The Integration of Ahmad Dahlan's Teachings Through Psychoeducation-Based Virtual Reality to Enhance Students' Peace

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https://doi.org/10.17977/um065.v7.i1.2027.3

Article history
Submitted: 22 June 2026
Revised: 27 July 2026
Accepted: 28 July 2026
Published: 30 July 2026

Keywords
Ahmad Dahlan's teachings
Psychoeducation
Virtual reality

Abstract
This study aims to test the effectiveness of virtual reality (VR)-based psychoeducation based on the teachings of K.H. Ahmad Dahlan in improving the calmness of vocational high school students. The study used a quantitative approach with a quasi-experimental method through a non-equivalent control group pretest-posttest design. The study participants consisted of 16 11th-grade students identified as having low levels of comfort and were divided into an experimental group and a control group. The experimental group received five sessions of VR-assisted psychoeducation that integrated the spiritual-humanistic values of K.H. Ahmad Dahlan, while the control group received treatment as usual. Data were collected using a validated Peace Scale consisting of 26 items covering aspects of self-harmony, social harmony, and environmental harmony. The instrument demonstrated good reliability with a Cronbach's Alpha coefficient of 0.849. Data analysis was performed using the Mann–Whitney U test to test for differences between groups. The results showed a significant increase in calmness in the experimental group, with the average score increasing from 70.0 to 81.6, while the control group only increased from 70.0 to 73.0. Statistical analysis showed a significant difference between the two groups ($p < 0.05$). These findings indicate that VR-based psychoeducation integrated with the spiritual-humanistic values of K.H. Ahmad Dahlan is effective in increasing students' calmness and has the potential to be an innovation in guidance and counseling services. However, this study has limitations in the relatively small sample size and short duration of the intervention.

1. Introduction

Peace is a fundamental aspect of adolescents' psychological and social development because it enables individuals to achieve inner harmony, establish healthy interpersonal relationships, and maintain balanced relationships with their environment. During adolescence, the development of peace contributes to emotional regulation, resilience, empathy, prosocial behavior, and psychological well-being. Students with higher levels of peace tend to demonstrate greater self-control, stronger social connectedness, lower aggressive behavior, and better adjustment in academic and social settings (Brown et al., 2022; Mejía, 2023; Riati et al., 2024; Rostami et al., 2022). Consequently, fostering peace has become one of the essential objectives of school guidance and counseling services, as it supports students' personal, social, and academic development.

Despite its importance, contemporary educational settings continue to face considerable challenges in cultivating peaceful students. The rapid expansion of digital technology, social media, and globalization has increased adolescents' exposure to intolerance, hate speech, cyberbullying, and symbolic violence. These phenomena are frequently accompanied by declining empathy, increasing social polarization, and weakened interpersonal relationships among students (Morales, 2023; Recuero, 2024; Rossini, 2022; Wahlström et al., 2021). Such conditions indicate that schools require guidance and counseling interventions capable of strengthening students' psychological and social peace through approaches that are relevant to the characteristics of the digital generation. Therefore, psychoeducational interventions that integrate moral, spiritual, and experiential learning are increasingly needed to facilitate students in internalizing peaceful values into their daily lives.

One promising approach is psychoeducation grounded in the peace values taught by K.H. Ahmad Dahlan. From his perspective, peace is not merely the absence of conflict but a process of reconstructing human consciousness through the internalization of Islamic values into concrete actions that uphold justice, humanity, and public welfare (Purwadi et al., 2022). K.H. Ahmad Dahlan emphasized that genuine peace originates from

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the integration of spiritual awareness, rational thinking, and moral conduct, resulting in individuals who actively contribute to the welfare of society (Asmaret et al., 2025; Riati et al., 2024; Wasno & Yuliantri, 2022). This perspective aligns with the concept of positive peace, which emphasizes the presence of justice, social harmony, and collective well-being rather than merely the absence of violence (Haironi & Nicklany, 2024; Saputra et al., 2021). Furthermore, Ahmad Dahlan's philosophy of peace is firmly rooted in the principles of tawhid, moral transformation, and social responsibility, emphasizing that religious values should be translated into concrete actions that promote justice, compassion, and public welfare. Furthermore, Ahmad Dahlan's philosophy of peace is firmly rooted in the principles of tawhid, moral transformation, and social responsibility, emphasizing that religious values should be translated into concrete actions that promote justice, compassion, and public welfare (Desi et al., 2023; Muharmina et al., 2021; Ratnawati & Istiq'faroh, 2023). Rather than positioning spirituality as an individual experience alone, Ahmad Dahlan regarded it as the driving force behind educational reform and the development of a just and civilized society that upholds universal humanity (Hasan & Taufiq, 2023; Kuniasih, 2024; Saputra et al., 2021). Through educational processes, he consistently promoted values such as sincerity, humility, critical thinking, tolerance, and compassion as the foundation for developing morally responsible and socially engaged individuals (Akhyar & Zukdi, 2025; Asmaret & Syaifullah, 2025; Saputra et al., 2023). These values are highly relevant to strengthening students' character and fostering peaceful interactions within school communities.

Advances in educational technology have simultaneously created new opportunities for delivering meaningful learning experiences. Virtual reality (VR) enables students to engage in immersive environments that enhance attention, emotional involvement, experiential learning, and reflective understanding (Emmelkamp & Meyerbröker, 2021; Park et al., 2019). Previous studies have demonstrated that VR effectively improves learning motivation, engagement, and meaningful participation by providing realistic learning simulations (Hamilton et al., 2021). Nevertheless, despite these advantages, the application of VR within school guidance and counseling remains relatively limited. Most existing studies have focused on science education, professional training, or psychological therapy, while its use in psychoeducational interventions designed to cultivate peace values, particularly those rooted in Islamic educational philosophy, has received considerably less scholarly attention.

Previous empirical studies have demonstrated that peace education and psychoeducational interventions effectively improve empathy, tolerance, emotional regulation, prosocial behavior, and peaceful interactions among students (Matos et al., 2022; Saputra et al., 2021; Supriyanto et al., 2025). Other studies have examined peace education based on the humanitarian values of influential figures such as Mahatma Gandhi, Gus Dur, and Nelson Mandela, demonstrating that value-based education contributes positively to students' character development and social harmony (Khatun, 2023; Khoiruddin et al., 2024). Likewise, numerous studies have confirmed the effectiveness of VR in promoting active learning, engagement, and immersive educational experiences (Hamilton et al., 2021; Lampropoulos & Kinshuk, 2024). However, these studies have generally examined peace education, psychoeducation, Islamic values, and VR independently rather than integrating them into a comprehensive counseling intervention.

More specifically, previous research concerning K.H. Ahmad Dahlan has predominantly discussed his educational philosophy, Islamic reform movement, and character education from conceptual or historical perspectives, with relatively limited empirical evidence evaluating the effectiveness of his peace values in school guidance and counseling interventions (Purwadi et al., 2022; Saputra et al., 2023; Supriyanto et al., 2025). Furthermore, although innovative counseling models increasingly emphasize the integration of spiritual values, experiential learning, and reflective educational processes to facilitate sustainable behavioral change (Santosa et al., 2021, 2025; Santosa & Prabowo, 2022), empirical studies integrating these principles with immersive VR technology remain unavailable. To the best of the authors' knowledge, no previous study has specifically examined the effectiveness of VR-assisted psychoeducation based on the teachings of K.H. Ahmad Dahlan in improving students' peace across the dimensions of self-harmony, social harmony, and harmony with the environment. This limitation represents an important theoretical and practical gap in developing evidence-based guidance and counseling interventions that integrate Islamic values, spiritual-humanistic approaches, and digital technology (Santosa et al., 2025).

Therefore, this study proposes an integrative psychoeducational approach that combines the peace values of K.H. Ahmad Dahlan with immersive VR technology to facilitate students' cognitive understanding, emotional internalization, and behavioral application of peaceful values. By integrating spiritual-humanistic principles with immersive digital learning experiences, this intervention is expected to strengthen the effectiveness of guidance and counseling services while remaining relevant to the characteristics of contemporary students. Accordingly, this study aims to examine the effectiveness of VR-assisted psychoeducation based on the teachings of K.H. Ahmad Dahlan in enhancing vocational high school students' peace, encompassing self-harmony, social harmony, and harmony with the environment. Based on the theoretical framework and previous empirical findings, this study hypothesizes that students who receive VR-assisted psychoeducation based on K.H. Ahmad Dahlan's teachings will demonstrate significantly higher levels of peace than those who receive regular school counseling services.

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2. Method

This study uses a quantitative approach with a quasi-experimental type of research through a Non-equivalent Control Group Design or pretest-posttest control group design involving two groups, namely the experimental group and the control group. The experimental group was given an intervention in the form of psychoeducation based on KH Ahmad Dahlan's teachings with VR assistance, while the control group did not receive a similar treatment and continued with regular learning activities. The selection of research subjects was not done randomly, but both groups were given initial measurements (pretest) and final measurements (posttest) using a peace scale consisting of 26 items that had been tested for validity and reliability, covering three main aspects: self-harmony, social harmony, and harmony with the environment. The research subjects were 406 eleventh-grade students of Muhammadiyah Vocational High School in Yogyakarta. students, focusing on those with low and very low peace levels as the main participants. The data was analyzed using the Mann-Whitney U test to see if there were significant differences between the experimental group and the control group, so it can be concluded that the VR-assisted psychoeducational intervention based on KH Ahmad Dahlan's teachings is effective in empirically and validly increasing students' peace.

The participants in this study were 16 eleventh-grade vocational high school students who demonstrated the lowest levels of peace among 111 students who completed the peace scale instrument. The participants were assigned to two groups, consisting of 8 students each: an experimental group and a control group. The experimental group received a virtual reality (VR)-assisted psychoeducational intervention based on the teachings of KH Ahmad Dahlan, whereas the control group received the school's regular counseling services. This group allocation was intended to compare the effectiveness of the intervention with the standard counseling approach, enabling the researchers to empirically evaluate the impact of KH Ahmad Dahlan-based psychoeducation on enhancing students' peace.

The research instrument used was a peace scale developed based on an instrument grid that includes aspects, indicators, and the number of statements as a basis for measuring students' peace constructs, as shown in Table 1.

Table 1. Peace Grid

Aspect	Indicator	Statement item	
		Fav	Unfav
Self-harmony	Congruence between thoughts, feelings, and behavior with the internal source of love	1, 2	20
	Congruence between the ideal self and the reality of the self with the internal source of hope	14,15,16	6, 7
Social harmony	Respect for others	21	3, 4
	Respect for others and other groups	8, 9, 10	17,18
	Tolerance for differences within and between groups	25, 26	22
Harmony of the surrounding environment	Respect the environment by paying attention to sustainable living	5	11,12,13
	Respect the environment by paying attention to a simple lifestyle	19	23, 24

Based on Table 1, we have information on the reliability and validity criteria. The reliability and validity tests of the instrument were analyzed using the SPSS version 26 application. The reliability test results showed a Cronbach's Alpha coefficient value of 0.849, which is included in the very good reliability category, so the instrument has high internal consistency. Next, the validity test was carried out by analyzing the Corrected Item–Total Correlation value for each statement item. The analysis results show that the item validity coefficient is in the range of 0.323 to 0.602. Of the total of 35 statements tested, 26 items met the specified validity criteria and were declared valid, so they were suitable for use as data collection instruments in this research.

The research procedure consisted of three stages, namely pre-test, treatment, and post-test. In the pre-test stage, the experimental group and the control group filled out the Peace Scale to determine the initial level of peace of the students before the intervention was given. The treatment stage was carried out through five psychoeducation sessions assisted by Virtual Reality (VR). Each session was held once a week with a duration of approximately 45–60 minutes. This intervention integrated spiritual-humanistic values in the teachings of K.H. Ahmad Dahlan, such as sincerity, humility, critical thinking, tolerance, and compassion. The psychoeducational materials in each session included: (1) the value of sincerity through the theme "Kiai Dahlan's Violin Gives Answers", (2) the value of humility through the theme "Learning from Kweekschool", (3) the value of critical thinking through the theme "Yasinan Pak Poniman", (4) the value of tolerance through the theme "Differences in Views on Grave Visits", and (5) the value of compassion through the theme "Establishing an Islamic Elementary School". During the session, students watched a VR-based educational simulation and then participated in guided reflections and group discussions led by counselors to internalize the values of peace in

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everyday life. Meanwhile, the control group received treatment as usual in the form of regular guidance and counseling services provided by school counselors. In the post-test stage, both groups completed the Peace Scale again to determine changes in students' peace levels after the intervention was given.

The research data were analyzed using descriptive and inferential statistics with the help of SPSS version 26 to identify changes in students' peace levels before and after the intervention. Before testing the hypothesis, prerequisite analysis tests were conducted in the form of the Shapiro–Wilk normality test and Levene's homogeneity test. The results of the normality test showed that the data were normally distributed with a significance value of 0.313 in the experimental group and 0.220 in the control group, both of which were greater than 0.05. Furthermore, the results of the homogeneity test showed that the variances of both groups were homogeneous with a Levene statistical significance value of 0.463. However, considering the relatively small sample size of the study, nonparametric analysis was still used. The Mann–Whitney U test was used to analyze the differences between the experimental and control groups (between-group analysis), while the Wilcoxon Signed-Rank test was used to analyze the differences in pre-test and post-test scores in each group (within-group analysis). With normal data conditions but involving a small sample, the Mann–Whitney test is an appropriate alternative to assess the effectiveness of psychoeducation based on the teachings of K.H. Ahmad Dahlan was assisted by VR, where the results were used to determine the difference in the level of peace after the treatment was given.

3. Results and Discussion

3.1. Results

The results of the study indicate that psychoeducation based on the teachings of K.H. Ahmad Dahlan, assisted by Virtual Reality (VR), proved effective in increasing students' peace levels. Based on the analysis results, the increase in students' peace levels in the experimental and control groups can be seen in Table 2.

Table 2. Pretest and Posttest Results of the Experimental Group

No	Name	Experimental Group		Name	Control Group	
		Pre-test	Post-test		Pre-test	Post-test
1.	GCS	67	80	ADO	67	71
2.	FAY	69	82	APG	70	75
3.	AS	70	81	KAZ	70	71
4.	VGR	70	84	MSA	70	73
5.	AMZ	70	86	A	70	72
6.	MFR	72	79	AKF	71	74
7.	RD	72	80	MNA	72	74
8.	DTA	73	81	JAD	73	75
	Average	70	81,6		70	73

Table 2 shows that in the experimental group of eight students who received the treatment, there was a significant increase in the peace score. The average pretest score in this group was 70.00 and increased to 81.60 in the posttest. Meanwhile, in the control group, also consisting of eight students who did not receive the treatment, the increase in the peace score was very minimal. The average pretest score of 70.00 only increased to 73.00 in the posttest stage, thus not indicating a substantively significant change. This finding supports the hypothesis that the treatment was effective in increasing the peace of students in the experimental group compared to the control group that did not receive any intervention. A visual comparison between the two groups is presented in Figure 1.

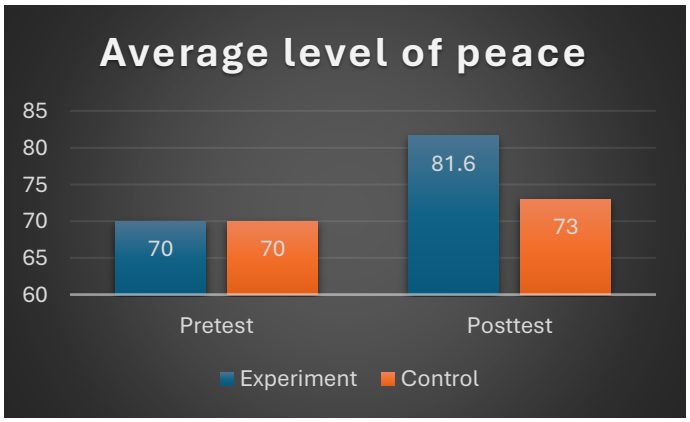


Figure 1. Pretest and Posttest Results of the Control and Experimental Groups

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Figure 1 displays a comparison of the pretest and posttest results between the experimental and control groups in the form of a bar chart. The blue color indicates the experimental group, while the orange color represents the control group. Based on the graph, it can be seen that both groups had the same pretest score, namely 70. However, in the posttest stage, a clear difference was apparent between the two groups. The experimental group showed a higher increase in score with an average value reaching 81.60, while the control group only experienced a small increase, reaching a score of 73.00. This visualization illustrates that the increase in peacefulness in the experimental group was more pronounced than in the control group. To ensure that this difference was statistically significant, further analysis was conducted using the Mann-Whitney U test, as shown in Table 3.

Table 3. Results of the Mann-Whitney U Test Analysis

Test Statistics	Coefficient
Mann- Whitney U	.000
Wilcoxon W	36.000
Z	-3.373
Asymp. Sig. (2-tailed)	.001
Exact Sig. [2*(1-tailed Sig.)]	.000b

Based on the "Statistical Test" output of the Mann-Whitney test shown in Table 3, the Asymp. Sig. (2-tailed) value of 0.001 and the Exact Sig. of 0.000 indicate that both are below the probability limit of 0.05, so the difference between the experimental and control groups did not occur by chance. The U value = 0.000 and the Z score = −3.373 indicate that the distribution of scores between the two groups differed significantly after the treatment was given, so the test decision states that "Ha is accepted". This difference is in line with the data in Table 2, where the experimental group experienced an average increase from 70 in the pretest to 81.6 in the posttest, while the control group only increased from 70 to 73. This difference in improvement confirms that the treatment had a much stronger impact on the experimental group, so that the overall analysis results indicate that the implemented intervention was effective in improving the achievements measured in the study.

3.2. Discussion

This study provides empirical evidence that VR-assisted psychoeducation based on the teachings of K.H. Ahmad Dahlan was associated with a significant improvement in students' peace compared with conventional school counseling. Students in the experimental group demonstrated a substantially greater increase in peace scores than those in the control group, indicating that the intervention effectively promoted students' psychological and social well-being. These findings suggest that integrating value-based psychoeducation with immersive learning technology offers added value beyond that achieved through conventional counseling practices. An important finding of this study is that improvements were observed across all dimensions of peace, namely self-harmony, social harmony, and harmony with the environment. Rather than influencing a single psychological domain, the intervention appeared to facilitate a more holistic developmental process. This pattern indicates that students not only acquired cognitive knowledge about peace but also developed emotional awareness and greater readiness to apply peaceful attitudes in their daily lives. Such findings support the view that meaningful learning occurs when knowledge is combined with direct experience and guided reflection.

One plausible explanation for these findings lies in the experiential nature of the intervention. Unlike conventional counseling, which primarily relies on verbal interaction, the intervention allowed students to engage with realistic situations through immersive virtual environments. These experiences were followed by structured reflection facilitated by the counselor, enabling students to critically interpret what they had observed and relate it to their own personal and social experiences. Consequently, learning was not limited to understanding concepts but extended to the internalization of peaceful attitudes through active participation. The present findings are consistent with previous studies demonstrating that psychoeducational interventions enhance empathy, emotional regulation, prosocial behaviour, and interpersonal relationships among adolescents (Matos et al., 2022; Saputra et al., 2021; Supriyanto et al., 2025). Similarly, immersive learning environments have been shown to increase learner engagement, motivation, and reflective thinking by providing authentic experiences that stimulate both cognitive and emotional processes (Hamilton et al., 2021; Lampropoulos & Kinshuk, 2024). While earlier studies generally examined psychoeducation and virtual reality independently, the present study demonstrates that integrating immersive technology with psychoeducation grounded in K.H. Ahmad Dahlan's teachings represents a promising approach for promoting peace within school guidance and counseling.

Nevertheless, the findings should be interpreted with caution. Because the intervention integrated several components simultaneously including value-based psychoeducation, immersive VR experiences, structured reflection, and counselor facilitation it is not possible to determine the relative contribution of each component to the observed improvement. The positive outcomes may therefore reflect the synergistic interaction among these elements rather than the independent effect of any single component. In addition, the novelty of VR may have increased students' curiosity, motivation, and engagement throughout the intervention, while the

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reflective discussions likely reinforced the transfer of learning from virtual experiences to everyday situations. Future experimental studies should isolate these components to clarify the mechanisms underlying the effectiveness of the intervention.

Another noteworthy finding is the relatively modest improvement observed in the control group. Although conventional counseling contributed to a slight increase in peace scores, the magnitude of change remained considerably lower than that of the experimental group. This difference suggests that conventional counseling continues to play an important role in supporting students' development but may be less effective in facilitating deep value internalization than interventions incorporating experiential learning and immersive technology. Rather than replacing existing counseling practices, VR-assisted psychoeducation should therefore be viewed as a complementary strategy capable of enriching guidance and counseling services in schools.

This study contributes to the growing body of literature on technology-assisted guidance and counseling by providing empirical evidence that local Islamic values can be effectively integrated with immersive digital learning. To the best of our knowledge, few previous studies have examined the integration of K.H. Ahmad Dahlan's peace values with virtual reality within school counseling interventions. Accordingly, the present findings extend existing research by demonstrating that culturally grounded, spiritually informed, and technology-supported psychoeducation can enhance students' peace while maintaining the relevance of guidance and counseling services in the digital era.

Several limitations should be acknowledged. The relatively small sample size and the inclusion of participants from a single vocational high school limit the generalizability of the findings. Moreover, the intervention was conducted over a relatively short period, preventing an evaluation of the long-term sustainability of its effects. Future studies should involve larger and more diverse samples, employ longitudinal designs, and compare VR-assisted psychoeducation with other technology-assisted counseling approaches. Such investigations would provide a clearer understanding of which intervention components contribute most substantially to improvements in students' peace.

3.3. Implications

Theoretically, this research shows that VR-based psychoeducation can be an innovative guidance and counseling service that is more engaging, interactive, and contextual for students. Using VR helps students stay more focused and involved in learning values, making counseling services more adaptable to current technology and the characteristics of today's digital generation. In this way, this approach has the potential to be used as an alternative strategy for developing students' peaceful character and psychological well-being in schools.

3.4. Limitations and Future Research

This study has several limitations. First, the sample size was relatively small, involving only 16 students from one vocational high school, thus limiting the generalizability of the results. Second, the intervention duration was relatively short, conducted in only five sessions, so the long-term sustainability of the intervention's effects cannot yet be fully determined. Third, this study focused primarily on quantitative results and did not fully explore students' subjective experiences during virtual reality-based psychoeducation.

Future research should involve a larger, more heterogeneous sample to increase the generalizability of the findings and use a longitudinal design to test the long-term sustainability of the intervention's effects. Furthermore, developing an integrative model that combines values-based psychoeducation with other counseling approaches is crucial for comparatively testing its effectiveness. A mixed-methods approach is also recommended to more deeply uncover the mechanisms of value internalization. Furthermore, experimental research could focus on examining the contribution of each value individually, as well as developing adaptive and contextual psychoeducation models supported by virtual reality to strengthen innovation in guidance and counseling services.

4. Conclusion

This study demonstrates that psychoeducation based on the teachings of K.H. Ahmad Dahlan supported by Virtual Reality (VR) technology is effective in enhancing students' peacefulness, as reflected in improvements in self-harmony, social harmony, and harmony with the environment. These findings indicate that integrating spiritual-humanistic values with immersive technology can serve as an effective approach for internalizing peace values among students. This study contributes to the development of Guidance and Counseling, particularly in the fields of prophetic counseling and peace education, by providing empirical evidence for the effectiveness of integrating K.H. Ahmad Dahlan's peace values with VR technology. Practically, the findings suggest that VR-assisted psychoeducation has the potential to become an innovative counseling intervention for promoting peaceful character development and students' psychological well-being. Future studies are recommended to involve larger and more diverse samples and employ longitudinal designs to examine the long-term sustainability of the intervention effects.

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Author Contributions

Salsa Puspita Dwi Djajuli: Conceptualization, Methodology, Software. Wahyu Nanda Eka Saputra: Data curation, Writing - Original draft preparation. Hardi Santosa: Visualization, Investigation. Irvan Budhi Handaka: Supervision. Rohmatus Naini: Software, Validation. All authors have read and approved the final manuscript.

Funding

No funding support was received.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/ or publication of this article.

Ethics and Consent Declarations

This research provides a clear justification in accordance with applicable regulations or institutional guidelines. Additionally, state whether consent for publication was obtained where relevant, particularly if any identifiable information is included.

Data Availability

The datasets generated during and/ or analyzed during the current study are available from the corresponding author on reasonable request.

Declaration on AI Use

The authors declare that no artificial intelligence (AI) or AI-assisted tools were used in the preparation of this manuscript.

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ISSN: 2797-3174