






Instructional materials availability and lecturers' task performance in Nigerian universities

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ABSTRACT

Purpose: This study examined the effects of educational resource accessibility on lecturers' task performance in public universities in Cross River State, Nigeria. It also explored the possibility of developing instructional resources with culturally relevant information to support creative teaching methods.

Design/Methodology/Approach: The study used a survey research method with a sample of 577 lecturers or tutors selected randomly from various departments of local public universities. Data was collected through a questionnaire and analyzed using a one-way analysis of variance and Fisher's least significant difference (LSD).

Findings: The analysis of the data showed that lecturers' and instructors' performance in terms of teaching, research and community work is significantly impacted by the availability of educational resources.

Conclusion: The effectiveness of lecturers' tasks is proportional to the calibre of instructional materials provided by their institutions. Lecturers with high levels of instructional resource availability outperformed those with moderate or low levels of resource availability.

Research Limitations/Future Research: The current study was limited to the general influence of instructional materials' availability on lecturers' task performance. Future researchers should focus on identifying local content areas for improvement and student-lecturers' collaboration in instructional resource design and fabrication.

Practical Implications: This study may serve as the impetus for university administrators to collaborate with sociologists, anthropologists and educational technologists in order to improve student-lecturer collaboration in the creation of culturally embedded instructional materials for better task performance from lecturers and increased student engagement in learning processes.

Contribution to the Literature: The findings of this study may provide literature for scholastic reviews and also become a policy-making tool for educational resource planners.

Keywords: Instructional materials (IM) and its categories, Instructional materials vs. instructional media, Lecturers' task performance, Local contents improvement of instructional resources, Variations between teaching aids (TAs) and Instructional materials (IM).

1. INTRODUCTION

A suitable environment and academic preparation are provided by universities to develop and disseminate knowledge for the acquisition of skills for employment and the efficiency of other human activities. The interaction between teachers and learners in classrooms or other suitable settings provides the optimum environment for the transfer and exchange of knowledge. The development of students' intellectual and associated faculties by providing them with knowledge developed through research in the teaching methods is an important role of

lecturers in universities. There are other tasks such as research and community service that is best performed when university management ensures the availability of instructional materials for use by the lecturers.

Tasks are analyses of specific components of the work lecturers perform in universities. According to [Archibong, David, Omoike, and Edet \(2010\)](#), lecturers' work in Nigeria is divided into three major tasks: teaching, research and community service. [Marsh and Hattie \(2002\)](#) identified teaching and research as the primary employment tasks of lecturers in modern institutions with administration and community service coming in second. Additionally, they create course contents and curricula, participate in tutorials, attend workshops and seminars and do various other responsibilities. As a researcher, the lecturer identifies areas of academic interest most relevant to increase content specialty and knowledge in a particular field. For community service, the lecturer can volunteer or be appointed to render services that do not attract remuneration but add value to the university community. A lecturer may not be paid to be Head of Department or serve on the disciplinary committee of the university, though sometimes stipends to cover running cost may be given ([Bouchrika, 2021](#); [Ukpabio, Egwu, & Onwochei, 2019](#)). Task performance in this context is the skillful discharge of official duties of teaching, service to the community and research by lecturers.

Lecturers also known as academic staff, tutors or instructors use a variety of resources and tools called instructional materials or teaching aids to promote learning among students ([Kochhar, 2012](#); [Olumorin, Yusuf, Ajidagba, & Jekayinfa, 2010](#); [Omabe, 2006](#)). The utilization of these tools in their tasks makes learning concrete and real thus stimulating and sustaining students' interest as they do not only hear but also see and participate in the teaching and learning process. [Jekayinfa \(2012\)](#) suggested that this process ensures full participation in classroom activities by students leading to better remembering and understanding with the help of these instructional materials or teaching aids. An effective performance by lecturers in tertiary institutions may depend on how well they are supported with the provision of instructional resources in the right quantity and quality. Instructional resources are the best at capturing students' interest in the classroom or elsewhere.

Instructional resources or teaching materials are generic terms used to deliver instruction. According to [Abdullahi \(2010\)](#) in [Effiong and Igiri \(2015\)](#), teaching aids and instructional materials or resources are instruments locally manufactured or imported to facilitate the teaching and learning process. Any tools created and used to facilitate successful idea communication in the classroom or other learning contexts are referred to as instructional resources or materials. [Omojuwa \(2015\)](#) also defined instructional resources as materials people employ in a teaching and learning situation for the purpose of making teaching more explicit and effective and learning easier and more efficient while [Remillard and Heck \(2014\)](#) added that instructional materials are adopted for the purpose of organizing and supporting classroom instructions. As a result, instructional tools and materials may be broadly characterized as human and non-human instruments used in the classroom to organise, support and transmit ideas in order to accomplish educational objectives and outcomes ([Tuimur & Chemwei, 2015](#)).

1.1. Categorization of Instructional Materials

According to [Ugwu \(2020\)](#), instructional materials can be grouped by their nature which includes printed materials such as monographs, textbooks, reference books, ephemera materials, fiction books and others. Audio resources comprising gramophone, microphones, public address system, podcast, audio-tape recorder, cassette etc. Visual resources include dimensional resources, posters, photographs, charts, microform transparency etc. A further category is audiovisual resources consisting of videos, motion pictures, television, films, slides and others. Finally, there are electronic resources that encompass internet resources, e-journals, CD Rom/DVDs, e-books, e-databases e-reference and others ([Parashar & Babel, 2022](#); [Tanggoro, 2015](#); [Ugwu, Onwukwe, & Umah, 2014](#)). [Obasi \(2020\)](#) tends to use a more conventional classification of instructional resources as printed, visual, audio, audiovisual and electronic.

1.2. Variations in using Teaching Aids (TAs) and Instructional Materials

According to some sources, there are minor differences in the use of teaching aids (TAs) and instructional materials (IMs) in the educational system. According to [Shukla \(2019\)](#), teaching aids (TAs) are generally conceptualized as devices that have the capacity to promote mental stimulation and sensory engagement among students. These sources are used by teachers as accessories to teaching and learning but are not intended to achieve any specific objective in the teaching and learning situation. Thus, *teaching aids* help to transfer information about certain topics in the classroom. Examples of traditional teaching aids or tools are

projectors, white boards, iPads, laptops and others. Instructional materials are substances or materials or resources that have information locked in them and are used as examples in teaching (Remillard & Heck, 2014). Most teacher-created instructional resources are handouts, worksheets and exams (Shukla, 2019). *The separation between* teaching aids (TAs) and instructional materials especially in the 21st century has apparently become blurred due to growing interactivity among resources and advances in educational technologies which have witnessed significantly overlapping use of teaching aids (TAs) and instructional materials in the classroom (Köse & Güner-Yildiz, 2021). A practical example given by Shukla (2019) is the use of a text book in the class. For example, the book is used as a course recommended text, it is an instructional material. However, if the book is not part of the syllabus but just used for better understanding. According to Shukla (2019), it should be highlighted that whether a resource is referred to be an instructional aid (TA) or an instructional material, they both operate together to achieve the same instructional goals in the teaching and learning process.

1.3. Instructional Materials versus Instructional Media

"Instructional materials and instructional media in the same context can be confusing raising the question of whether the two concepts are interchangeable. Rachmijati and Cahyati (2018) and Sukmahidayanti (2015) define "instructional media" as tools used by teachers which is comparable to how Olumorin et al. (2010) and Effiong and Igiri (2015) defined instructional materials and resources as tools. According to Wokoh and Nwankwo (2019), the distinction between these two is more of a semantic one. The channel through which instruction is provided is known as instructional media and it can be an e-learning medium, a print medium or an audio medium. If you have a printed handbook, you can also refer to it as instructional material. Thus you can further describe the manual as a type of instructional material delivered through a print medium as held by Williams (2008) thus making use of the two terms interchangeable.

1.4. Local Content Improvement and Student and Lecturer Collaboration in Fabricating Culturally Embedded Instructional Materials

According to Etop, Iboro, and Obogo (2023), the concept of developing teaching materials by using local information to increase the quality of students' academic work is gaining acceptance. This source discovered that local instructional materials influenced some students offering biology in Abak, a local government in Akwa Ibom State Nigeria. Studies have also shown that integrating locally fabricated instructional materials that are culturally embedded like local videos into the teaching and learning process enhances learners' language achievement (Haerazi, Irwansyah, Juanda, & Azis, 2018; Lasekan & Godoy, 2020). Other studies from Olumorin et al. (2010) encouraged lecturers and students' collaboration in the local production of instructional resources for economic reasons and also to make it more teacher-student resource-oriented (Abdu-Raheem & Oluwagbohunmi, 2015; Olayinka1, 2016). Additionally, several studies have concluded that to facilitate learning, learners need to be familiar with the instructional environment and be able to manipulate things around them as part of their learning experience to enhance the transfer of ideas, skills and knowledge eventually leading to increased academic productivity (Nweze, 2021; Onuh, 2022).

Lecturers require instructional materials or tools to become more effective in the classroom. According to Bottiani, Duran, Pas, and Bradshaw (2019), availability of instructional resources such as print materials, illustration equipment and graphs are important that are the best intentions of a lecturer coupled with passion and instructional competence (Barber & Mourshed, 2007). There is a limited availability of studies on the impact of instructional asset availability on academic staff task performance at the tertiary institutions in the study. Additionally, there is a need to raise awareness about the potential for developing knowledge through students and lecturers working together to create culturally and sociologically relevant instructional resources particularly in the region chosen for this research to improve lecturers' task performance and increase student participation in the learning process.

2. LITERATURE REVIEW

According to the findings, academic staff members' performance in tertiary institutions is positively and significantly impacted by the availability of instructional resources. Isola, in Oladejo, Olosunde, Ojebisi, and Isola (2011) defined instructional resources as tools and objects that influence students' learning and improve the effectiveness of lecturers' teaching delivery. Fabunmi (2009) conducted a study to examine the extent to which

lecturers at the University of Ibadan use available instructional technologies in their teaching and evaluation practices. The study sample consisted of 200 lecturers selected from a population of 1,156 lecturers at the university. According to the descriptive statistics of frequency and percentages, the study's findings indicated a preference for conventional instructional technologies such as chalkboards, whiteboards and blackboards over web-based instructional technologies. The study also revealed a lack of provision of web-based instructional technologies and low competence levels among lecturers in the use of technology including web-based instructional technologies which were the major problems concerning lecturers' performance. According to [Bukoye \(2019\)](#), the improper use of these materials adversely affected students' performance and caused them to perform poorly. This observation also served as a benchmark for evaluating teachers' job performance because the students' poor performance was caused by the teachers' improper use of teaching materials. This shows that there is a relationship between the use of instructional resources and the performance of teachers.

[Oshinaike and Adekunmisi \(2012\)](#) investigated the use of multimedia resources for teaching in the faculty of arts and education at the University of Ibadan. Their study found that lecturers who had access to multimedia resources used them to create teaching notes, present papers and engage in research and publication activities. This shows a positive relationship as lecturers or tutors complete their tasks successfully when they have access to instructional resources. [Ukpabio et al. \(2019\)](#) conducted a study to assess the effect of Information and Communication Technology (ICT) materials on the activities of teaching staff in the public universities in Cross River State, Nigeria. They randomly selected 577 tutors from the population of tutors from different departments at the two universities. The data was collected through a questionnaire and analyzed using Fisher's Least Significant Difference (LSD) multiple comparison statistical tools at a significance level of 0.05. The findings showed that accessibility to digital resources had a significant and positive impact on the effectiveness of lecturers in their tasks and those who had access to ICT resources performed better in their job functions compared to those who did not have access to such resources.

Recent studies have discovered relationships between the accessibility and use of teaching resources and the efficiency of lecturers particularly in the effective use of digital services for scholarly research. [Suleiman and Joshua \(2019\)](#) performed research on academic staff members' knowledge and use of online resources for academic activities at tertiary institutions in Adamawa State, Nigeria. The study assessed lecturers' knowledge of and use of internet resources for research purposes such as e-books, e-journals and online databases. The data analysis which included replies from 292 participants revealed that lecturers were aware of and used internet resources for their research such as e-books, e-journals and online databases. The poll also discovered that email and online databases were the most popular internet resources and services among educators. The studies conducted by [Ogunjobi and Fagbami \(2012\)](#) and [Onwubiko \(2012\)](#) also show many advantages of using online resources and services to aid teachers in their work. These benefits include creating lecture notes, updating their knowledge, accessing e-books and e-journals, using email for communication and academic collaboration, staying up-to-date with research and development trends in their fields, gaining recognition and improving their teaching methods. Other studies have also demonstrated a positive relationship between the use of instructional resources such as pictorials, boards, projectors, textbooks, film strips and ICT facilities (including unrestricted e-books, e-journals, e-mail for communication, and slides) and the enhancement of students' understanding and the simplification of lecturers' instructional delivery ([Omeje & Chineke, 2015](#)). Additionally, it has been demonstrated that the use of instructional tools helps lecturers accomplish their tasks more effectively, engage students' interest and make classes entertaining and relevant ([Andambi & Kariuki, 2013](#); [Ogbu, 2015](#); [Tukur & Adamu, 2017](#)).

3. METHODOLOGY

The impact of instructional resources availability on the task performance of academic staff at public universities in Cross River State was studied using a survey research design. The University of Calabar (UNICAL) is owned by the Federal Government of Nigeria while the Cross River State Government owns the Cross River University of Technology (CRUTECH).

3.1. Participants

This study used 577 lecturers within the campuses of the University of Calabar (UNICAL) and the Cross River University of Technology (CRUTECH) in Cross River State, Nigeria. A stratified random sampling technique was adopted in selecting the sample. The two institutions were stratified according to their ownership with UNICAL

being owned by the federal government and CRUTECH being owned by the state government. Additionally, 590 academic employees were selected using the opportunistic sampling approach with 478 from UNICAL and 122 from CRUTECH. Out of the 590 questionnaires distributed, 577 were correctly filled and returned and these served as the study sample.

3.2. Instrumentation

The instrument for data gathering was an author-made questionnaire titled "Instructional Materials Availability and Lecturers' Task Performance Questionnaire". The accessibility of instructional resources included a list of materials and asked respondents to score their availability using the following scales: High Availability (HA), Moderate Availability (MA), Low Availability (LA) and Not Available (NA). It was coded HA-4; MA-3; LA- 2 and NA-1. The dependent variable, the lecturer task performance component of the questionnaire assessed how well staff members performed their duties in teaching, research and community service. Respondents were asked to rate the performance of lecturers' tasks on a modified Likert scale with a four-point range from strongly disagree to strongly agree, varying between 1 and 4. Strongly disagree was followed by disagree, agree and strongly agree. Two measurement and evaluation specialists from the University of Calabar's faculty of education tested the instrument's validity. The instrument was tested for reliability using the Cronbach reliability test for establishing the internal stability of the variables of the study using 50 academic staff in proportion to 30:20 ratios in favour of the University of Calabar and Cross River University of Technology respectively. The reliability coefficient ranging from .87 – .90 for the independent variables and the coefficients ranging from .86 – .88 for the dependent variables and an overall coefficient alpha of .87 made the instrument reliable for use in the field. The author instrument was preferred because of the benefits of the richness of resources in the literature which were more inclusive.

3.3. Data Collection Procedure

Data collection was done with the help of three research assistants who had been well instructed on their functions. The questionnaire was distributed by visiting offices using snowball sampling in which the researcher asked participants for assistance in identifying additional potential subjects who fit the demographics of the sampled department. The filled-out questionnaires were collected, organised and coded for analysis.

3.4. Purpose of the Study and Presentation of the Result

The objective of the study was to ascertain if the available resources for instruction affect academic staff task performance in the areas of teaching, research and community service.

3.4.1. Hypothesis One

Instructional resource availability does not significantly influence lecturers' task performance in the areas of teaching, research and community service.

Table 1 shows the display of the F-ratio value resulting from the analysis of the data. It indicates a critical F-ratio of 3.02 at a significance level of 0.05 with 2 and 574 degrees of freedom. The computed F-ratios for teaching, research and community services were 57.81 ($p < 0.05$), 51.37 ($p < 0.05$) and 80.60 ($p < 0.05$) respectively and were used to determine the effect of instructional resource availability on university instructors' task performance. The calculated F-ratios were seen to be greater than the critical F-ratio with their obtained significant values being less than the 0.05 level of significance used in the study. This led to the acceptance of the alternate hypothesis which asserted that the availability of instructional resources has a substantial influence on academic staff task performance and the subsequent rejection of the null hypothesis. Fisher's Least Significant Difference (LSD) multiple comparison and pair-wise comparison were used in situations where significant F-ratios were obtained to conduct a post hoc test. High, moderate and low levels of available instructional resources are the three categories of the independent variable that are being compared. The results are presented in table 2.

Table 1. Results of the mean, standard deviation and ANOVA on the availability of instructional materials and task performance of lecturers (N = 577).

Lecturers' staff task performance	Instructional resource availability	N	Mean	Std. deviation		
Teaching	High	57	25.26	3.93		
	Moderate	287	23.86	3.23		
	Low	233	21.26	3.04		
	Total	577	22.95	3.54		
Research	High	57	26.44	3.52		
	Moderate	287	24.52	3.01		
	Low	233	22.23	3.58		
	Total	577	23.79	3.58		
Community services	High	57	26.79	3.52		
	Moderate	287	24.69	3.42		
	Low	233	21.56	3.41		
	Total	577	23.63	3.87		
Lecturers' staff task performance teaching	SV	SS	df	MS	F	Sig.
	Between groups	1207.03	2	603.52	57.81*	0.000
	Within groups	5992.51	574	10.44		
	Total	7199.54	576			
Research	Between groups	1118.19	2	559.09	51.37*	0.000
	Within groups	6247.16	574	10.88		
	Total	7365.35	576			
Community services	Between groups	1889.65	2	944.83	80.60*	0.000
	Within groups	6728.72	574	11.72		
	Total	8618.37	576			

Note: *p<.05.

Table 2. Fisher's least significant difference (LSD) multiple comparison of influence of instructional materials availability on lecturers' task performance

Lecturers' staff task performance	Instructional resource availability	High (n = 57)	Moderate (n = 287)	Low (n = 233)
Teaching	High	25.26 ^a	1.40 ^b	4.00 ^b
	Moderate	6.04 ^{*c}	23.86 ^a	2.60 ^b
	Low	16.02 ^{*c}	11.83 ^{*c}	21.26 ^a
			m _{sw} =	10.44
Research	High	26.44 ^a	1.92 ^b	4.21 ^b
	Moderate	8.15 ^{*c}	24.52 ^a	2.29 ^b
	Low	16.60 ^{*c}	10.21 ^{*c}	22.23 ^a
			m _{sw} =	10.88
Community services	High	26.79 ^a	2.10 ^b	5.23 ^b
	Moderate	8.70 ^{*c}	24.69 ^a	3.13 ^b
	Low	20.08 ^{*c}	13.49 ^{*c}	21.56 ^a
			m _{sw} =	11.72

Note: *p<.05.

a. Group means are placed on the diagonal.

b. Difference between the group means are placed above the diagonal.

c. Fishers LSD t-value are placed below the diagonal.

Table 2 compares respondents who reported having access to a lot of educational materials with those who reported having only moderate to poor access. The analysis showed the following t-values: high and

moderate, $t = 6.04$ ($p < 0.05$), high and low $t = 16.02$ ($p < 0.05$). The comparison between moderate and low has a t -value of 11.83 ($p < 0.05$). Positive t -values show that the initial comparison groups are significantly different but significant differences also developed between high and low and moderate and low. These findings suggest that academic staff who have access to a high level of instructional resources in their schools are better equipped to carry out their teaching duties than those who have access to moderate or low levels of resources. Furthermore, individuals who have access to intermediate levels of educational resources are better able to carry out their teaching tasks than those whose institutions provide them with limited levels of educational resources.

The t -values for the study's analysis were as follows: high and moderate, $t = 8.15$ ($p < 0.05$), high and low, $t = 16.60$ ($p < 0.05$) when comparing respondents with high instructional resource availability with those with moderate and low instructional resource availability. The t -value for the comparison of moderate and low was 10.21 ($p < 0.05$).

The results indicate that academic staff who have access to high levels of instructional resources through their school are more effective in their research work than those who have access to moderate or low levels of resources. Similarly, individuals whose school offers intermediate instructional resource availability are more successful in their research than those whose school offers poor instructional resource availability.

In terms of community service, there are more respondents who believe that instructional resources are readily available as compared to low and moderate availability which presented the following t -values: moderate and high, $t = 8.70$ ($p < 0.05$) and low and high, $t = 20.08$ ($p < 0.05$). The low and moderate assessments produced a t -value of 13.49 ($p < 0.05$) which showed a moderate and high comparison with a significant difference. Although there was a significant difference in the comparison of low and high and the assessment of low and high, positive t -values show that the first group comparison is more significant. This revealed that the high provision of instructional resources by the school to the academic staff will assist them in performing their community services function more effectively than those provided with low and moderate availability of instructional resources in school. Community services tasks can be performed better with moderate instructional resources availability than those with low instructional resource availability provided by their institution.

4. DISCUSSION AND FINDINGS

The hypothesis was to determine if the availability of instructional resources affected lecturers' task performance in terms of teaching, research and community service in public universities in Cross River State, Nigeria. The findings revealed that the availability of instructional resources had a considerable impact on lecturers' performance in teaching, research and community service. The alternate research theory or hypothesis was consequently adopted and the original postulation was rejected. This study reveals that the degree of staff performance in terms of teaching, research and community service responsibilities was associated with and impacted by the availability of educational resources at these institutions. The availability of instructional resources such as charts and graphs, textbooks, laboratory supplies, chalk or marker boards, multimedia, video tapes, film strips, information and communication technology accessories and slides has a significant impact on the performance of staff in universities in Cross River State in their teaching, research and community service tasks. The level of availability of these resources generally reflects the level of task performance of academic staff in these areas.

This influence can be explained by the fact that the availability of instructional resources enhances academic staff teaching competency, efficiency and effectiveness. According to [Oladejo et al. \(2011\)](#); [Omeje and Chineke \(2015\)](#); [Andambi and Kariuki \(2013\)](#); [Ukpabio et al. \(2019\)](#); [Bukoye \(2019\)](#) and [Adalikwu and Iorkpilgh \(2013\)](#), instructional resources enhance academic staff task performance in universities because of the motivational role they play for both lecturers and students ([Ogbu, 2015](#)). The literature also supports the fact that the availability of instructional resources simplifies tasks, makes tasks interesting and enjoyable, promotes staff professional dignity and self-actualization, energizes and motivates staff. These influence academic staff morale, enthusiasm, commitment and task disposition which in turn affect their productivity and effectiveness.

On the other hand, the absence or inadequate availability of instructional resources will impede academic staff task performance. When instructional resources are unavailable or insufficient, teachers will make an effort with little or no success. It will take a long time and be tedious. Teacher passion and interest are decreased when tasks are tedious and time-consuming, and detrimental task attitudes like tardiness and absences may emerge.

5. CONCLUSION

The results indicate that the availability of instructional resources has a significant impact on the performance of lecturers. The study discovered that tutors at the two public universities succeeded in their teaching, research and community service responsibilities due to the proportional improvement they gained from employing instructional tools. Therefore, lecturers who received high levels of instructional resources from their schools performed better than those who received intermediate or low levels of resources and vice versa. It is impossible to overestimate the value of instructional materials to instructors, students and the educational system. Apart from providing platforms for teachers to effectively present their lessons with less exertion and stress, it captures the imagination of students thus facilitating learning and retention of information.

Apart from providing a medium for lecturers to effectively present lessons with less stress, instructional resources help in capturing the imagination of students thus making learning and retention of information easier.

6. RECOMMENDATIONS

1. Lecturers should be encouraged to produce teacher-made resources such as handouts, worksheets, tests and projects for assessments and determination.
2. Universities should have printing press to produce affordable print materials such as text books for use in instructions.
3. Universities should have modern libraries for various academic fields and appropriate text books should be maintained by lecturers and students conducting research.
4. Universities should have information and communication technology centers for electronic and interactive learning facilities such as computers, graphing calculators, tablet and others.
5. Studios where visual instructional materials such as chart photographs, audiovisual instructional materials like slides, tapes films and video should be established and well equipped on the university campuses.
6. University authorities should partner with sociologists, cultural anthropologists and educational technology experts in designing teaching and learning resources that have improved local content and are culturally relevant in local communities.
7. University authorities should recognize and motivate lecturers who consistently distinguish themselves in fabricating instructional resources by giving them accelerated professional promotion.

FUNDING

This study received no specific financial support.

INSTITUTIONAL REVIEW BOARD STATEMENT

The Ethical Committee of the University of Calabar, Nigeria has granted approval for this study on 3 August 2023 (Ref. No. UC/UREB/AP.2023/001).

TRANSPARENCY

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

COMPETING INTERESTS

The authors declare that they have no competing interests.

AUTHORS' CONTRIBUTIONS

All authors contributed equally to the conception and design of the study. All authors have read and agreed to the published version of the manuscript.

ARTICLE HISTORY

Received: 11 April 2023/ Revised: 17 August 2023/ Accepted: 14 September 2023/ Published: 7 November 2023

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