

Original Article

Audiovisual Education Techniques on Mothers' Psychomotor Abilities in First Aid for Febrile Seizures in Toddlers

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ABSTRACT

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Background: One of the health issues that frequently affect infants is febrile seizures, which are brought on by a fever without any cerebral infection. This could cause death, paralysis, or even damage to the brain. This study aimed to analyze the effect of audio-visual techniques on the psychomotor abilities of mothers in providing first aid for simple febrile seizures in toddlers.

Methods: The research design was a pre-experiment, a one-group pretest, and a post-test with a population of 90 mothers and a sample of 30 mothers with toddlers obtained by the purposive sampling technique. The inclusion criteria were mothers who were willing to be respondents, mothers with healthy toddlers, and mothers over 18 years of age. The pre-test was carried out before the intervention, and the intervention was given twice in one week with a duration of 25–30 minutes. A post-test was then carried out.

Results: The Wilcoxon signed-rank test was used for statistical analysis ($\alpha = 0.05$). The results of the study were obtained before the intervention; all respondents had psychomotor abilities in the lower category, and after the intervention, most of the respondents' psychomotor skills were in the higher category. Statistical results obtained a p-value of 0.000 ($\alpha = 0.05$), which means that there was an effect of audiovisual education techniques on the psychomotor ability of the mother in first aid for simple febrile seizures.

Conclusion: Audiovisual education techniques could stimulate the two senses of sight and hearing simultaneously, so that mothers were more focused on the material provided and the material was easier to accept, especially for psychomotor competence. Audiovisual techniques should be used as an alternative learning method for ordinary people because they are more effective in improving psychomotor abilities.

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Introduction

The toddler years are an essential period or golden age, where children between the ages of 6 months and five years are the age of growth and development. Children under the age of 6 tend to be more sensitive to the risk of danger from the

environment where they live and their surroundings because the immune system is not yet fully formed. This causes toddlers to be more easily infected with various kinds of diseases (Padila et al., 2019). One of the health problems that often occurs in toddlers is febrile seizures. Febrile seizures



are the result of fever stimulation that occurs without the intracranial infection process usually experienced by toddlers, which occurs due to an increase in body temperature.

Mother's ability for toddlers with febrile seizures (Khayati et al., 2019). In order to facilitate the delivery of IEC, it can be done through Seizures occur if the fever is caused by an infection affecting extracranial tissue, such as tonsillitis, acute otitis media, or bronchitis. Apart from high fever, seizures can occur due to inflammation of the meninges of the brain, tumors, trauma or lumps on the head, and electrolyte disturbances in the body (Riyadi & Sukarmin, 2013). A febrile seizure itself is an emergency condition that requires first treatment. This event will be very dangerous if it lasts more than 15 minutes and can cause brain and nerve damage, epilepsy, paralysis, death, and even mental retardation. However, with this frequent phenomenon, the majority of mothers are not aware of the dangers arising from febrile convulsions, so the psychomotor skills they possess in first aid for febrile convulsions are still very minimal.

According to the World Health Organization (WHO), in 2018, it was estimated that the number of children experiencing febrile seizures in the world was more than 21.65 million, and more than 216 thousand children died. Meanwhile, based on the data and information center (PUSDATIN) in 2019, the incidence of children dying due to febrile seizures in Indonesia was recorded at 7.3%. In East Java alone, the prevalence of febrile seizures in 2018–2019 was around 264 people (SKDI, 2019). Apart from that, according to data from the Nganjuk Health Service in 2018, the number of children who experienced febrile seizures was 1565.

Based on a preliminary study conducted by researchers on October 18,

2022, in Sumberurip Village, Berbek District, Nganjuk Regency by conducting interviews with 10 mothers who have children under five, From the results of the interviews, the following the following data was obtained: 3 mothers said that first aid for febrile seizures in children was by loosening clothes or changing clothes to thinner ones to reduce the child's fever, 5 mothers said that mothers were only panicked and confused because of the lack of information and knowledge they had, and 2 The mother said that first aid for febrile seizures in children is to put something (cloth, spoon) into the child's mouth so that the child's tongue is not bitten and immediately take the child to the nearest doctor. This indicates that the majority of mothers already know how to provide first aid in the event of a febrile seizure. However, they don't know how to handle first aid correctly and appropriately.

Febrile seizures that occur without proper and quick treatment and occur repeatedly can cause serious complications for the development of the toddler's brain, plus the risk of other dangers, namely choking. Long-term febrile seizures have the impact of causing physical disabilities, mental disabilities, behavioral disorders, and even death in children (Wahyudi et al., 2019). Apart from that, several diseases can also arise due to febrile seizures, including cerebral palsy (cerebral paralysis), motoric delay (slow motor or movement), speech delay (slow speaking), and cognitive delay (slow cognitive) (Nurwijayanti, 2020). Febrile seizures that occur repeatedly and for a long time can increase the risk of epilepsy by 57%, which results in damage to the nervous system, which causes toddlers to experience behavioral and intelligence disorders, and children tend to have relatively lower non-verbal intelligence than toddlers in general. So in this case, appropriate first treatment for toddlers

with febrile seizures is really needed (Nurwijayanti, 2020).

The mother's inability to handle seizures can be influenced by several factors, such as lack of knowledge, excessive anxiety, worry, and fear about the toddler's condition. For this reason, prevention efforts are needed by providing education about first aid for febrile seizures in toddlers. The ability of parents, especially mothers, to provide first aid for febrile seizures is very important. Handling seizures in children, of course, really depends on the role of parents, especially mothers. Proper treatment of fever in children can prevent febrile seizures. According to IDAI (2016), the first treatment that mothers can do when a toddler has a fever is to stay calm and don't panic, try to lower the body temperature, tilt the head, place it on a flat place, keep it away from dangerous objects, don't take actions that could injure toddler (holding/restraining the toddler firmly), apart from that, the important action for parents or mothers to take is to maintain the child's airway smoothly (don't put any objects in the mouth and don't put food or medicine in the child's mouth). However, in handling febrile seizures, there are several mistakes made by mothers due to their lack of skills regarding handling febrile seizures, for example, not loosening the toddler's clothes, putting something in the mouth, not measuring body temperature, not recording the duration of the seizure, and giving rectal diazepam (Resti et al., 2020).

Health education needs to be provided to increase maternal knowledge, namely through communication, information, and education (KIE) programs. Having health education for parents can help improve several methods and media, one of which is audiovisual techniques. Audiovisual is a medium for seeing and hearing aids to stimulate the senses of the eye and hearing

in the process of delivering teaching materials, so that the education provided can last longer (Iflacha, 2022). This is confirmed by research (Mardhiah, Riyanti, and Marlina 2020) that the audiovisual media used can stimulate two senses, namely the eyes and ears, simultaneously, so that respondents focus more on the material provided. Audiovisual media in the form of videos can be used for education regarding the definition of febrile seizures, signs and symptoms of febrile seizures, complications caused by febrile seizures, and how to prevent them. By using audiovisual educational techniques in video form, it is hoped that mothers will have the right skills to provide first aid when a toddler has a fever so that repeated febrile seizures do not occur.

Providing information to mothers about the effects of febrile seizures is very important. The mother's ignorance will cause anxiety, which, when the individual feels anxious, will tend to be protective, which can hinder the development of the toddler. Health education has proven effective in increasing mothers' knowledge, attitudes, and abilities regarding preventing febrile seizures in toddlers. The use of media is not the main thing in health promotion, but health promotion cannot be separated from the use of media. Several studies by experts state that the sense of sight (eyes) conveys the most knowledge to the brain, namely 75%–87%. Knowledge transmitted by other senses is only 13%–25%. Thus, if combined, more knowledge will be absorbed (Notoatmodjo, 2018). This is supported by Silberman's opinion in Prastowo (2012): using visual media in learning can increase memory in the brain from 14% to 38%. So researchers took the initiative to use audiovisual learning methods to provide education to mothers about first aid for febrile seizures in toddlers.

Based on the description above, researchers are interested in conducting research on "The Effect of Audiovisual Education Techniques on Mothers' Psychomotor Abilities in First Aid for Febrile Seizures in Toddlers at Posyandu Berkah, Sumberurip Nganjuk Village."

Methods

Type of quantitative research. Pre-experimental research design One Group Pretest Posttest without a control group. The population is 88 mothers with toddlers

in Sumberurip village, Nganjuk. Purposeful sampling technique with a sample of 30 respondents. The independent variable is audiovisual education on first aid for simple febrile seizures, and the dependent variable is the mother's ability to provide first aid for simple febrile seizures. Pretest data was taken before the intervention, and posttest data was taken after giving two interventions. The research instrument was an observation sheet, and the data was analyzed using the Wilcoxon statistical test with a significance level of $\alpha = 0.05$.

Results

Table 1: Frequency distribution of respondents' characteristics at Posyandu Berkah, Sumberurip Nganjuk village

Variable	n	%
Mother's Age		
18-25 years old	11	36.7
25-35 years old	15	50
36-45 years old	4	13.3
Child's Age		
1-12 years old	4	13.3
13-24 years old	9	30
25-36 years old	10	33.3
37-47 years old	6	20
48-60 years old	1	3.3
Number of Children		
1 child	17	56.7
2 children	10	33.3
>3 children	3	10
Mother's Education		
Elementary School	9	30
Junior High School	10	33.3
Senior High School	10	33.3
University	1	3.3
Received information about Febrile Seizures		
Yes	10	36.7
Never	20	63.3
Source of Information		
Never received information	20	63.3
Handphone	1	3.3
Television	0	0
Radio	0	0



Others	9	30
History of Febrile Seizure		
Yes	10	33.3
No	20	66.7
Frequency of Febrile Seizure		
Never had a Seizure	20	66.7
1-3 times	6	20
4-6 times	3	10
7-9 times	1	3.3
First Aid		
Never had a Seizure	20	66.7
Handled by Mother	0	0
Doctor	0	0
Public Health Center	5	16.7
Hospital	5	16.7
Total	30	100

Based on table 1, it is found that half of the respondents (50%) are 25-35 years old, almost half of the children's age (33.3%) is 25-36 months, most of the respondents (56.7%) have 1 child, almost half of the respondents' education (33.3%) were middle and high school students, the majority of respondents (63.3%) had never received information about febrile seizures, almost half of the respondents (30%) who had received information about febrile seizures had received information from other sources such as health workers , neighbors, relatives, most of the respondents' children (66.7%) did not have a history of febrile convulsions, for respondents whose children had a history of febrile convulsions, a small portion (20%) experienced febrile convulsions with a frequency of 1-3 times, for respondents whose children had A small proportion (16.7%) experienced seizures; the help they received was taking them to the health center and hospital.

Table 2: Mother's psychomotor abilities in first aid for febrile seizures in toddlers before educational intervention with audio-visual techniques

Category	n	(%)
Good	0	0
Quite	0	0
Less	30	100
Total	30	100

Based on Table 2, it was found that all respondents (100%) had poor psychomotor abilities.

Table 3: Mother's psychomotor abilities in first aid for febrile seizures in toddlers after educational intervention with audio-visual techniques

Category	n	(%)
Good	6	20
Quite	17	56,7
Less	7	23,3
Total	30	100

Based on Table 3, it is found that the majority (56.7%) of respondents have sufficient abilities.



Table 4: Results of statistical analysis of the effect of education using audiovisual techniques on mothers' psychomotor abilities in providing first aid for febrile seizures in toddlers at Posyandu Berkah, Sumberurip Nganjuk village.

Category	Pre-Test		Post-test	
	n	(%)	N	(%)
Good	0	0	6	20
Quite	0	0	17	56,7
Less	30	100	7	23,3
Total	30	100	30	100
<i>Uji Wilcoxon</i>		<i>p-value 0.000<0.05</i>		

Based on table 4, the results of the Wilcoxon statistical test obtained a p-value of 0.000, where $p\text{-value} < \alpha$ (0.05), so H1 is accepted, so it can be concluded that there is an influence of education using audiovisual techniques on mothers' psychomotor abilities in first aid for febrile seizures in toddlers. at the Berkah posyandu in Sumberurip Nganjuk village.

Discussion

Based on the research results, it was found that before the intervention was given, all respondents had poor psychomotor skills in providing first aid for fever seizures in toddlers. This shows that all respondents do not know how to provide first aid for febrile seizures in toddlers.

Psychomotor abilities, or motor skills, are the ability to coordinate the work of motor nerves, which can be carried out by the central nervous system in a systematic way to do various things. (Heri Gunawan, 2014). Psychomotor abilities are the result of a synthesis of knowledge previously possessed by a person, so psychomotor abilities must be preceded by knowledge about the abilities to be measured. Based on the results above, mothers' psychomotor abilities in providing first aid for febrile seizures in toddlers are still in the poor category. This is because the majority of respondents never received information about febrile seizures and how to help them. The absence of information obtained by respondents means that respondents are not aware of the impact of febrile seizures and the importance of having first aid skills for febrile seizures.

Another factor that influences the respondent's ability is the mother's age.

Based on demographic data, it was found that half of the respondents were aged 25–35 years, which is the adult age range. According to Surmiyati et al. (2011), psychomotor abilities are influenced by internal factors, one of which is age. This is because age plays an important role in cognitive, affective, and psychomotor development. In adulthood, skills in more specific areas can be improved, and adulthood is the peak of psychomotor development. Knowledge of concepts and practice in carrying out an action are determinants of psychomotor abilities.

The child's age is also related to the mother's ability to provide first aid for febrile seizures. Based on general data, it was found that almost half of the respondents had children aged 25–36 months, at which age the incidence of febrile seizures had decreased. This is in accordance with epidemiological research by Chung (2014), which found that febrile seizures occur in 2–5% of toddlers aged six months to five years. And the peak, on average, occurs when the toddler is eighteen months old. This is due to the imperfect immaturity of the brain, so there is no balance between excitatory and inhibitory functions. From these data and theories, we can relate it to the mother's



psychomotor abilities because, because the majority of children are 25–36 months old, the incidence of febrile seizures is decreasing. So mothers do not have experience dealing with children who experience simple febrile seizures.

Apart from that, the number of children will also greatly influence the mother's psychomotor abilities. Based on the research results, it was found that the majority of respondents had one child; this condition would, of course, be closely related to the mother's psychomotor abilities. This is because by only having one child, the prevalence of febrile seizures is smaller, and the mother's experience in caring for children is still minimal, which is indirectly related to the mother's psychomotor abilities.

Another condition that is related to the mother's psychomotor abilities is information about febrile seizures. From general data, it was found that the majority of mothers had never received information about simple febrile seizures or how to provide first aid. This is in line with the pre-test results, which stated that all mothers had insufficient ability to carry out simple first aid procedures for febrile seizures in toddlers. So it is important for researchers to provide education to mothers about first aid for simple febrile seizures in toddlers.

Meanwhile, the frequency of febrile seizures that occur in toddlers is such that most of them never experience febrile seizures. Of course, this will be related to the mother's experience in providing first aid for simple febrile seizures. Because if the mother has never performed first aid for a febrile seizure, she will not know and be unable to provide first aid for a simple febrile seizure.

The next factor is maternal education. Based on demographic data, it was found that almost half of the respondents' education was middle school and high

school. Education plays an important role in psychomotor abilities. This is because the learning process obtained at school is able to shape a person's frame of mind and curiosity about something. Learning is an activity carried out by individuals to acquire abilities, knowledge, and behavior by processing information from teaching materials and methods used by information providers. If an individual has a good learning history, his cognitive, affective, and psychomotor abilities will increase. So it can be concluded that the higher a person's education, the higher their abilities (Rusdiyani, 2016).

A child's history of experiencing febrile seizures is also a factor that influences the mother's ability to provide first aid for febrile seizures. Based on general research data, it was found that the majority of respondent children had never experienced febrile seizures, so the majority of respondents had no experience dealing with cases of febrile seizures and did not even know how to provide first aid. Experience plays an important role in determining a person's psychomotor abilities. Experience provides direct learning to the individual who experiences it and is able to form a mindset and ability to solve a problem they experience (Trianto, 2017). Based on this theory, we can relate it to the results of measuring the mother's ability to provide first aid for febrile seizures in toddlers, which was still in the poor category before intervention was given because the majority of respondents had no experience of providing assistance for febrile seizures.

The final factor related to the mother's psychomotor ability in providing first aid for febrile seizures is the assistance provided by the mother when the child experiences a febrile seizure. Almost half of the respondents immediately took their children to the health center or hospital

when the child had a febrile seizure, so mothers did not have personal experience in providing first aid for simple febrile seizures.

Based on the research results, it was found that the majority of respondents had sufficient ability to provide first aid for febrile seizures in toddlers after being given intervention.

Psychomotor abilities, or motor skills, are the ability to coordinate the work of motor nerves, which can be carried out by the central nervous system in a systematic way to do various things. (Heri Gunawan, 2014). The psychomotor domain is a domain related to the ability to act or develop skills after a person receives and carries out certain learning experiences (Anas Sudijono, 2013). So it can be concluded that psychomotor abilities or skills, or motor skills, are the ability to act using muscles that have been coordinated by motor nerves to combine physical movements with cognitive or mental/psychic activities. With these activities, integrated coordination will be formed to complete tasks successfully and complete one's orders to receive certain learning experiences.

After receiving education using audio-visual techniques, there was an increase in the respondents' psychomotor abilities in providing first aid for toddler fever seizures. Audiovisual techniques, or audiovisual aids, are media that can be seen and heard and are useful in helping stimulate the senses of the eyes (vision) and ears during the process of receiving messages (Septian, 2019). Audiovisual techniques can be a supporting medium for conducting outreach because the information provided is concise and clear, interesting and easy for mothers to understand, and can also increase a person's knowledge and psychomotor abilities (Siregar, 2018).

The success of using audio-visual media to improve psychomotor abilities in respondents is proven by the research results; most of the respondents' abilities before providing education were in the poor category, increasing after providing education in the sufficient category. A small number of respondents were even able to achieve first aid skills for toddler fever seizures in the good category after providing education using audio-visual techniques. This is in line with research results that state that health education using audiovisuals is the best strategy for increasing mothers' psychomotor knowledge and abilities (Adam et al., 2019).

The factor related to the mother's psychomotor ability in providing assistance for simple febrile seizures is the mother's education. Based on demographic data, it was found that almost half of the respondents' education was middle school and high school. Education plays an important role in psychomotor abilities. This is because the learning process obtained at school is able to shape a person's frame of mind and curiosity about something. Learning is an activity carried out by individuals to acquire abilities, knowledge, and behavior by processing information from teaching materials and methods used by information providers. If an individual has a good learning history, his cognitive, affective, and psychomotor abilities will increase. So it can be concluded that the higher a person's education, the higher their abilities (Rusdiyani, 2016). Therefore, mothers' abilities have increased after receiving education about first aid for febrile seizures using audiovisual techniques.

Apart from education, the source of information about febrile seizures that mothers receive is also related to the mother's psychomotor abilities. From general data, it was found that almost half of

the respondents got information from other sources, such as health workers and leaflets, when receiving treatment at hospitals or health centers.

Several respondents whose children had a history of febrile seizures; almost half of the respondents' children experienced febrile seizures with a frequency of between 1-6 times. This is related to the mother's experience, which can directly influence the mother's ability to provide first aid for simple febrile seizures.

Nearly half of respondents whose children had experienced a simple febrile seizure immediately took their child to the health center or hospital when they experienced a seizure, without providing first aid independently. This condition is certainly related to the mother's abilities because the mother does not have experience providing first aid for febrile seizures independently. Based on the results of statistical analysis using the Wilcoxon test, $p\text{-value} = 0.000$, where $p\text{-value} < \alpha (0.05)$, H_1 is accepted, so it can be concluded that there is an influence of education using audiovisual techniques on mothers' psychomotor abilities in first aid for febrile seizures in toddlers. at the Berkah posyandu in Sumberurip Nganjuk village.

Audiovisual techniques are learning media or counseling media that provide important information to be conveyed. Audiovisual techniques contain elements of sound and images that can be seen through videos, films, etc. (Wea et al., 2015). Visual media has a relationship between image visualization and thoughts. Perceiving and thinking are indivisibly intertwined; this shows that seeing has a positive contribution to thinking. Meanwhile, thinking is the foundation for constructing knowledge. Several studies also reveal that a person can have a better memory through pictures than just words. Using images can

also make someone more focused, because images can focus attention. Images can influence the passion and emotions of readers; besides that, they also increase creativity.

The advantage of audiovisual techniques over other techniques is that they are easy and effective. The use of audiovisual media has various types, such as short films, videos, advertisements, animated videos, and graphic videos. This large selection of media can make it easier for participants and prevent them from getting bored with ordinary counseling, which is carried out using lecture techniques using posters and flipcharts. Various types of media available in audiovisual techniques are able to provide information in an interesting and concise manner (Hidayat, 2018).

Audiovisual techniques can stimulate two senses, namely the eyes and ears, simultaneously, so that mothers focus more on the material provided. Delivery through words alone is very less effective or has the lowest intensity. The use of audiovisual techniques is an example of one of the principles of the educational process. Audiovisual techniques are very helpful in conveying child health information to mothers so that the information can be conveyed more clearly and precisely (Garzon et al., 2019). Sirvana's opinion (2021) is that 75-87% of the information received by the eyes and ears can be channeled to the brain, and the rest comes from other senses; therefore, the stimulus provided by audiovisual media can be more effective. This is certainly better than relying on just one sense to obtain information.

Meanwhile, according to Arsyati (2019), providing health education using audiovisual media can be effective if done gradually and routinely. Consistency is very important to apply when studying.

Receiving large amounts of information at once has the potential to reduce focus, so even if the media used is effective, the information will not be received optimally. This also needs to be a concern for educators because educators also have an important role in being consistent with recipients of information.

The form of audiovisual media used by researchers is video. Video is an audiovisual medium that displays movement. This medium is increasingly popular among the public. There are various kinds of messages that can be conveyed through video, namely messages that are factual, fictitious, informative, educational, or instructional. In this study, the video provided was 7 minutes long, so respondents did not feel bored receiving the information provided. This educational technique using audiovisual media was proven to be effective in this study, where the respondent's ability to provide first aid for febrile seizures increased significantly from the poor category to the adequate and good categories. The success of this technique is certainly influenced by several factors related to psychomotor knowledge and abilities, one of which is the respondent's enthusiasm for receiving the information provided in two meetings.

Based on the results of data recapitulation, it was found that there was an increase in psychomotor abilities in respondents, and we can identify these results from the assessment items in the pre- and post-test observation results. In the pretest data, in assessment items 1, 2, 3, 4, 5, 6, and 7, it was found that all respondents (100%) did not know and were not able to carry out first aid measures, including respondents who still panicked when a febrile seizure occurred, were unable to keep dangerous objects away from around the toddler, have not loosened the toddler's clothes, have not

been able to tilt the toddler when having a seizure, have not been able to not put objects in the toddler's mouth, and have not been able to measure the toddler's body temperature. This condition experienced significant changes in the post-test data. In the post-test data, it was found that in assessment item 1, almost all respondents (90%) knew that when a seizure occurs, there is no need to panic but still cannot control their emotions well (they do it, but not quite right); in item 2, half of the respondents (50%) have been able to avoid dangerous objects during seizures well. Assessment item 3 found that the majority of respondents (53.33%) were able to loosen the toddler's clothes well. Assessment item 4 showed that the majority of respondents (56.67%) were able to tilt the toddler when having a seizure properly and correctly. Furthermore, in assessment item 8, significant results were obtained where almost all respondents (86.67%) were able to record the duration and form of seizures experienced by toddlers, and in assessment item 9, it showed that half of the respondents (50%) were able to carry toddlers who had seizures. Go to the nearest health facility properly and correctly. Based on this analysis, we can conclude that the audio-visual education method is able to improve mothers' ability to provide first aid for simple febrile seizures in toddlers.

Conclusion

Mothers' psychomotor abilities in first aid for febrile seizures in toddlers before being given education using audiovisual techniques showed that more than half of the respondents were in the poor category. The psychomotor abilities of mothers in first aid for febrile seizures in toddlers after being given education using audiovisual techniques showed that almost all respondents were in the sufficient category. There is an influence of audiovisual

educational techniques regarding maternal psychomotor abilities on the use of aids for simple febrile seizures in toddlers.

It is recommended for further research not to carry out post-tests with too long a gap between interventions so as not to affect the effectiveness of the audio-visual method, and also to increase the number of respondents so that the influence studied becomes stronger so that more mothers know how to provide first aid for febrile seizures.

Authors Contributions

Pria W.R. Girianto, and Dina Zakiiyatul Fuadah contributed to the design and implementation of the research, to the analysis of the results, and to the writing of the manuscript.

Conflicts of Interest

The authors certify that they have no affiliations with or involvement in any organization or entity with any financial or non-financial interest in the subject matter or materials discussed in this manuscript. This statement is signed by all the authors to indicate agreement that the above information is true and correct.

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