Exploring Students' Attitude and Motivation Toward GRAMBOT: A Gamified Language Learning Tool

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ABSTRACT

Gamification is an emerging technology that integrates elements of games in non-game situations to complete tasks with rewards and other incentives. It has become a favourable approach in language learning and has been adopted widely across educational levels in ESL context. However, studies have shown that gamification integration in ESL classrooms is not without challenges, especially in terms of learners' responses towards technology adoption. Hence, this quantitative

method study identifies higher education students perceived attitudes and motivation using GRAMBOT as a digital educational tool for English language learning. Data were collected using google Form through a structured questionnaire and open-ended questions, assessing students' cognitive, affective and behavioural attitudes, as well as motivation. This study employed a non-experimental research design with random sampling of participants. 147 students responded to the survey and data were analysed using descriptive statistical methods particularly mean and standard deviation. The findings reveal that GRAMBOT significantly enhances students' cognitive, affective and behavioural attitudes, while boosting their motivation toward English language learning. These outcomes highlight how engaging features in GRAMBOT can encourage students' motivation and engagement in language learning.

Keywords: grammar, gamification, ESL, students' attitude, students' motivation

INTRODUCTION

As technology plays a crucial role in creating more immersive and engaging learning experiences, language education has undergone substantial transformation to align with the needs of contemporary students (Evurulobi et al., 2024). Digital technologies, interactive platforms, and multimedia resources that improve students' involvement now supplement conventional techniques depending on textbooks and teacher-centred learning (Angeliki, 2024; Mehboob et al., 2024). Teachers use smartboards, language learning apps, and online collaborative tools to include technology into their lessons so that students may practise language in relevant and dynamic ways. In Malaysia, Mahmud et al. (2023) reported that students responded positively to the use of technology in language learning, particularly in improving noun comprehension. Furthermore, giving students genuine language experiences and enabling them to acquire communication skills in real-world settings are technologies such as virtual reality (VR), augmented reality (AR), and artificial intelligence (AI) (Avan & Kalenderoğlu, 2024; Kavaklı et al., 2024).

Among the numerous technology adaptations the teachers practise, gamification is a technique that integrates elements of games in non-game situations in order to complete tasks with rewards and other incentives (Anuradhani et al., 2024; Sanchez et al., 2019). It has become an effective approach in language learning, turning traditional lessons into more interactive experiences. By incorporating game-like features such as points, badges, leaderboards, and rewards, this method helps increase student motivation and enhance positive attitude (Dehghanzadeh et al., 2019; Shortt et al., 2021; Zhang & Hasim, 2023).

PROBLEM STATEMENT

Although gamification has been highly implemented in educational contexts, but research on students' motivation and attitudes toward gamified tools is scarce. Studies on gamified platforms like Kahoot! and Quizizz primarily assess students' immediate reactions rather than their long-term attitudes and motivation (Pham, 2022; Phuong, 2020; Nilubol, 2023). Another gap in the literature is the regional focus of studies, which are often conducted in specific countries, such as Bosnia and Herzegovina, the UAE, China, Thailand, and Vietnam, making it difficult to generalise findings across diverse educational contexts (Huseinović, 2023; Alawadhi & Abu-Ayyash, 2021; Phuong, 2020). To add on, little is known about how intrinsic and extrinsic motivation interact in

gamified learning, as some research suggests that excessive reliance on external rewards may reduce intrinsic motivation over time (Shen et al., 2024; Boudadi & Gutiérrez-Cólon, 2020).

Addressing these gaps, this study aims to investigate ESL learners' attitude and motivation toward using a game-based language learning app, GRAMBOT, to identify how gamification can be effectively applied in higher education in the Malaysian context.

The research questions in this study are:

● What are the levels of the perceived cognitive, affective, and behavioral attitudes of ESL learners while using GRAMBOT in higher education?

● What are the levels of perceived motivation among ESL learners while using GRAMBOT in higher education?

LITERATURE REVIEW

GRAMBOT

GRAMBOT is a quiz-based application that was designed by integrating the elements of grammar topics and motivation in one platform. Developed by utilising Canvasite and Quizizz, GRAMBOT has received positive feedback among ESL teachers and learners during a pilot test involving 147 participants in a primary school in Malaysia.

GRAMBOT was developed with the objectives to centralise essential English grammar components into one accessible platform and to enhance students' motivation in learning the language through a user-friendly and interactive learning experience. Through the use of gamified features such as quizzes, instant feedback, and progress tracking, the platform not only reinforces grammar knowledge but also reduces learners' anxiety by providing grammar practice in an enjoyable and less intimidating manner. Furthermore, positive reinforcement through rewards and discussion also encourages continued learning which makes GRAMBOT a supportive tool for independent learning and classroom use.

Additionally, the integration of grammar instruction and gamification encourages a more effective way to learning the language. This was proven with a study by Ramadhanti and Pratiwi (2025) where they investigated the effectiveness of Scrambled Games in enhancing students' grammar proficiency and it was found that the game offered a valuable alternative to conventional grammar teaching, while encouraging active participation and boosting students' motivation. Another study by Koç and Sütçü (2023) revealed that the use of Kahoot! for grammar instruction led to significantly better performance among the experimental group than the control group, who relied on content-based language learning.
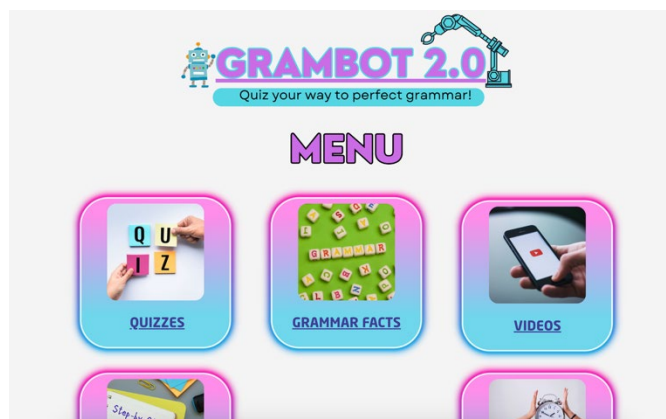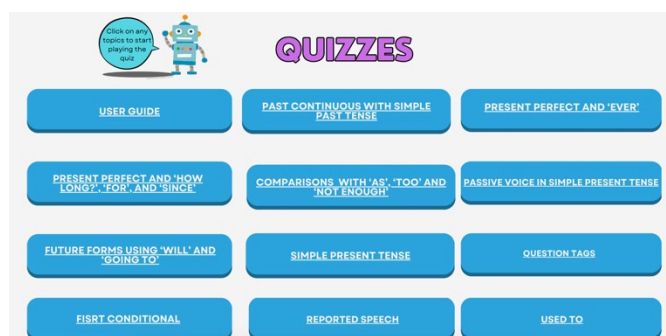
Figure 1. Main page of GRAMBOT

Figure 2. Quizzes page

Figure 3. Grammar facts page

Figure 4. Quizziz game

Gamification in Language Learning

Gamification is gaining momentum in Asian educational settings because of its potential to enhance student motivation, engagement, and learning achievement. Studies show that gamification has a significant positive impact on academic performance, particularly when integrated through platforms like Kahoot and gamified mobile applications for language learning (Diaz & Estoque-Loñez, 2024; Gao & Pan, 2023). These tools are most effective when they incorporate multimodal content, social interaction, and meaningful practice. In higher education, gamification helps address passive learning habits by promoting active participation and improving classroom dynamics (Hidayat, 2021; Kraus et al., 2020). Successful gamification also requires thoughtful system design, access to digital resources, and adaptation to large class environments (Hidayat, 2021; Supasa et al., 2024). To ensure effectiveness, gamification strategies must be contextually adapted, technologically supported, and pedagogically aligned with local norms and educational goals (Gao & Pan, 2023; Supasa et al., 2024; Kraus et al., 2020).

Due to its effectiveness, gamification is widely viewed positively in ESL learning. Learners often describe gamified lessons as enjoyable and stimulating, which increases their willingness to participate and practice English skills (Dehghanzadeh et al., 2019; Zhang & Hasim, 2023; Annamalai et al., 2022; Chan & Lo, 2024; Hernández-Prados et al., 2021; Hashim et al., 2025; La Cruz et al., 2023; Nathan & Hashim, 2023). A systematic review by Chan and Lo (2024) analysed 30 empirical studies from 2010 to 2022, revealing a consistent trend: students generally exhibit positive attitudes towards gamified ESL learning environments. The data suggest strong evidence of the learners' vantage point in regard to gamification.

Cognitive, Affective and Behavioural Attitudes in Gamification

Over the past decade, the integration of gamification into ESL instruction has garnered significant attention, primarily due to its potential to enhance learners' attitudes in the aspects of cognitive, affective, and behavioural. Cognitively, it enhances critical thinking, problem-solving, and language retention, as supported by studies on vocabulary and grammar acquisition through gamified activities (Liu & Chu, 2010; Hung, 2017). Affective outcomes include reduced language anxiety and increase intrinsic motivation and enjoyment, especially in supportive and interactive gamified environments (Almusharraf, 2021; Ruiz et al., 2024). Behaviourally, gamification promotes engagement, collaboration, and persistence, with elements like points, badges, and

narratives proving particularly effective (Sailer & Homner, 2019; Vermeir et al., 2020; Antonaci et al., 2019). However, researchers caution that long-term success relies on thoughtful, context-sensitive design, as poorly implemented gamification may reduce its effectiveness over time (Kim & Castelli, 2021; Bassanelli et al., 2022).

Motivation in Gamified Learning Environments

In the last decade, gamification has gained widespread attention in educational research, particularly for its potential to enhance students' motivation. To begin with, gamified learning involves using game elements like points and badges in education to enhance motivation by offering clear goals and instant feedback (Hamari et al., 2014). Research on gamification in education highlights its potential to enhance learners' motivation, particularly when game elements are meaningfully integrated. Deterding (2015) emphasises that aligning game mechanics with learners' personal goals promotes sustained engagement, while Su and Cheng (2015) found that students in gamified language learning environments reported higher motivation than those in traditional settings. Muntean (2020) supports this by noting that gamified systems foster autonomy and competence—core principles of Self-Determination Theory. Similarly, Zainuddin et al. (2020) demonstrated that mobile gamification improves not only motivation but also learner satisfaction and academic performance. However, the effectiveness of gamification is not universal. Hanus and Fox (2015) caution that poorly designed systems overly reliant on external rewards can diminish long-term motivation. Moreover, cultural differences and individual learning preferences significantly influence how gamification is perceived and whether it motivates learners effectively. As such, successful gamification requires thoughtful, personalized design that aligns with learners' goals and contextual factors to achieve meaningful and lasting educational outcomes.

METHODOLOGY

Study Design

The current study employed a quantitative research design to assess the effectiveness and usability of GRAMBOT among ESL university students. A survey-based approach was used to collect data on students' cognitive attitudes and perceptions regarding GRAMBOT's impact on their language learning. Hence, the research started with quantitative analysis and conclude with feedback from students to get a deep understanding regarding GRAMBOT application in ESL classrooms at a public university in Malaysia.

Instruments

The researchers adapted a questionnaire designed by Tran et al. (2023) who investigated the utilisation of Edtech apps in English language learning (ELL) from the learners' perspectives, which was almost similar to the aim of the current study. During the development of the questionnaire, several items were paraphrased to suit the students' context for better understanding. The validity of the items was examined by researchers in the ELT field with 10 years of experience, and they agreed all items were valid in terms of their construct and content. Lastly, the reliability of the instrument was analysed using Cronbach's Alpha Analysis via SPSS,

and the results showed it is reliable (α >0.7). GRAMBOT as a whole had an overall Cronbach alpha coefficient of 0.73 to 0.79.

A structured questionnaire was designed and administered using Google Form to collect responses from students. The questionnaire included Likert-scale items (from a scale from 1 to 5) measuring students' agreement on GRAMBOT's effectiveness. Four sections in the questionnaire were designed to evaluate students' cognitive, affective, behavioural and motivation. To complement the quantitative data, one section was included for open-ended questions that allowed students to provide feedback.

Participants

A total of 147 undergraduate students participated in the study. The majority of 144 students aged between 17 to 19 years old while the remaining were 20 to 25 years old. Majority of the students were from Part 1 with 107 students, while the rest were from Part 2 and Part 3. This study employed a non-experimental research design with random sampling of participants. The participants were selected based on the availability of sampling and their participation was by their own consent.

The participants consisted of Part 1, 2, and 3 diploma students who had undertaken diploma English courses such as LCC111, LCC112, and LCC113. These courses, which are designed in accordance with the CEFR framework and emphasise grammar components, were deemed relevant as they align with the study's focus on exploring gamification in grammar learning.

Data Analysis

The collected feedback was analysed using descriptive statistical methods, which included Mean and Standard Deviation. This method was used to measure students' attitudes and motivation toward using GRAMBOT. The analysis focused on four key components including, cognitive attitude, affective attitude, behavioural attitude and perceived motivation.

RESULTS AND DISCUSSION

Levels of Perceived Cognitive Attitude while Using GRAMBOT App among Diploma Students

Table 1. Students' Cognitive Attitude Towards Using GRAMBOT App

Cognitive Attitude	Mean	Std. Deviation
1. Learning English with GRAMBOT helps me to enrich my vocabulary.	4.27	0.89
2. Learning English with GRAMBOT helps me to improve my English grammar.	4.29	0.80
3. Learning English with GRAMBOT helps me to exchange English knowledge in speaking class.	4.18	0.84
4. Learning English with GRAMBOT helps me to improve my listening skills.	4.08	0.92

5. Learning English with GRAMBOT helps me to improve my writing skills.	4.13	0.83
6. Learning English with GRAMBOT helps me to pronounce words correctly.	4.21	0.83
7. Learning English with GRAMBOT helps me to improve my reading skills.	4.34	0.80

Based on the results in Table 1, it can be seen that students strongly agree that GRAMBOT helps them to enrich their vocabulary (M=4.27, SD=0.89), improve their grammar (M=4.29, SD=0.80), exchange English knowledge (communicating and exchanging ideas) in speaking class (M=4.18, SD=0.84), improve listening skills (M=4.08, SD=0.92), improve writing skills (M=4.13, SD=0.83), pronounce words correctly (M=4.21, SD=0.83), and improve reading skills (M=4.34, SD=0.80). The high mean results signified GRAMBOT to have positive cognitive attitudes in students' language learning. Based on the result, GRAMBOT has positively helped in improving their grammatical comprehension (α=0.80). This is in line with Waluyo et al. (2023) where they found that learners who utilised gamified instructional tools exhibit better performance in grammar. Highest reliability of GRAMBOT in improving students' listening skills is shown statistically significant (SD=0.92). This indicates that GRAMBOT offers a promising gamified learning tool for enhancing listening skill among students as agreed by Mohammed et al. (2023). Additionally, a study by Al-Sabbagh (2023) also revealed that gamification in language learning helped to improve students' writing by 73.3%, reading skills by 80%, and aided in vocabulary acquisition.

Furthermore, the open-ended responses also reflect positive reactions towards the impacts of GRAMBOT in English language learning. Most of the responses indicate how GRAMBOT has helped to improve their understanding of grammar, as shown below:

Using GRAMBOT has helped me understand grammar rules better. It shows me my mistakes and teaches me how to fix them, which makes my coursework and communication clearer (S14)

Whenever I choose an incorrect answer, GRAMBOT will show me the correct answer and that really helps a lot so that I won't make another mistake in the future (S27)

GRAMBOT has detected the wrong grammar used and it helped us to be more confident in daily communication (S60)

GRAMBOT has been a valuable tool for enhancing my grammar skills. It provides real time feedback and suggestions for improvement, which I have integrated into coursework and daily communication (S70)

Levels of Perceived Affective Attitudes while Using GRAMBOT App among Diploma Students

Table 2. Students' Affective Attitude Towards Using GRAMBOT App

Affective Attitude	Mean	Standard Deviation
1. I enjoy learning English with GRAMBOT because they are easy to use.	4.47	0.73
2. I enjoy learning English with GRAMBOT because they are convenient.	4.41	0.77
3. I feel more relaxed to engage in classroom activities when lecturers use GRAMBOT.	4.38	0.76
4. I feel confident in learning English with GRAMBOT.	4.24	0.79
5. Using GRAMBOT to test my English language is less stressful.	4.29	0.75
6. I feel more confident doing tests with GRAMBOT.	4.30	0.76

Results in Table 2 highlight that students strongly agree that they enjoy learning English using GRAMBOT because it is easy to use (M=4.47, SD=0.73), and convenient (M=4.41, SD=0.77). Moreover, students also report feeling more relaxed engaging in classroom activity (M=4.38, SD=0.76) when lecturers incorporate GRAMBOT, feeling confident in learning English using GRAMBOT (M=4.24, SD=0.79), more confident doing tests with GRAMBOT (M=4.30, SD=0.76), and students also indicate that it is less stressful to do English tests using GRAMBOT (M=4.29, SD=0.75). From the analysis, GRAMBOT is seen as reliable in helping students to feel confident in learning English (SD=0.79). This is in line with Qiao's (2024) research where gamification in language learning has a positive influence in learners' confidence. Not only that, Pham (2022) also agreed that gamified learning tools can make the learning experience more engaging for students and encourage them to spend more time interacting with the exercises.

Moreover, the responses also provide additional support for this finding, highlighting students' positive affective attitudes towards GRAMBOT. The responses demonstrate that GRAMBOT is enjoyable and user-friendly, with several highlighting that:

It feels like having a personal tutor available at all times. The tool is user-friendly, provides consistent feedback, and adapts to my learning needs (S39)

4 out of 5. Easy to use in both physical or online class (S50)

GRAMBOT is a convenient platform that allows me to practice and learn English anytime, anywhere, while keeping learning engaging compared to traditional methods like reading books (S54)

It's fun and easy to learn and understand (S62)

As seen from the responses above, students clearly express their emotions that GRAMBOT is an effective and accessible learning tool that enhances students' learning experience. Besides, its convenience also drives students to be more confident to learn English better.

Levels of Perceived Behavioural Attitudes while Using GRAMBOT App among Diploma Students

Table 3. Students' Behavioural Attitudes Towards Using GRAMBOT App

Behavioural Attitude	Mean	Standard Deviation
1. I would like to continue learning English with GRAMBOT.	4.31	0.78
2. I would like to interact with my classmates more via GRAMBOT.	4.16	0.84
3. I would like to introduce GRAMBOT to my friends.	4.25	0.79
4. I would like my lecturer to use more GRAMBOT in the class.	4.36	0.77
5. I would like to take part in games which lecturers create with GRAMBOT.	4.30	0.83

Table 3 displays the results of students' behavioural attitudes when using the app, showing that students strongly agree that they would like to continue learning English with GRAMBOT (M=4.31, SD=0.78), interact more with classmates via GRAMBOT (M=4.16, SD=0.84), and introduce GRAMBOT to friends (M=4.25, SD=0.79). In addition, they indicate that they would like their lecturers to use GRAMBOT more often in class (M=4.36, SD=0.77), and they also express an interest to participate in games created by lecturers using GRAMBOT (M=4.30, SD=0.83). Interestingly, the increased eagerness of students to interact with classmates through GRAMBOT highlights the app's perceived reliability and effectiveness in supporting their language learning. This is consistent with Tatlı et al. (2023) who found that game-based learning tools enhanced students' participation, curiosity and desire to succeed while making the learning process enjoyable.

In addition, the responses also suggest that students exhibit a positive behavioural attitude towards using GRAMBOT. They mention that GRAMBOT inspires them to enhance their English skills and enables interaction with their educator and classmates, as shown below:

GRAMBOT makes me to learn more about English language (S24)

It's quite fun, because I can interact with my lecturer and friends by using this GRAMBOT (S132)

I would like to do a lot of practice again (S142)

The students agreed GRAMBOT required them to be curious about the English language while they were experiencing the games. On the other hand, the quizzes were fun and enhanced engagement among lecturers and their friends. The students anticipated having more practices after

playing GRAMBOT. This evidence portrays the effectiveness of GRAMBOT in instilling positive attitudes towards grammar learning.

Levels of Perceived Motivation while Using GRAMBOT App among Diploma Students

Table 4. Students' Perceived Motivation in Using GRAMBOT

Motivation	Mean	Standard Deviation
1. GRAMBOT motivates me to learn English because it is enjoyable.	4.32	0.76
2. I am interested in learning English by using GRAMBOT.	4.34	0.78
3. GRAMBOT allows me to practise better by playing games.	4.29	0.82
4. I can work harder whenever I use GRAMBOT to study.	4.20	0.82
5. I feel great after using GRAMBOT because they provide many forms of non-judgemental feedback.	4.31	0.79

Results in Table 4 indicate that students strongly agree that GRAMBOT is an enjoyable platform to learn English (M=4.32, SD=0.76), and the use of GRAMBOT also helps to improve student's interest in learning English (M=4.34, SD=0.78). Moreover, GRAMBOT also makes it easier for students to practice through some interesting and engaging games (M=4.29, SD=0.82), motivates them to study the language harder (M=4.20, SD=0.82), and they feel more confident to improve their English mastery through the unprejudiced feedback provided by GRAMBOT (M=4.31, SD=0.79). This aligns with findings by Zainudin and Zulkiply (2023) where students displayed strong motivation and cognitive involvement when using a gamified learning tool. Besides, findings by Fitria (2022) demonstrated that integrating gamification into the learning process positively influences students' motivation levels and enhances their engagement throughout teaching and learning activities. Moreover, the instant and personalised feedback by GRAMBOT also plays a crucial role in enhancing students' motivation. This is supported by Che Ku Mohd et al. (2023) where they highlighted that real time progress allows students to promptly recognise areas for improvement and experience a sense of achievement upon tasks completion, thereby fostering self-efficacy which is an essential driver for motivation.

In addition, the responses also suggest positive outputs from students after using the app. It has been discovered that GRAMBOT aids students to be more motivated to learn English and at the same time, the personalised and instant feedback makes it more convenient and inspire them to improve their English mastery, as can be seen below:

GRAMBOT makes learning fun and interactive by providing instant feedback, which encourages me to practice more often. (S9)

To me GRAMBOT is very convenient and it is easy to use. So I always feel more motivated to learn English because it is fun. (S63)

Grambot has made learning English feel more engaging and approachable by providing instant feedback and personalized suggestions. (S80)

The interactive games in GRAMBOT have made learning fun and engaging. They turn practicing English into an enjoyable activity, motivating me to improve my skills while competing with myself to achieve better scores. (S90)

The excerpts above highlight that the use of GRAMBOT is highly effective in influencing students' motivation to learn the English language by making the process of learning more fun, interactive, and user-friendly. In addition, the instant and personalised feedback also helps students to feel more confident and enthusiastic in improving their English skills.

In general, the quantitative findings of the study display that students strongly agreed that GRAMBOT helps to improve their cognitive, affective, and behavioral attitudes in English language learning, which aligns with Tran et al. (2023). On top of that, the responses also suggest that students show positive attitudes towards the use of the app. A study by Huseinović (2023) revealed that most respondents demonstrate positive attitudes and strong motivation after using instructional tools.

Additionally, students also express strong agreement that GRAMBOT enhances their motivation in learning the English language. Hence, it is clear that employing a gamified language learning tool such as GRAMBOT is able to increase students' attitudes and motivation in learning English. As stated by Thiagarajah et al. (2022), online games are a great teaching tool that offer classroom enjoyment, assistance with topic investigation, and positive energy that seems to be converted into motivation and a greater sense of purpose. In fact, gamification applications are considered crucial for students as they encourage critical thinking and foster a competitive environment (Segaran & Harwati, 2022).

CONCLUSION AND RECOMMENDATION

The findings indicate that students have highly positive attitudes toward using GRAMBOT, with high mean scores across cognitive, affective, and behavioural domains, reflecting its effectiveness, accessibility, and motivational impact on English language learning. Similarly, the responses support these results, highlighting students' appreciation for GRAMBOT's interactive games, instant personalised feedback, and user-friendly design, which enhance their engagement, confidence, and enjoyment in learning English.

In conclusion, the evidence suggests that GRAMBOT holds a significant potential to be implemented as a digital learning tool in ESL classrooms. Its ability to merge traditional learning contents with engaging, user-centred features makes it a powerful tool that is able to transform the English learning process into a more interactive, motivating, and effective learning experience. For future research on language learning gamification, it is suggested that larger and more diverse sample of students across different educational levels to be examined to validate the generalisability of these findings. Besides, exploring teachers' perspectives on language learning gamification may also provide a wider understanding of its role in the classroom.

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Declaration of Generative AI and AI-assisted Technologies in the Writing Process

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Conflict of Interest

The authors have no conflicts of interest to declare.

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The authors confirm contribution to the paper as follows: study conception and design: Aisyah Nazamud-din; data collection: Nur Farah Fadhliah Mahmud, Siti Hafizah Ambi; analysis and interpretation of results: Noor Ain Saufi. All authors reviewed the results and approved the final version of the manuscript.