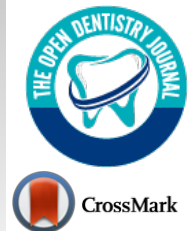


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RESEARCH ARTICLE

Factors Influencing the Students' Perception of Lecturing Skills in Saudi Dental Schools

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Abstract:

Introduction:

Students' feedback is vital in improving the teaching and learning process in dental schools across the globe, including Saudi Arabia.

Objective:

This study explores the factors influencing the students' perception of faculty members' lecturing skills in Saudi dental schools. It also determines whether there is any gender difference in their perception of lecturing skills.

Methods:

The exploratory study design was utilized to evaluate the factors influencing the dental students' perception of lecturing skills at the selected Saudi dental schools (n=4). This study included the complete student population (n=530) of the undergraduate dental program at those schools during the academic year 2020-2021. A questionnaire titled "Students Survey of Lecturing Skills (SSLS)" was distributed to the students through an online tool. The data of the completed questionnaires (n=426) was subjected to statistical analysis using statistical software.

Results:

The structural equation modeling (SEM) analysis revealed that five factors of SSLS, namely, Organization and Structure of the lectures (OS)", "Lectures Effectiveness on Learning and Understanding (LEL)", "Interest and Motivation (IM)", "Professional Interaction (PI)", and "Presentation and Classroom Atmosphere (PC)" are vital to evaluate the dental students' perception towards lecturing skills. Also, these five factors have significantly influenced the students' perception of faculty members' lecturing skills in Saudi dental schools. Overall, female dental students are highly satisfied than the male students in regard to their faculty members' lecturing skills.

Conclusion:

OS, LEL, IM, PI, and PC are the significant factors influencing dental students' perception of lecturing skills. These factors can be considered while assessing teaching quality and framing effective strategies for enhancing it at Saudi dental schools.

Keywords: Dental schools, Faculty members, Lecturing skills, Structural equation modeling (SEM), Student's perception, Lecturing skills.

Article History

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1. INTRODUCTION

Students are the direct beneficiaries of lectures and widely interact with their faculty members. Their inclusive feedback can enhance the proficient skills of faculty members. Further, the appropriate usage of such feedback might allow the faculty members to enhance their teaching and learning skills [1]. Hence, universities are focusing their attention on enhancing the quality of teaching and learning processes through student

evaluation surveys. The outcome of such student evaluation of teaching (SET) is valuable to policymakers in aiding faculty members to reveal the critical areas for improving their performance and organizing several professional development programs to enhance their lecturing skills [2, 3]. Besides, such evaluations also support policymakers' academic promotion decisions and assessment purposes representing institutional performance [4]. Hence, universities are actively involved in evaluating the quality of teaching among faculty members by students' feedback as they are the critical consumers in the higher education sector [5].

Moreover, global universities are offering various programs to their students. Among those programs, the dental

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program is the essential program as the role of dentists is significant to overcome the public's oral health demands [6]. Usually, this program is delivered by dental schools across the globe. Accordingly, in Saudi Arabia, several dental schools provide dental programs to national and international students. A recent upsurge in the count of Saudi dental colleges presented a significant rise in graduates. Besides, a swift in the Saudi population and fiscal growth stresses growth in the dental workforce and job offers to fresh candidates [7]. As an active dental workforce is being created through skillful faculty members serving in dental schools, it is essential to reveal the students' perception of their lecturing skills. Such students' feedback would aid those faculty members in further improving their skills and quality of teaching. While considering the students' feedback, their gender is treated as one of the elements having a biasing effect on their ratings [8]. Several global researchers have assessed effective dental teachers' qualities from the students' and teachers' perspectives [9 - 12]. In the Saudi Arabian background, AlHamdan *et al.* [13] reported on the dental students' opinions and preferences about several teaching methods. However, the samples were only included from two dental colleges in Riyadh. Another Saudi-based study in a public university examined the Saudi dental students' perception of the qualities and traits of an active dental instructor using a self-administered questionnaire [14]. Those students highly preferred performance attributes rather than personality attributes. No gender difference was noted in dental students' perception of performance and personality attributes. The authors recommended to conduct future studies with the students from various Saudi dental schools [14]. The questionnaire used in their study focused on evaluating students' preference toward the dental teacher's performance and personality attributes. However, it is essential to assess the students' perception of the faculty members' lecturing skills rather than their personalities. Hence, this study developed the "Students' Survey on Lecturing Skills (SSLS)" questionnaire and intended to include various Saudi dental schools. Subsequently, it aimed to examine the factors influencing the dental students' perception of lecturing skills using the SSLS questionnaire and whether those factors are suitable measures of their perception of lecturing skills. Also, it focused on measuring gender differences in dental students' perception of lecturing skills.

2. MATERIALS AND METHODS

2.1. Study Design and Setting

This exploratory study design was used to uncover the factors influencing the dental students' perception of lecturing skills at Saudi dental schools and assess the gender difference in their perception of lecturing skills. This study was conducted at the selected dental schools (n=4) in Saudi Arabia to obtain a more comprehensive sample representation. Those dental schools were King Saud University (KSU), King Abdulaziz University (KAU), Imam Abdulrahman Bin Faisal University (IAU), and Al Jouf University (JU). The study population comprised 530 final year undergraduate students from the above dental schools during the academic year 2020-2021. A

self-structured questionnaire titled "Students Survey of Lecturing Skills (SSLS)" was distributed through an online tool named "Questionpro". Further, this study obtained ethical approval from the Institutional Review Board (IRB) (IRB-2022-20-035) of IAU, Saudi Arabia.

2.2. Instrument

The SSLS questionnaire consisted of five factors, with thirteen items and an overall item (overall satisfaction). The students' agreement level towards the items of each factor was recorded through a five-point Likert scale. This questionnaire encompassed five factors, namely, "Organization and Structure of the lectures (OS)" (02 items), "Lectures Effectiveness on Learning and Understanding (LEL)" (03 items), "Interest and Motivation (IM)" (02 items), "Professional Interaction (PI)" (03 items), and "Presentation and Classroom Atmosphere (PC)" (03 items). Besides, it was made mandatory for all participants to fill out the informed consent before accessing the survey. The participants were assured of privacy and anonymity before gathering the data from them.

2.3. Statistical Analysis

The structural equation modeling (SEM) was executed through the software named "Analysis of Moment Structures (AMOS) version 5.0" to reveal how well the factors (variables) of SSLS influence the dental students' perception of lecturing skills. Furthermore, the linear regression analysis was applied to determine the influencing factors of SSLS on the dental students' perception of lecturing skills. An independent 't' test was used to assess the variation in dental students' perception of lecturing skills concerning their gender. These statistical analyses were carried out using SPSS 20.0. The level of significance was fixed at 5%.

3. RESULTS

Out of 530 participants, 426 responded to the survey, demonstrating a response rate of 80.4%. Among those respondents, males accounted for 40.8% (n=174), and females at 59.2% (n=252).

3.1. Reliability of the SSLS

In this study, the factors of SSLS were observed with the Cronbach's alpha (α) value as follows: OS (0.94), LEL (0.98), IM 0.98, PI (0.98), and PC (0.98). Further, the overall Cronbach's alpha (α) value of all SSLS items was observed as 0.99. Since the α value > 0.90, the internal consistency of the SSLS questionnaire could be rated as "excellent", [15] indicating the adapted questionnaire is a reliable tool to measure the perception of lecturing skills among dental students.

3.2. Structural Equation Modeling for SSLS

A model obtained from SEM analysis is shown in Fig. (1). While assessing the proposed model, each factor of SSLS showed a significant positive relationship with the overall item of SSLS, varying from 1.0 to 1.028 ($p < 0.05$) (Table 1). It can be concluded that all factors of the SSLS are positively related to the overall dental students' satisfaction with lecturing skills.

Further, Table 2 shows model fit indices following SEM analysis with their recommended values. It is revealed that the chi-square value of 10.205 is found to be significant ($p < 0.05$), nevertheless, the recommended non-significant chi-square value ($p > 0.05$) is required to accept that the model fits the sample data well [16]. At the same time, the chi-square value is too sensitive to an increase in sample size such that the probability level seems to be significant. Also, the chi-square value appears to be more as the count of observed variables increases [16]. This study also observed that the chi-square/degree of freedom (CMIN/DF) ratio or relative chi-square value is 4.103, reflecting an acceptable model fit. Singh

[17] stated that the preferred relative chi-square value is ≤ 2 ; however, the value ranges from 2 to 5 is considered acceptable. Besides, this study considered the other model fit indices such as "Goodness of fit index (GFI)", "Adjusted goodness of fit index (AGFI)", "Comparative fit index (CFI)", "Normed fit index (NFI)", "Incremental fit index (IFI)", "Tucker-Lewis index (TLI)", and "Root Mean Square Error of Approximation (RMSEA)". The obtained values of these model fit indices meet their respective recommended values as proposed by various studies [18 - 20] (Table 2). These findings related to SEM analysis indicated that the proposed model possesses a good fit with the gathered data.

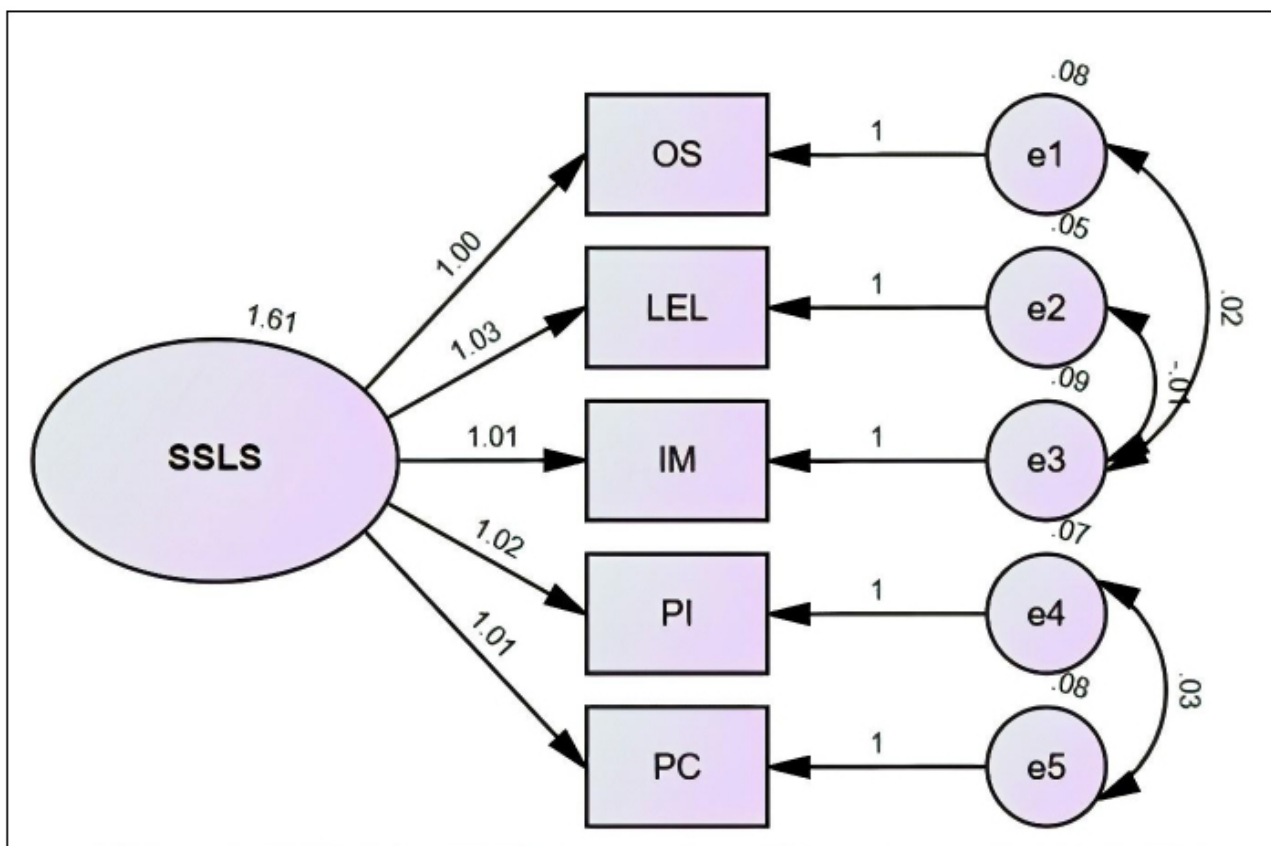


Fig. (1). SSLS Model proposed through Structural equation modeling (SEM).

Table 1. Regression weights of the SSLS questionnaire.

Variables	Path	Construct	Estimate	Standard Error	Critical Ratio	p-value
Organization and Structure of the Lectures (OS)	<---	Overall SSLS	1.000			$p < 0.05^*$
Lectures Effectiveness on Learning and Understanding (LEL)	<---	Overall SSLS	1.028	0.014	72.520	
Interest and Motivation (IM)	<---	Overall SSLS	1.010	0.015	69.256	
Professional Interaction (PI)	<---	Overall SSLS	1.022	0.015	66.707	
Presentation and Classroom Atmosphere (PC)	<---	Overall SSLS	1.007	0.015	65.673	

*Significant at 0.05 level ($p < 0.05$)

Table 2. Model fit indices of the SSLS Questionnaire.

Model fit indices	Obtained value	Recommended value
Chi-square	10.205 ($p < 0.05$)*	$p > 0.05$ [16]
Chi-square/degrees of freedom	4.103	2 to 5 [17]
Goodness of fit index (GFI)	0.99	≥ 0.90 [18,19]
Adjusted goodness of fit index (AGFI)	0.93	≥ 0.80 [18,19]
Comparative fit index (CFI)	0.99	≥ 0.90 [18,19]
Normed fit index (NFI)	0.99	≥ 0.90 [18,19]
Incremental fit index (IFI)	0.99	≥ 0.95 [20]
Tucker-Lewis index (TLI)	0.99	≥ 0.95 [20]
Root Mean Square Error of Approximation (RMSEA)	0.068	≤ 0.08 [20]

*Significant at 0.05 level ($p < 0.05$)

3.3. Factors Influencing the Dental Students' Perception of Lecturing Skills

Table 3 showed that the regression model is observed to be significant ($p < 0.05$), and five factors of the SSLS described 94.8% of the total variation in the dental students' overall satisfaction with faculty members' lecturing skills. A strong and positive relationship was also observed between five factors and students' overall satisfaction (R value=0.974). Furthermore, Table 4 explains that the 't' value of the factors, namely, OS, LEL, IM, PI, and PC is significant ($p < 0.05$). This outcome indicated that all factors of the SSLS are significant predictors of the dental students' perception of lecturing skills. Based on the standardized coefficients, the most significant predictor is PC, followed by OS.

Table 3. Linear Regression analysis.

Model	R	R Square	Adjusted R Square	Standard Error of Estimation	F value
Overall satisfaction	0.974	0.948	0.948	0.302	1546.665* ($p < 0.05$)

*Significant at 0.05 level

3.4. Difference in Dental Students' Perception of Lecturing Skills Regarding their Gender

This study revealed the gender difference in dental students' perception of lecturing skills using an independent t-test (Table 5). A gender difference was noted in dental students' perception of lecturing skills concerning LEL, PI, and PC ($p < 0.05$). However, the remaining variables, including OS and IM, failed to show a significant gender difference in dental students' perception of lecturing skills ($p > 0.05$). Furthermore, the dental students' overall satisfaction with their faculty members' lecturing skills significantly differs concerning their gender ($p < 0.05$). It is noted that female dental students showed higher overall satisfaction with the faculty members' lecturing skills than their counterparts.

Table 4. Prediction of the dental students' perception of lecturing skills by various factors.

Dimensions	Unstandardized Coefficients		Standardized Coefficients	't' value	p-value
	Beta	Standard Error	β		
Constant	0.015	0.048		0.313	0.754
Organization and Structure of the Lectures (OS)	0.211	0.050	0.208	4.238	0.000*
Lectures Effectiveness on Learning and Understanding (LEL)	0.184	0.052	0.184	3.527	0.000*
Interest and Motivation (IM)	0.134	0.045	0.134	2.990	0.003*
Professional Interaction (PI)	0.106	0.041	0.106	2.184	0.042*
Presentation and Classroom Atmosphere (PC)	0.402	0.055	0.398	7.301	0.000*

*Significant at 0.05 level.

Table 5. Independent 't' test showing the gender difference in dental students' perception of factors of SSLS.

Variables	Male (N=174)		Female (N=252)		't' value	p-value
	Mean	Standard deviation	Mean	Standard deviation		
Organization and Structure of the Lectures (OS)	3.90	1.443	4.12	1.185	1.741	0.082

(Table 5) contd.....

Lectures Effectiveness on Learning and Understanding (LEL)	3.83	1.440	4.06	1.231	1.782	0.035*
Interest and Motivation (IM)	3.82	1.461	4.07	1.202	1.927	0.045
Professional Interaction (PI)	3.84	1.460	4.05	1.220	1.555	0.021*
Presentation and Classroom Atmosphere (PC)	3.88	1.423	4.05	1.220	1.307	0.013*
Overall satisfaction	3.87	1.442	4.07	1.228	1.565	0.018*

*Significant at 0.05 level (p<0.05).

4. DISCUSSION

This study aimed to explore the factors influencing the students' perception of faculty members' lecturing skills, especially in Saudi dental schools. Further, it observed the gender difference in dental students' perception of lecturing skills. The findings presented that SSLS is a reliable tool to measure dental students' perception of lecturing skills. A model was proposed using the five factors of SSLS through the SEM analysis. It is a good fit to assess the dental students' perception of lecturing skills. Each factor showed a significant positive relationship with the overall item of SSLS, recommending that all five factors are the potential outcomes of SSLS. In line with these findings, Lukman *et al.* [21] studied the teaching quality variables influencing the students' satisfaction through SEM analysis and observed that the measurement model is a good fit. The instructors' knowledge and teaching methods have significantly influenced the students' satisfaction [21]. Khairunnisa *et al.* [22] observed that the instructors' knowledge, skills, and personality were positively related to their professionalism. These three factors influenced the students' perception of the instructors' professionalism. An earlier study in Saudi Arabia found that the course attributes, learning outcomes, assessment and grading, faculty members' knowledge, personality, and teaching ability showed a significant relationship with teaching effectiveness from students' viewpoints [23].

Furthermore, this study revealed that all five factors of SSLS, namely, OS, LEL, IM, PI, and PC, are significant factors influencing dental students' perception of lecturing skills using linear regression analysis. While revealing those factors, this study noted that the OS is a significant factor that evaluates the dental students' perception of lecturing skills. This finding is in accordance with an earlier study, which found that the instructors' organization and preparation to deliver lectures are the key factors affecting the student evaluation of teaching effectiveness [24]. The instructors with adequate preparation prior to delivering their lectures demonstrated better evaluation since they were conscious of the subject to be delivered during their lectures and the objectives to be achieved. Also, well-organized and prepared lectures would obtain admiration from the students [24]. Ozungor and Duru [25] also observed that the proper organization and delivery of the course content influence the students to distinguish the instructors with their ratings. A Saudi-based study observed that the dental lectures were mostly primarily delivered using multimedia to aid organize and structuring the students' learning [13].

Subsequently, LEL is identified as a potential factor that assesses the dental students' perception of lecturing skills. The dental students perceived that their faculty members' lectures

had a demonstration of dental procedures and used audiovisual (AV) aids for gaining their attention, comprehension, and improved learning. Prabhu *et al.* [26] noted that the dental students showed more interest in AV aids demonstrating dental treatment procedures. Those mostly preferred PowerPoint as the effective means for learning various dentistry subjects. Also, the usage of AV aids enhances their learning abilities [27]. A previous study also revealed that dental students preferred teaching methods such as chalkboard, PowerPoint, and clinical demonstrations. Notably, most of them favored the lectures using AV aids since the clinical and laboratory-related images are the fundamental part of many topics in the dental curriculum and were better illustrated using AV aids [28].

This study also observed that IM and PI are the significant factors to be considered while computing the lecturing skills from the dental students' perspectives. An earlier researcher also focused on interest and motivation provoked by the faculty member in their survey dealing with students' evaluation of teaching effectiveness [29]. The dental students highly appreciated the responsible, motivating, and compassionate instructors [30]. Their interest and attention were improved by the lectures having student-faculty interaction, which significantly affected SET scores [31, 32]. Furthermore, a previous study discovered that most Saudi dental students rated teaching quality as augmenting when the faculty member possesses enthusiasm, punctuality, tolerance, and a positive attitude. It was evident that the Saudi dental students positively perceived that their faculty members preferred to encourage students' learning and were sensitive to their prerequisites/issues [14].

Lastly, PC is revealed as a critical factor affecting dental students' perception of lecturing skills. Likewise, an earlier study identified that the clarity of the lectures and the positive learning atmosphere were the key areas that influenced the university students' overall perception of effective teaching [33]. A positive classroom atmosphere felt safe, welcoming, respectful, and supported students' learning [34]. Besides, AlHamdan *et al.* concluded that dental lectures should be conducted in a short duration with a changing pace to reduce boredom to maintain students' interest [13]. Based on the results of this study, policymakers should consider these factors of SSLS and develop proper strategies to augment the teaching quality in Saudi dental schools, thereby improving the students' satisfaction with lecturing skills.

Moreover, the current study revealed a significant gender difference in dental students' perception of lecturing skills regarding LEL, PI, and PC. A significant difference in dental students' overall satisfaction with lecturing skills was noted when gender was taken into account. Female dental students have positively perceived the LEL, PI, and PC than their

counterparts. This finding is similar to the previous studies that found a gender difference in student ratings of teaching effectiveness [35, 36]. An earlier study stated that female students highly appreciated the faculty members' qualities, namely clear presentation, brief descriptions, expertise, passion, openness, and inspiration, than male students [35]. Al-Busaidi *et al.* [37] also noted that female students highly valued effective university teachers' personalities and teaching traits compared to male students. However, this study presented no significant gender difference in dental students' perception regarding the factors such as OS and IM, which is contrary to the findings of earlier studies [35, 38].

Besides, female students showed a higher overall satisfaction than their counterparts concerning their dental faculty members' lecturing skills. Notably, this study covered the students of public dental schools in Saudi Arabia, which follow the guidance of the Ministry of Education (MOE) for uniform dental curriculum and course specifications, including appropriate teaching methods to be adopted. Also, the MOE laid down uniform guidelines for those schools to accomplish the teaching and learning processes efficiently. However, the observed results of this study might be due to gender bias, stereotyping influence, and variation in faculty members' lecturing skills. Consistent with this outcome, a prior study by Korte *et al.* [36] noted that female students showed a high level of overall scores when compared to male students regarding teaching effectiveness. However, Al-Jobair and AlSarheed [14] concluded that there was no gender difference in the Saudi dental students' perception of the personality and performance attributes of an effective teacher. Both genders paid more attention to performance than personality attributes for their positive learning.

CONCLUSION

This study explored five factors such as organization and structure of the lectures (OS), lectures effectiveness on learning and understanding (LEL), interest and motivation (IM), professional interaction (PI), and presentation and classroom atmosphere (PC) that influence the dental students' perception of lecturing skills at Saudi dental schools. Especially, presentation and classroom atmosphere (PC) is observed to be the most significant predictor of dental students' perception of lecturing skills. Based on these factors, policymakers of Saudi dental schools should develop proper strategies to enhance the teaching quality, thereby boosting the students' overall satisfaction with lecturing skills. In addition, female dental students showed higher overall satisfaction with lecturing skills than male dental students. Future studies can be conducted to reveal the faculty member's gender and ethnicity bias on dental students' evaluation of teaching effectiveness. Also, further research can be done with larger samples covering more dental schools in Saudi Arabia to generalize the findings and reveal the difference in dental students' perception of lecturing skills regarding their nationality and academic year.

LIST OF ABBREVIATIONS

SLS = Students Survey of Lecturing Skills

SEM = structural equation modeling

LEL = Lectures Effectiveness on Learning and Understanding

IM = Interest and Motivation

PC = Presentation and Classroom Atmosphere

AUTHORS CONTRIBUTIONS

It is a single-author manuscript. Dr. Ahmed Al Kuwaiti has been involved in the study conception and design, data collection, analysis and interpretation, writing and revising the manuscript, and approval of the final version.

ETHICAL STATEMENT

The ethical approval for this study was obtained from the Institutional Review Board (IRB) (IRB-2022-20-035), Imam Abdulrahman Bin Faisal University (IAU), Saudi Arabia.

CONSENT FOR PUBLICATION

Informed consent was obtained from the participants.

STANDARDS OF REPORTING

Coreq guidelines were followed.

AVAILABILITY OF DATA AND MATERIALS

The data that support the findings of this study are available on reasonable request from the corresponding author [A.A.K.]. The data are not publicly available due to information that could compromise the privacy of research participants.

FUNDING

None.

CONFLICT OF INTEREST

The authors declared that there is no conflict of interest.

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