

Development Of Video-Based Learning Media In Pencak Silat Refereeing

Fauziah Br Barus¹, Dodo Suhendra^{2*}, Aref Vai³, Anik Hidayanti⁴

^{1,2,3} Physical Education, University Riau, Indonesia

⁴ Physical Education, University of Malang, Indonesia

Email author corresponding: dodo.suhendra4279@student.unri.ac.id

Abstract:

Background: The problem in this research is the absence of video-based learning media in the pencak silat refereeing signals. The purpose of this research is to make video-based learning media products in the form of pencak silat refereeing for students, the media products can then be accessed via the YouTube application

Aims: the aim is to develop media in the form of videos for teaching pencak silat refereeing material for students.

Methods: This research is research and development (R&D). This research uses a 3D model which is a modification of the 4D model. The three research stages are the definition stage, the design stage, and the development stage. The source of the data obtained is in the form of qualitative data as the main data, suggestions and input from respondents are mostly additional data. The data obtained by researchers from the validation of material experts, media experts, and students is used to provide an overview of the feasibility of the product being developed. Instruments for data collection were carried out by observation, interviews and questionnaires consisting of due diligence of material experts, media experts and students in the form of questionnaires and evaluation sheets. Product trials in this research were conducted 2 times, namely small group trials involving 10 respondents and field trials involving 30 respondents. The selection of research subjects was adjusted to field conditions during the learning process of pencak silat refereeing, trials were carried out to find out the initial problems in the products being developed.

Result: The results of the material expert validation test were "Very Good" with a mean score of 4.405. The results of the media expert validation test were "Very Good" with a mean score of 4.75. The field trial score resulted in an average of 4.416 with the criteria of "Very Good". So the overall results of the data state that the video-based media products developed are very good/feasible for use in the learning process.

Conclusion: It can be concluded that this video-based learning media product is very suitable and effective for use in the learning process.

Keywords: Development Media, Learning, Pencak Silat Refereeing

Introduction

Background of the study: In an era full of technology that is used daily both offline and online, it is very widely enjoyed by the community, especially in the field of education, educational learning is the main thing, so there is the potential for emotional and bilateral relationships between lecturers and students (Hasyim, 2014). Education does not have to be in the classroom, but educators in today's era can be searched online, both on the web and applications similar to educability (Fardhany, 2016; Tobing, 2019). Education currently requires professional educators who generally must be able to select, develop, and utilize different learning environments using technology (Nopembri et al., 2020). It can be seen that there are still educators who have not used media as a learning tool (Nuarisapta, 2018). Learning through the media can overcome problems such as deadlines, rates, and limited learning resources (Fuady, 2016; Husaini, 2014). Media in education has a major influence on the learning process according to technological developments,



media users can influence students' long-term intentions to use online technology to learn and search for information (Yuan et al., 2021).

Learning is a process that aims to enable students to maximize their cognitive and socio-emotional potential efficiently and effectively to cause changes in conscious behavior and behavioral perspectives (Festiawan, 2020; Pakpahan, 2022). This learning is a process in which students prepare themselves to describe their lives in society. How the learning process works and what the learning process should be like is of concern to educators, teachers, parents and those involved in behavior management. Learning is a complex and complicated activity, so that learning becomes even more complex because the purpose of learning is to produce learning activities (Badan et al., 2019). Therefore, learning outcomes are learning objectives and means for achieving these goals (Asih & Alief, 2022). Learning is an activity where the teacher takes a special role so that students can learn to achieve the desired educational goals. Furthermore, learning is a way of teaching students to learn something important and useful for themselves and creating learning skills, so that students can learn enthusiastically (Brier & lia dwi jayanti, 2020).

According to Trianto (Pane & Darwis Dasopang, 2017; Yoon et al., 2019) learning forms part of a complex activity and cannot be fully explained. In simple terms, learning can be interpreted as the result of a continuous interaction of growth and life experiences (Iskandar, 2020). Basically Trianto shows that “learning is a conscious effort of students to educate their students (directing student interactions to other learning outcomes) to arrive at a goal” (Humairah, 2022). According to Winkel in (Daeli, 2021) “Learning is a set of actions to support the student learning process, taking into account extreme events that affect a series of internal events experienced by students”.

Learning media, namely “Tools or containers that are able to assist the teaching and learning process and function to clarify the meaning of the message or information conveyed, so that it can achieve the planned learning objectives” (Surraya, 2021; Zahwa & Syafi'i, 2022). Learning media is a useful tool or facilitator to expedite the teaching and learning process and improve the relationship between teachers and students (Lisnawati, 2021). According to (Falahudin, 2014) “Learning media can be understood as anything that can channel information from sources of information to recipients of information”. This makes it easier for teachers when teaching, makes it easier for students to obtain and understand material that is more real, to support the teaching and learning process can be assisted by the use of media (Press, 2022). The use of learning media in the teaching and learning process can also generate new desires and interests in students, generate motivation to learn and even have a psychological effect on students. Besides being able to increase student learning motivation, the use of media can also increase understanding of lessons (Nurfadhillah et al., 2021).

According to (Coşkun, 2021; Teni Nurrita, 2018) “Teaching media is a teaching aid, namely supporting the use of teaching methods used by teachers”. Media functions for a variety of activities or businesses, such as media for channeling messages, real information (Adventyana, 2023). Media is used in the field of education so that its name becomes educational media, the media is very necessary as a channel of information in the implementation of ongoing learning, the nature of the media itself is very constructive so it is necessary to be innovative for lecturers who teach using valid and practical media (Latri, 2017) The types of media that can be utilized in learning according to (Latri, 2017) are “graphic media (pictures, photos, charts, posters, etc.), three-dimensional media (working models, mock ups, dioramas), and projection media (slides, films, OHP, etc.), as well as the use of the environment as a learning medium” (Chen et al., 2021). The types of media based on the learning function of Gagne's classification are “demonstration

media, oral delivery, print media, motion pictures, still images, films with sound, and learning machines”.

Literature review: According to Cheppy Riyana in (Astutik, 2021) “Video learning media is media that presents audio and visual material that contains learning messages, both containing concepts, principles, procedures, and theories to apply knowledge to understand learning material”. Video is a learning object that can be heard (audio-visual) which can be used to convey messages/topics (A Majid et al, 2022). It is called visible because audio (audio) and visual/video (visibility) elements can be presented simultaneously. Video is learning material that is arranged in a video format that can be viewed on a video/VCD player connected to a television screen (Pramono, 2022).

Gap analysis: A great teacher can teach and inspire students through videos or the web because information technology is a form of communication in classroom learning, instructions given by educators through videos or digital technology-based media that are student-oriented. Technology on digital display boards is at least a way for teachers to teach professionally, with the development of technology used today education is considered professional because of the many media that can be used to support the learning process (Lin, 2022; Østereng, 2022). The development of technology makes students more effective in finding various learning resources, students generally prefer to find learning resources from various media which make it easier for them and understand the content of the material more easily (Cao & Tian, 2022; Torun, 2020). Currently there are many learning video sources that can be used by students to add to their insights and knowledge. Pencak silat learning media can also be found on YouTube and on various webs, as well in a broad language that makes it easier for us to find anything that fits our needs.

Rationale of the study: The results of preliminary observations show that sports education students in the pencak silat referee class, where the activity of receiving basic refereeing technique learning is still minimal and less motivated in learning materials. The learning model used is still using the lecture model and the teacher practices the movements. The following are several factors that cause low motivation and lack of student interest in carrying out learning activities of pencak silat refereeing techniques, namely: a) emotionally, there are still many students who are not calm and do not have the courage to complete the learning process for martial arts refereeing techniques; b) mentally, there are still many students who cannot solve the problems they face when learning the basic techniques of pencak silat, it can be seen from the confused faces when understanding the technique; c) on visuals, it turns out that there are still many students who do not pay attention to the explanations presented, this can be seen from students who listen but do not remember the material presented; d) verbally, no one interacts or communicates through questions or discussions in delivering material when the teacher gives examples of students not daring to ask; e) In audio, students do not listen properly to the material presented, seen from students who do not do so based on the correct basic techniques, from the reasons above it can be concluded that researchers are interested in conducting research with the title "Development of Video-Based Learning Media in Pencak Silat Refereeing".

Purpose or Hypotheses of the study: The purpose of this study is to develop and evaluate video-based learning media for teaching basic refereeing techniques in pencak silat. This research is expected to overcome the low motivation and limited understanding of students who previously relied only on lecture and demonstration methods. It is hypothesized that the developed video-based media will be feasible as a learning tool, increase students’ motivation and interest, and improve their understanding and performance in mastering basic pencak silat refereeing techniques.

Material & Methods

Research Design: This study employs a research and development (R&D) method, which is specifically designed to produce and validate educational products. The development process in this research refers to the 4D model (Four-D Model) introduced by Thiagarajan (1974), which consists of four main stages: Define, Design, Develop, and Disseminate (Sugiyono, 2019). However, due to limitations in scope and the focus of the study, the researcher applied a modified 3D model, which includes only three stages, namely Define, Design, and Develop. These stages were considered sufficient to achieve the objectives of the study while maintaining the validity of the development process. The selection of research subjects was based on field conditions that occurred during the learning process of pencak silat refereeing, ensuring that the participants were relevant to the study context. The process of research and development was carried out over a period of approximately four months, starting from mid-September 2024 until January 2025, allowing sufficient time for each stage of the development model to be systematically implemented.

Participant: The population of this study consisted of students from the Department of Sports Education, Faculty of Teacher Training and Education, University of Riau. From this population, two groups of samples were selected using purposive sampling, considering that the students were taking pencak silat refereeing courses. The sampling involved a small group trial of 30 students and a large group trial of 90 students. This division was intended to examine the practicality and effectiveness of the developed video-based learning media on different scales of implementation.

Instrument: Instrument data collection was carried out through observation, interviews, and questionnaires consisting of due diligence on material experts, media experts, and students in the form of questionnaires and evaluation sheets made by (Permatasari, 2014). In material expert validation, there are two aspects, namely: the quality of learning materials and content, the material quality aspect consists of 7 indicators and the content quality aspect consists of 9 indicators. Media expert validation, there are two aspects, namely: the quality of the display and programming aspects, the display quality aspect consists of 18 indicators and the programming quality aspect 7 indicators. There are three aspects in the evaluation sheet for students, namely: the display aspect consisting of 10 indicators, the material/content aspect 7 indicators, and the learning aspect 8 indicators.

Analysis plan: Analysis Techniques data used in this study are qualitative and quantitative. Qualitative data in this study are data obtained through validation by material experts, media experts, and students. The information obtained serves to carry out the process of developing learning media products. Quantitative data in this study were obtained through assessment questionnaires which were analyzed with descriptive statistics in the form of very less, less, sufficient, good, and very good statements which were shown to be quantitative data on a 5-point Likers scale using the Sukarjo Conversion Reference. Author: Nur Rohmah Muktiani, in the following table:

Table 1. Assessment criteria

Score Intervals	Criteria
$X > 4,21$	Very good
$3,40 < X \leq 4,21$	Good

$2,60 < X \leq 3,40$	Pretty good
$1,79 < X \leq 2,60$	Not good
$X \leq 1,79$	Very unfavorable

Referenc: (Boud & Falchikov, 2007)

Results

Research Stage

1. Difine

Defining is the first step taken by researchers before designing a product. In this step, the researcher must complete 5 steps, namely: Final analysis, student analysis, task analysis, concept analysis and learning objectives. These five stages are seen from how the characteristics of students acquire pencak silat refereeing lessons in the campus environment, both in terms of assignments and learning concepts given by the instructor to achieve learning objectives. Based on the results of the needs analysis regarding the required learning is learning to use media that contains pictures, videos, and explanations. While what is currently used is conventional learning or lecture methods, as well as direct practice in the field. The difficulty for students is to understand the movements of the pencak silat refereeing signals because of the limited hours of learning, it can be seen that students generally use smartphones, which results in students being more interested in learning from smartphones. Accompanied by the current social conditions where smartphones are very important, with learning videos that can be used anywhere, anytime with a smartphone, this makes it very easy for students to study material outside of lecture hours.

2. Design

The initial design carried out by the researcher was to create a video-based learning media product for the movements of the pencak silat refereeing signals which consisted of a cover, opening, content, and closing. The movements in the material are in the form of colorful videos, the availability of audio and written explanations to make it easier for students to understand learning material. The video uses MP4 format which is edited using the Adobe premiere application to make it easier for researchers to combine images, text, and audio explanations in the video. The appearance of media design is presented in the most attractive form possible so that it is clear, so that the media does not look boring and learning objectives can be achieved.

The initial appearance in the video shows the cover, as well as an opening explanation regarding the introduction of researchers in the video and also explains what material will be displayed in the video.

The initial appearance of the media is as below:

Figure 1. The Initial Display Of The Video



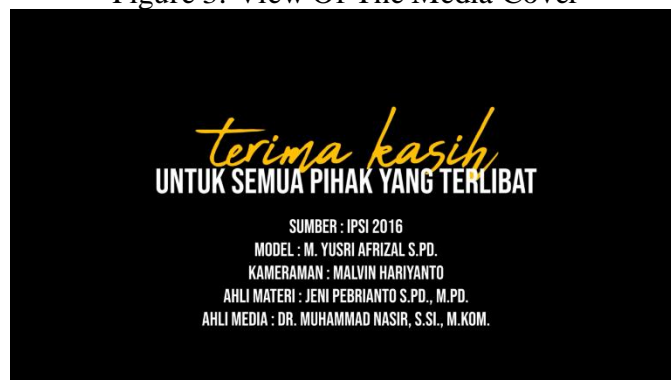
The next display is a content display that explains the 14 movements of pencak silat refereeing signals, explanations of violations, provisions for scores, and wins obtained by fighters, as well as explanations of material in the form of audio and writing to make it easier for students to understand the material. Display media content as shown below:

Figure 2. Display Of The Contents Of Material



The closing display is an expression of gratitude for those who participated in making the media and for the documentation in the video. The media cover display looks like the image below:

Figure 3. View Of The Media Cover



3. Development

Development in this study, researchers carried out validation to material experts, validation of media experts, and trials of video-based learning media in judging pencak silat to students, this was done to determine the validity and effectiveness of media products.

a. Product Description Development

Learning video media developed by researchers has a duration of 8.00 minutes. This video is about learning the movements of pencak silat refereeing signals for students. This video is equipped with images, text and audio to clarify learning material. Learning videos can be played via the following link: <https://youtu.be/mvT6wITxN8M>

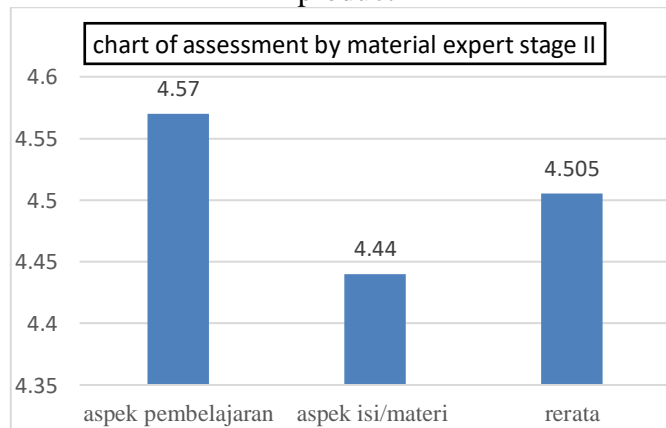
b. Material Expert Validation Results

Based on data obtained from material expert validation conducted by researchers through 2 stages. The quality of the final product is obtained with an average score of 4.405 with **Very Good criteria**, the data shows that the instructional video media is feasible to use, the material expert validation data is as follows:

Table 2. Quality of learning media products from stage II material experts

Assessment Aspects	Average Score	Criteria
Learning Aspects	4.57	Very good
Aspects of Content / Material	4,44	Very good
Average	4,505	Very good

Figure 4. Bar diagram of the feasibility assessment of the material expert stage II product



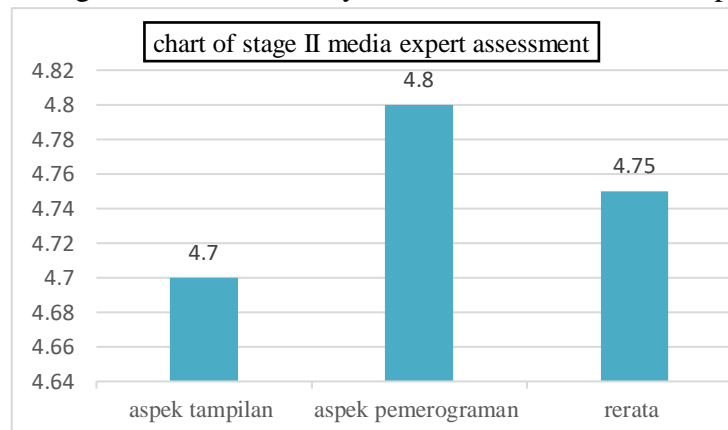
c. Media Expert Validation Results

Based on data obtained from the validation of media experts conducted by researchers through 2 stages. The quality of the final product was obtained with an average score of 4.75 with **Very Good criteria**, the data shows that the instructional video media is feasible to use, the media expert validation data is as follows:

Table 3. Quality of learning media products from stage II material experts

Assessment Aspects	Average Score	Criteria
Display Aspect	4,7	Very Good
Programming Aspects	4,8	Very Good
Average	4.75	Very Good

Figure 5. Bar diagram of the feasibility assessment of the media expert's product stage II



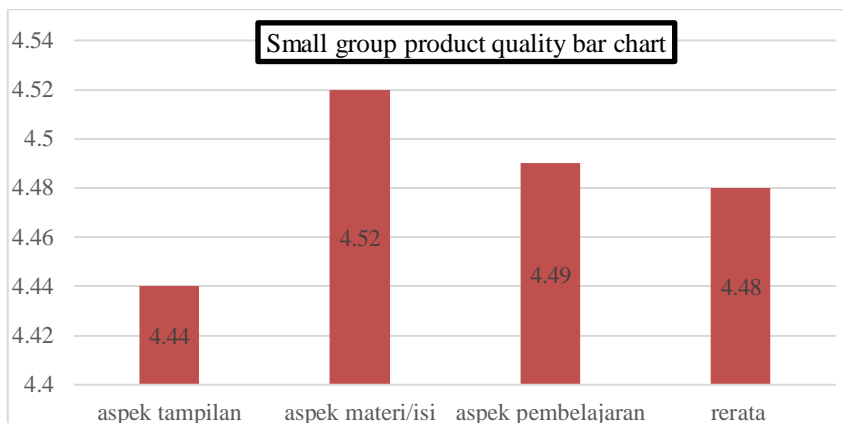
d. Small Group Trial Results

Based on the results of small group trials that have been carried out by researchers with questionnaires through 10 respondents using 25 questions resulting in an average score of 4.48 with **Very Good criteria**, these data indicate that learning video media is feasible to use, the data obtained is as follows:

Table 4. Quality of learning media products for small group trials

Value Aspect	Average Score	Criteria
Display Aspect	4,44	Very good
Aspects of Material / Content	4.52	Very good
Learning Aspects	4.49	Very good
Average	4.48	Very good

Figure 6. Small group product quality bar chart



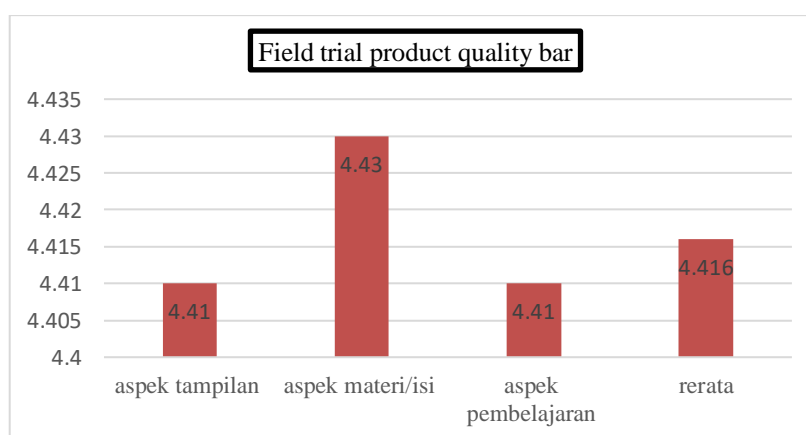
e. Field Trial Results

Based on the results of field trials that have been carried out by researchers with questionnaires through 30 respondents using 25 questions resulting in an average score of 4.416 with **Very Good criteria**, these data show that learning video media is feasible to use.

Table 5. Quality of field trial learning media products

C	Average Score	Criteria
Display Aspect	4,41	Very good
Aspects of Material / Content	4,43	Very good
Learning Aspects	4,41	Very good
Average	4,416	Very good

Figure 7. Field trial product quality bar



After the researcher has completed the two validation stages of the material expert and media expert, the researcher then conducts a product trial which is carried out twice, namely; small group trials and field trials. The overall validation of the results is calculated based on the calculation of a 5-point Likers scale. From these data it can be seen that the Pencak Silat refereeing learning media is very good or suitable for use in the learning process.

Discussion: The research conducted by this researcher is research and development. According to (Sugiyono, 2014) “Research and development methods are research methods used to produce certain products, and test the effectiveness of these products. Researchers have a goal to produce a product that is suitable for use in the teaching and learning process”. Regarding the products developed in this study including the development of video-based learning media in the refereeing of pencak silat. This research uses a 3D model that has been modified by Thiagarajan with the stages: Define, Design, and Development. Definition is the initial stage carried out by researchers before designing a product, at this stage there are 5 stages that must be carried out by researchers namely: initial analysis, student analysis, task analysis, concept analysis, and learning objectives. These five stages are seen from how the characteristics of students acquire pencak silat refereeing lessons in the campus environment, both in terms of assignments and learning concepts provided by the instructor to achieve learning objectives. Based on the results of the analysis regarding the learning needed is learning using media that contains pictures, videos, and explanations. While what is currently used is conventional learning or lecture methods, as well as direct practice in the field. The difficulty for students is to understand the movements of the pencak silat refereeing signals due to the limited hours of learning, so from the results of the analysis the researcher is interested in developing learning media to make it easier for students. The design stage is the stage where the researcher designs the media to be developed, learning media products based on videos of the movements of the pencak silat refereeing signals consisting of cover, opening, content, and closing. Movement in the material is in the form of colorful videos, there are audio and written explanations to make it easier for students to understand learning material. The video uses MP4 format which is then edited using the Adobe Premiere application to make it easier for researchers to combine images, text, and sound explanations in the video. The appearance of media design is presented in the most attractive form possible so that it is clear, so that the media does not look boring and learning objectives can be achieved. The development stage contains the validation of media products that have been designed previously, the validation of material experts and media experts is carried out twice, where in stage I there are still improvements made in the addition of audio and written explanations, explanations in the opening, content and closing and replacement of the cover. more clearly. Then in stage II the video media being developed is clearly visible, the validation of the material expert gives a value through the evaluation sheet that has been provided which results in an average score of 4.505 with the criteria "Very good". Media expert validation shared an average value of 4.75 with the "Very good" criterion. After the validation process was completed, the researcher carried out a small group trial consisting of 10 respondents producing an average value of 4.48 with the criteria "Very good", then the researcher conducted field trials with 30 respondents who produced an overall average value of 4.416 with the criteria "Very Good". good", from the results of the validation and trial it can be concluded that the media product developed by the researcher is suitable for the learning process in judging pencak silat which can be accessed by anyone through the YouTube application .

Conclusions

Based on the results of research and development on the learning of pencak silat refereeing which has been carried out using the 4D model that was modified into 3D by Thiagarajan (1974), the resulting video-based learning media product in the refereeing of martial arts can be used by teachers and students as an additional medium for learning pencak silat refereeing signals. The material expert validation obtained an average score of 4.405 in the “Very Good” category, the media expert validation obtained an average score of 4.75 in the “Very Good” category, and the field trial reached an average score of 4.416 with the same “Very Good” category. These findings prove that the product developed is valid, reliable, and feasible for use in the learning process. Furthermore, the results of testing on a small group of 30 students and a large group of 90 students showed positive responses, where the video-based learning media succeeded in increasing students’ motivation, improving their understanding of refereeing techniques, and encouraging more active participation compared to conventional lecture-based methods. Therefore, this video-based learning media is highly recommended as an innovative and effective alternative to support the learning of pencak silat refereeing in sports education.

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Author Contribution Statement

DS contributed to the conception and design of the study as well as drafting the manuscript. AV was responsible for data collection, coordination during field trials, and compiling research results. MI conducted data analysis and interpretation, ensuring the accuracy of findings. H provided methodological guidance and supervised the research process. AH revised the manuscript critically for important intellectual content and assisted in finalizing the discussion. All authors read and approved the final version of the manuscript.

AI Disclosure Statement

The authors used ChatGPT (OpenAI) during the preparation of this work for assistance in improving the clarity of language, grammar, and structure. After using the tool, the authors thoroughly reviewed and edited the content as needed and take full responsibility for the content of the publication. The authors declare that this research was prepared, researched, written, and

edited based on the authors' own work and expertise, without reliance on artificial intelligence (AI) techniques for generating research ideas, analyzing data, or drawing conclusions.

Conflicts Of Interest

The authors declare that there are no potential conflicts of interest, whether financial, institutional, or personal, that could have influenced the conduct of this study, the analysis of data, the preparation of the manuscript, or its publication.

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