest in using health-related videos. Regarding perceived utility, most students strongly agreed that the video was helpful (37.1%), with a mean score of 4.05 ($\sigma = 0.915$). The exact number of respondents who strongly agreed that they had achieved a high level of learning from videos was 4.04 ($\sigma = 0.908$). The mean score was 4.30 ($\sigma = 0.900$), further confirming students' high interest in continuing to watch health videos online. More than half of the participants (53.6%) strongly agreed, and 27.8% agreed.

Table 3. Usefulness of Health Videos, Self-reported knowledge gain levels, and interest in continuing watching them.

Items	Scales					Media	SD
	SD	D	N	A	SA		
Online Health Videos are very useful	2 (1.3)	5 (3.3)	32 (21.2)	56 (37.1)	56 (37.1)	4.05	0.915
I have achieved good learning level from online health Videos	0 (0.0)	9 (6.0)	32 (21.2)	54 (35.8)	56 (37.1)	4.04	0.908
I am highly interested to continue watching health-related videos online	1 (0.7)	6 (4.0)	21 (13.9)	42 (27.8)	81 (53.6)	4.30	0.900

SD: Strongly disagree; D: Disagree; N: Neutral; A: Agree; SA: Strongly agree.

Because females comprised the dominant gender group ($n = 93$) at both universities, compared with males ($n = 58$), a chi-square test and Cramer's V were conducted to assess whether the disproportionate participation would influence students' evaluations of video-based learning. Female respondents generally reported marginally higher positive perceptions in all three satisfaction areas: utility, learning, and interest level in continuing to watch videos during classes.

Table 4. Gender-based perception analysis: Chi-Square test and Effect size among students.

Dimension Analyzed	Chi-Square Value (X^2)	Degrees of freedom	p-value (Asymptotic Sig.)	Statistical Significance	Cramer's V	Effect Size
Perceived Utility of Health Videos	4.954	4	0.292	Not significant ($p > 0.05$)	0,181	Small
Self-reported knowledge gain Achieved	0.382	3	0.944	Not significant ($p > 0.05$)	0,050	Small
Interest in Continuing to Watch Health Videos	2.011	4	0.734	Not significant ($p > 0.05$)	0,115	Small

However, these differences did not reach statistical significance ($p > 0.05$), suggesting that students' gender did not significantly influence their interaction with or appreciation of online health videos. This finding is consistent with Cramer's V values, which accounted for 0.181 for utility, 0.050 for perceived learning, and 0.115 for interest. It indicates a small effect size (value below 0.10), implying that gender had a minimal impact on these perceptions.

5. Discussion

This study focused on second-year medical students from Mozambican universities, examining their use, evaluation, and perceptions of online health-related videos in their educational context. The findings show a high level of engagement, with 100% ($n = 151$) of students using videos reactively when they are relevant to their class topics. This indicates that video-based learning is widely adopted and has become a key component of their daily self-directed education, consistent with prior research showing that students prefer videos for clarification, review, and reinforcement of complex topics. [10]

The findings highlight YouTube's centrality in academic self-learning and underscore its accessibility, even in low-bandwidth settings, as previously reported in African medical education environments [35]. However, research across various fields of medical education indicates that students frequently use platforms such as YouTube to supplement their learning [36–38]. This platform's popularity arises not only from its extensive video library but also from its open access and user-friendly navigation, even for users with unreliable internet connections.

In Mozambique, the use of YouTube reflects a rapid shift toward informal digital learning, despite limited infrastructure. The fact that 98.7% of students access videos using smartphones aligns with national trends, suggesting that smartphones are the primary means of internet access for young people in Mozambique. This also highlights the growing role of m-learning in Sub-Saharan educational systems, with recent studies supporting this trend. For instance, in Nigeria, students at teaching hospitals have reported using YouTube as their primary source to learn surgical procedures [39], and similar trends are observed in other African countries [40–42]. A mini-review highlights the increasing use of e-learning and digital platforms to promote critical thinking and essential professional skills [43]. This regional parallel also shows how accessibility, portability, and low cost influence students' device and platform choices, reflect global digital consumption trends, and highlight the importance of optimizing digital media use for accessing online health videos. [44–47]

In terms of educational value, high average ratings for utility (4.05), Self-reported knowledge gain (4.04), and high interest (4.30) suggest that students view learning via video as both valuable and motivating. These findings align with prior studies from both high-income and developing countries, which have shown increased student satisfaction, performance, and understanding when videos are integrated into the medical curriculum [11,12,48,49]. Additionally, students' open-ended responses offer valuable insights into the types of content they accessed. The majority (39.7%) searched for foundational sciences, and a noteworthy portion (27.2%) focused on lecture-related content. This dual focus reflects both academic and practical needs, demonstrating students' desire to integrate clinical relevance into their study routines. [50–52]

Regarding faculty-led video production, 91.4% of students support it, indicating a strong preference for institutionally produced and controlled content. Moreover, they suggest content types such as basic biomedical sciences and clinical demonstrations. These findings align with previous research suggesting that students value locally produced content, specifically curriculum-aligned and tailored to their context [15,17,53]. Interestingly, 8.6% of opponents of institutional video production and the reasons they hold this stance reflect broader pedagogical discussions about passive learning and the dangers of overreliance on asynchronous tools. [21,24,52]

Despite female students reporting marginally higher levels of enthusiasm across all video-perception categories (utility, benefits, and interest), the observed differences with males were not statistically significant. Therefore, their learning outcomes, as well as their interest in continuing to watch the videos, align with prior research indicating that video-based learning is broadly accepted

and effective across various demographic groups [10,54,55]. Future research could investigate whether the slightly higher engagement observed among female students is attributable to differences in collaborative learning styles, self-regulation practices, or confidence in navigating digital environments.

Challenges remain for educators trying to bridge the gap between casual viewing and formal academic use of videos [56]. Studies have shown that health-related videos on open platforms often lack peer review, scientific accuracy, and adherence to ethical standards [57–59]. This reliance on such sources increases the risk of misinformation and misinterpretation. To address this, medical institutions should proactively curate content, as it has become a standard in health content [60,61], and include AI-driven video-based production for tailored classes [62–66], ensuring students have access to scientifically accurate, pedagogically sound, and contextually relevant materials.

Overall, this study emphasizes both the opportunities and responsibilities involved. Medical students at both universities are keen to adopt digital learning methods, yet they navigate an information environment that necessitates proper guidance. Ultimately, expanding the use of digital videos will enhance classroom learning and equip future Mozambican clinicians to interact confidently with digital health systems.

5.1. Limitations and Future Directions

The present study offers valuable insights into the integration of online health videos in Mozambican medical education; however, several limitations must be acknowledged to inform future work.

The first limitation of this study was the missed opportunity to identify technical issues, ambiguous questions, or respondent fatigue. This is justified by the fact that the questionnaire was not piloted before data collection, as its design was concise and employed simple, clear language. The authors ensured clarity and internal consistency. Nonetheless, future research should include a structured pilot phase to enhance instrument validity and ensure cross-cultural understanding. Secondly, because the study sample comprised only second-year students, the results may not generalize to medical students at all Mozambican universities. Focusing on a single academic level may also limit the ability to conclude how attitudes change over time. Thirdly, the study depended on self-reported perceptions and behaviors, such as improved learning, which are susceptible to recall bias and may not accurately reflect current learning outcomes or engagement levels. Therefore, incorporating qualitative or experimental designs could help validate future findings.

Regarding future directions, both universities should align with emerging video technology and institutionalize it by: 1) Developing multimodal curricula (traditional + video) that ensure accuracy, relevant content, and equitable access; 2) Incorporating digital literacy training into quarterly or semester faculty action plans to help students and staff critically assess online videos; and 3) Partnering with local internet providers to supply low-cost data for students, so that the lack of internet for video searches among students is not seen as a limitation.

Finally, multi-institutional, longitudinal studies should assess the impact of ongoing exposure to online educational videos on measurable learning outcomes, skill development, and professional competence. Emerging technologies, such as AI-generated patient videos or synthetic patients, and immersive simulations, should be explored to enhance medical training

5.2. Conclusions

This research evaluated how medical students in Mozambique interact with online health videos and their perceptions of the educational value of these videos. The findings reveal that such videos are widely used, highly valued for accessibility and clarity, and strongly supported as a supportive tool. Students rely on YouTube as their primary platform, search for content on mobile devices, and demonstrate a deep interest in faculty-produced videos incorporated into the curriculum.

The study provides new evidence from a low-resource setting, the Mozambican context, where research on the potential of videos for practical learning in medical education is still limited. It

highlights that even in low-resource environments, students are active digital learners who see the value of video-based tools. Incorporating the latter into the curriculum could be an affordable and scalable way to tap into students' enthusiasm and improve medical education in LMICs. Therefore, medical schools should focus on developing their own video repositories and build capacity in digital literacy and content creation to ensure that students and lecturers critically engage with online information.

Ultimately, this research underscores that the intelligent use of online video tools, coupled with institutional support and policy alignment, can substantially improve educational equity, cultivate digital skills, and make the future of healthcare professionals in low-resource settings more predictable.

Supplementary Materials: The following supporting information can be downloaded at the website of this paper posted on Preprints.org.

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Abbreviations

The following abbreviations are used in this manuscript:

DHEC	Digital Health Education Content
CIBS	Comité Interinstitucional de Bioética para Saúde
SD	Strongly disagree
D	Disagree
N	Neutral
A	Agree
SA	Strongly agree
LMICs	Low-and Middle-Income Countries

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