

Telemedicine Breastfeeding Consultation: The Saudi Experience

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Abstract

Background

Telemedicine is widely used in health specialties. Yet, the experience of telemedicine use and its effectiveness in breastfeeding support is a research gap. The purpose of this study was to describe the pattern of telemedicine use for breastfeeding support in Saudi Arabia and to explore patients' satisfaction with the service.

Methods

A cross-sectional survey was conducted in outpatient settings at Ministry of Health facilities in several Saudi regions. The number of breastfeeding consultations over one year (2021) was analyzed in terms of region, month, method of consultation, and women's maternity status. Data on patient satisfaction and telemedicine techniques were gathered during 2022.

Results

Across the 16 regions enrolled in the project, 51,571 remote breastfeeding consultations were conducted, representing 28.2% of the total consultations. The eastern region reported the highest percentage (40.7%), and the southern region reported the lowest (2.4%). Almost two-thirds of the consultations were provided to lactating mothers (62.91%). Most data (90%) were collected from breastfeeding clinics in hospitals, and nurses were the main primary health care providers. The mean was 4,255 consultations per month. In terms of technology, telemedicine consultations were mostly conducted by phone (50%) and WhatsApp (38%). Satisfaction with telemedicine was reported by 80% of the participants, with a statistical difference found in those favoring telemedicine over in-person care ($p=0.032$), particularly for those using phone consultations and Telegram ($p<0.001$). WhatsApp respondents had the commonest neutral responses ($p<0.001$).

Conclusion

Telemedicine breastfeeding care has been widely established with high patient satisfaction. A national protocol outpatient lactation services with an integrated hospital and primary care services and involvement of different health care professionals are recommended. Although breastfeeding counselling is proven to have a positive change on breastfeeding indicators, telemedicine tool per se needs further work on its role in breastfeeding indicators. Triage of cases to be evaluated face-to-face or referral to a specialist after telemedicine lactation care is an area for future work.

Categories: Nutrition

Keywords: telelactation, breastfeeding, satisfaction, counseling, consultation, telemedicine

Introduction

The coronavirus disease 2019 (COVID-19) pandemic caused unforeseeable global challenges in providing lactation training and skilled support, shortening postpartum stays, and preventing new mothers from receiving face-to-face breastfeeding support [1]. Fortunately, telemedicine emerged as a means to continue breastfeeding counseling remotely [2,3].

The World Health Organization (WHO) describes telemedicine as "The delivery of health care services, where distance is a critical factor, by all health care professionals using information and communication technologies for the exchange of valid information for diagnosis, treatment and prevention of disease and injuries, research and evaluation, and continuing education of health care providers, all in the interest of advancing the health of individuals and their communities" [4].

Since the COVID-19 pandemic began, telemedicine has been widely adopted throughout the world [5,6]. In Saudi Arabia, virtual care is a major initiative in the Saudi health care model [7] and one that was accelerated

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by the COVID-19 pandemic.

Breastfeeding consultation refers to comprehensive breastfeeding education, support, counseling, clinical management, and interventions given to women during the antenatal, perinatal, and postpartum periods to support the initiation and maintenance of breastfeeding, including those provided to women who experience difficulties breastfeeding due to anatomic variations, complications, and feeding problems with newborns. Distance counseling and/or other technologies may be very helpful in special settings, such as emergencies, where face-to-face counseling may be supplemented but not replaced by telephone counseling and/or other technologies [8]. Telehealth for breastfeeding consultation (i.e., telelactation) has existed for many years, mainly through phone consultation [9], and appears to be of particular importance in remote areas [10,11]. Despite an increase in the use of telehealth in the provision of breastfeeding support and education, the technology platforms were spotty [12].

Generally, patient satisfaction with virtual consultation has been reported to be high during COVID-19, although groups have perceived the impact of this new mode of clinical practice differently [1,10,13,14]. This variation in perception has also been reported regarding telelactation, with mothers with security concerns being six times more uncomfortable than mothers without such worries [15].

The effectiveness of using telemedicine for breastfeeding consultation is currently an area of academic interest. Gavine et al. determined the effectiveness of remote breastfeeding management to be low, highlighting the need for more research on this new technological tool [12]. Another study found telemedicine useful for communicating with other institutions and specialists and for seeking consultations on a variety of medical and surgical problems, psychological issues, medical reports, lab follow-ups, and medication refills, frequently noting that it is not a replacement for the physician's hands-on expertise [16]. Systematic reviews of primary care in hospital settings have found lactation telehealth to be a promising method of care [17,18].

The evidence-based practice of using telemedicine for breastfeeding support is growing. For the purpose of reporting the Saudi experience of telemedicine consultation in breastfeeding, this study sought to describe the patterns of telemedicine in breastfeeding consultations at Saudi Arabian Ministry of Health (MOH) health care facilities and to measure clients' satisfaction with remote breastfeeding counseling as compared to face-to-face consultation.

Materials And Methods

A descriptive cross-sectional study was conducted at MOH health care facilities (transforming to health clusters) during 2022. MOH health care facilities represent 60% of the total health care in Saudi Arabia [19]. Twenty administrative regions belong to MOH, each with a local breastfeeding coordinator. An operational project titled "Virtual Lactation Consultation" was set up in April 2020 to support MOH health care facilities; these facilities (hospital and primary care) were invited to engage in the project depending on the feasibility of manpower and technology support. The facilities were supported via a protocol for operating a breastfeeding clinic, training courses, the provision of virtual access (Anat platform, i.e., a virtual application for video-based consultation linked to the Sehhaty appointment system), meetings to exchange experiences, and the establishment of key indicators for monitoring breastfeeding clinics and other types of breastfeeding services. For the purposes of this research, MOH health facilities were organized by geographical distribution into the five regions of Saudi Arabia (Central, Northern, Eastern, Western, and Southern). Four administrative regions were excluded from the study as a result of their lack of telehealth breastfeeding services or communication difficulties (one in the north and three in the south).

Pregnant women and breastfeeding mothers (representing the period of lactation) who had received outpatient breastfeeding consultations during 2021 were included in the study regardless of race or nationality; these included mothers who had been discharged from the hospital while their babies remained in the neonatal ward. Women who had received breastfeeding consultation services as inpatients were excluded from the study. Monthly indicators were collected from the involved health care facilities and entered into an Excel form containing the name of the region, health facility, and project coordinator in the region. The indicators (variables) included the month/year, number of lactation consultations with pregnant women (face-to-face or telemedicine), number of lactation consultations with breastfeeding mothers (face-to-face or telemedicine), and the number of lactation consultations (face-to-face) with a mother's companion. Secondary resource data from outpatient breastfeeding consultation indicators for the year 2021 were utilized.

To gain a full picture of the patterns of telemedicine in Saudi Arabia, the Arabic language was used to explain the method of consultation and the satisfaction degree to the patients (Appendix). The survey was administered in Arabic via a Google link, by phone, or by SMS. A convenience sample from cases who consulted for breastfeeding was randomly collected from five geographical regions over the months of September and October 2022.

The operational project was supported by the deputyship of therapeutic services at MOH. The research was

approved by the Institutional Review Board of MOH's Studies and Research General Department (national registration number H-01-R-009; log number: 22-22 M). Permission was obtained from the data office at the MOH to utilize the project data for research purposes and from institutional research committees belonging to MOH directorates or health clusters from almost all the regions. Patient consent was obtained after consultation. Participation was optional, and the respondents' data were kept anonymous.

The collected data were analyzed using Excel and Social Science Statistics online platform [20]. The number of consultations was computed using Excel. Descriptive statistics (frequencies and percentages) were used to describe the categorical data. A chi-square statistical test was used comparison of two variables. A p-value of ≤ 0.05 was used to report the statistical significance of the associated variables. The main outcome measures were the number of telemedicine consultations in breastfeeding and patient satisfaction using a 5-point Likert scale.

Results

In total, 16 Saudi Arabia regions with MOH facilities joined the "virtual lactation consultation" project: Central (Riyadh and Qassim), East (Eastern area, Al-Ahsa, and Hafer Al Batin), North (Hail, Jof, Tabuk, and Qaryat), West (Mecca, Jeddah, Taif, Al Medina, and Al Qunfudhah), and South (Asir and Najran). The response rate for the facilitation of the research and data sharing or collection was 90% across the regions.

Data collection revealed that telemedicine breastfeeding consultations were ongoing in both hospitals and primary care facilities; however, most data (90%) came from hospitals' outpatient breastfeeding services. Hospital-based telemedicine was provided in antenatal care, health education, and breastfeeding clinics, or through a breastfeeding hotline service. Breastfeeding consultations through telemedicine in primary care were recorded in four regions (Al Ahsa, Riyadh First Health Cluster, Jof, and Jeddah), where they were integrated with other services; that is to say, these areas lacked specialized breastfeeding clinics. In terms of the profession of the health care practitioners providing telemedicine breastfeeding consultation, the figures were as follows: nurses (66.7%), health educators (17.3%), physicians (12.8%), and dieticians and others (3.2%).

In total, 182,745 outpatient breastfeeding consultations were carried out in the participating regions in 2021. The highest number of consultations was reported in the Central region (36.3%), with the lowest in the Southern region (3.8%) of Saudi Arabia. The percentages of outpatient breastfeeding consultations provided were 62.5% and 37.5% for lactating women and pregnant women, respectively, as shown in Table 1. A data analysis found that breastfeeding consultations provided for women's companions were undertaken in Al-Ahsa (Eastern region) (25.6%), Jeddah (Western region) (24.4%), and Najran (Southern region) (14.5%).

	Method of Consultation				Total, N (%)
	Telemedicine		Face to Face		
	Pregnant, N (%)	Lactating, N (%)	Pregnant, N (%)	Lactating, N (%)	
Region					
Central	4,461 (23.3)	7,643 (23.6)	15,148 (30.7)	39,033 (47.7)	66,285 (36.3)
Eastern	4,734 (24.8)	13,199 (40.7)	12,213 (24.7)	22,349 (27.3)	52,495 (28.7)
Western	7,369 (38.5)	6,796 (21.0)	13,675 (27.7)	13,720 (16.8)	41,560 (22.7)
Northern	2,156 (11.7)	4,043 (12.5)	5,854 (11.9)	3,427 (4.2)	15,480 (8.5)
Southern	407 (2.1)	763 (2.4)	2,505 (5.1)	3,250 (4.0)	6,925 (3.8)
Total	19,127 (10.4)	32,444 (17.8)	49,395 (27.0)	81,779 (44.8)	182,745 (100)

TABLE 1: Pattern of outpatient breastfeeding consultation in the regions of Saudi Arabia

Research data from 2021 were subclassified within each region and showed that health care facilities in the Northern and Eastern regions of Saudi Arabia most utilized telemedicine in breastfeeding outpatient care at 40.0% and 34.2%, respectively, as shown in Figure 1.

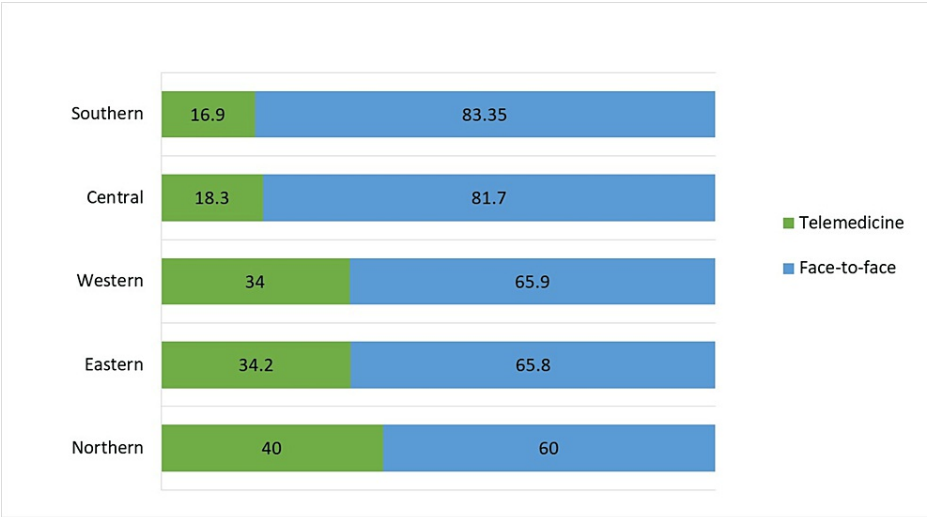


FIGURE 1: Method of outpatient breastfeeding consultation within each Saudi region

Furthermore, 51,571 telemedicine breastfeeding consultations were carried out in MOH facilities, representing 28.22% of total consultations, the highest number of which was reported in the Eastern region (40.7%) and the lowest (2.4%) in the Southern region, as shown in Figure 2. The most prevalent technology used for telactation was the phone (50%) and WhatsApp (38 %), as shown in Table 2.

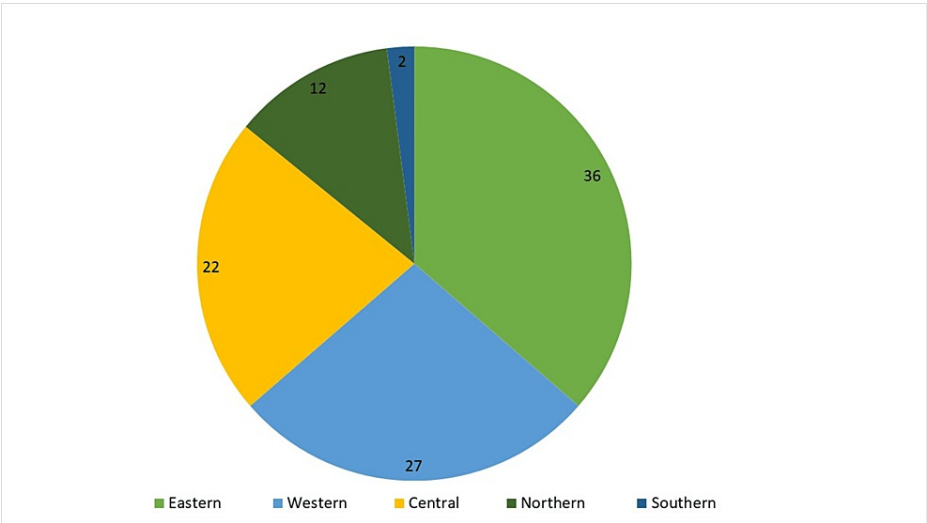


FIGURE 2: The percentage of telemedicine breastfeeding consultations per Saudi region

Patients' Satisfaction	Method of Consultation			Telemedicine Type						
	Face to Face, N (%)	Telemedicine, N (%)	P-value	Telephone, N (%)	WhatsApp, N (%)	Video, N (%)	Telegram, N (%)	E-mail, N (%)	Instagram, N (%)	P-value
Very satisfied	2,859 (41.3%)	858 (43.5%)	0.072	561 (57.4%)	225 (29.9%)	43 (39.4%)	7 (9.1%)	22 (42.3%)	0	<0.001
Satisfied	2,641 (38.1%)	804 (40.8%)	0.032	334 (34.2%)	332 (44.1%)	58 (53.2%)	59 (76.6%)	20 (38.5%)	1 (50.0%)	<0.001
Neutral	1,089 (15.7%)	222 (11.3%)	<0.001	51 (5.2%)	153 (20.3%)	5 (4.6%)	5 (6.5%)	8 (15.4%)	0	<0.001
Unsatisfied	264 (3.8%)	71 (3.6%)	0.667	27 (2.8%)	33 (4.4%)	3 (2.8%)	5 (6.5%)	2 (3.8%)	1 (50.0%)	0.243
Very unsatisfied	68 (0.9%)	14 (0.7%)	0.267	4 (0.4%)	9 (1.2%)	0	1 (1.3%)	0	0	0.156
Total, N (%)	6,921 (77.9%)	1,969 (22.1%)		977 (11.0%)	752 (8.5%)	109 (1.2%)	77 (0.9%)	52 (0.6%)	2 (0.02%)	

TABLE 2: Satisfaction according to the method and technology of telemedicine consultation

The number of outpatient breastfeeding consultations carried out monthly in the facilities that engaged in the project during 2021 is illustrated in Figure 3. The number ranged between 3,270 and 5,307, and the mean was 4,255. Outpatient breastfeeding teleconsultations were carried out least frequently in July.

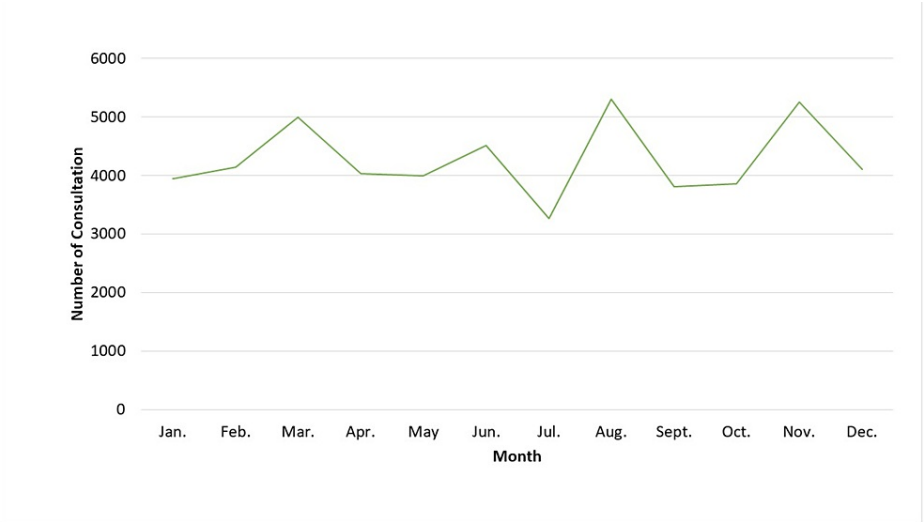


FIGURE 3: Monthly telemedicine breastfeeding consultations during 2021

A total of 8,894 women responded to the satisfaction survey. Most women (more than 80%) were satisfied with their breastfeeding consultation regardless of the method used (face-to-face or via telemedicine); however, Table 2 shows that satisfaction was more statistically significant in the telemedicine group (40.8%) than in the face-to-face group (38.1%) ($p=0.032$), and there were more neutral responses in the face-to-face breastfeeding consultation group ($p<0.001$). Regarding satisfaction with the technology used in telemedicine, a statistically significant difference was observed (Table 2): phone consultation respondents were very satisfied, and Telegram respondents were satisfied ($p<0.001$). WhatsApp respondents showed significantly more neutral responses than those who had used other telemedicine methods ($p<0.001$). No statistical difference was observed between face-to-face and telemedicine respondents or within telemedicine methods among unsatisfied or very unsatisfied respondents, as shown in Table 2.

Discussion

This study addressed the establishment of breastfeeding support in MOH facilities in outpatient settings and suggests development of breastfeeding management services and the enhancement of the virtual care experience among health care professionals. An increase in consultations in the Central, Eastern, and Western regions is proof that the “virtual care initiative” has helped improve breastfeeding health services at various levels of care. This could help slow the regions’ declining rates of exclusive breastfeeding [21-23] and may ultimately fulfill one of the WHO’s six global nutrition targets for 2025 [24].

However, it seems that outpatient breastfeeding consultations are run, to a large extent, in outpatient maternity hospitals. One of the factors driving this situation could be the breastfeeding counselors' recommendation that mothers contact a hospital's designated breastfeeding clinic following delivery, if necessary. Additionally, women may choose remote care over a hospital visit due to the medical safeguards put in place to protect against the spread of COVID-19. Other factors could include convenience, time savings, or prior positive experiences with telehealth. Virtual care is well established in primary care; however, the integrative approach may hinder the setup of specialized clinics and may be a barrier to the registry of breastfeeding cases. Primary care in Saudi Arabia is currently undergoing transformation, with an emphasis on preventive care [25]; this may prevent the establishment of specialized services in primary care, such as breastfeeding. The proportion of telemedicine consultations revealed in this research (28%) in relation to the total number of consultation reflects the project's objective of strengthening continuous care of the counseling offered during telelactation rather than replacing face-to-face consultation [8].

The nurse's role in breastfeeding management is well documented [26]. It is suggested that Arabic-speaking nurses who are trained lactation consultants should be hired to expand the number of breastfeeding clinics. However, some medical situations call for the advice of qualified medical professionals, highlighting the importance of integrative teamwork [27]. Surprisingly, few dietitians were involved in breastfeeding consultations in this survey, which may be explained by the fact that dietitians have little exposure to maternal and child health, that nutrition clinics tend to use an integrated registry of cases, or that few dietitians work in MOH facilities [28].

Most MOH regions in Saudi Arabia use telemedicine, yet the proportion of cases served varied widely. The variability across regions correlated with population, number of maternity hospitals, availability of technology, existing breastfeeding services, and/or miscommunication issues with the region. According to the survey conducted for this study, Eastern areas have higher breastfeeding rates, and Al-Ahsa had more involvement of companions in breastfeeding counseling session [29,30]. Although the highest amount of breastfeeding was recorded to be in the southern area, this region participated least in this project. Exclusive breastfeeding is still not the primary choice made by women in the south, and there is a need to prioritize these areas to remove obstacles to breastfeeding [31]. Breastfeeding consultation services undoubtedly continued during 2021 and 2022, but July was a summer break period and coincided with Hajj (pilgrim) season, during which outpatient services are significantly scaled back. The national holiday may be behind the gap in clinical care in infant nutrition.

Phone consultation is the oldest method and the most utilized technology in telemedicine [9], which may account for its availability among both providers and clients. WhatsApp is the most popular application among Saudis for general social networking; hence, it was commonly mentioned by the studied population. However, it also had the most neutral satisfaction ratings from survey respondents, suggesting the importance of an interactive method of communication in telemedicine. Interestingly, a systematic review found that chat-based support care is effective in high-income communities [32,33], and this may positively speculate an effect of WhatsApp use in this survey. Despite the availability of virtual (video)-based care via the Anat application in some regions, its utilization remains low. Seguranyes et al. found that videoconferencing and telephone contact were more effective tools than face-to-face standard care of mothers attending health centers in reducing the number of health center visits, and that these methods allow mothers to consult health staff immediately and from their own homes [34]. Overall, this study found patient satisfaction with telemedicine to be high in the Saudi population, as reported in other studies [1,13,35].

The study was limited in terms of knowledge about the content of breastfeeding cases, the triaging pathway for in-person consultations, the description of antenatal education in breastfeeding, and the reason behind limited videoconferencing. Additionally, the sample size was not calculated in advance of the study. Other health care facilities in Saudi Arabia, which belongs to private or other governmental sectors, were not included in this study, hindering the full representation of the country. The response rate for satisfaction rate could not be calculated in this survey. When this study is added to the existing literature, future research should consider the efficacy of telemedicine used in the studied population [36,37].

Conclusions

This study on the use of virtual lactation consultation was an opportunity to introduce technology into the health care of new mothers, potentially enhancing the experiences of both health care providers and patients. To ensure equity of care in outpatient breastfeeding support, both face-to-face and virtual care are necessary. This involves the integration of primary and hospital care in breastfeeding support. Team work of different health care professionals such as physicians and dietitians is necessary to empower the lactation services, and a national protocol for outpatient breastfeeding consultation is advisable. Establishment of a breastfeeding hotline during Hajj season is recommended. The authors encourage future examinations of the effectiveness of such services in each region, particularly in relation to breastfeeding practice indicators.

Appendices

Dear pregnant lady and lactating mothers,

Thank you for your consultation on breastfeeding, Your response to these two questions is valuable for research purposes to improve health services. It is voluntary to respond to it.

What was the method you have used for breastfeeding consultation (you can choose more than one:

- ☐ Phone
- ☐ Video (Sehhaty and Anat)
- ☐ WhatsApp message
- ☐ Telegram
- ☐ Email
- ☐ Zoom
- ☐ Microsoft teams
- ☐ Face to face (on site)
- ☐ Other

What is your satisfaction with the distance breastfeeding consultation done with you?

- ☐ Very satisfied
- ☐ Satisfied
- ☐ Neutral
- ☐ Unsatisfied
- ☐ Very unsatisfied

Additional Information

Disclosures

Human subjects: Consent was obtained or waived by all participants in this study. Ministry of Health's Studies and Research General Department issued approval National registration number H-01-R-009, log number: 22-22 M. The study's ethical approval was obtained from the institutional review board of MOH's Studies and Research General Department (national registration number H-01-R-009, log number: 22-22 M). Informed consent for participation on patients' satisfaction section was taken. **Animal subjects:** All authors have confirmed that this study did not involve animal subjects or tissue. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

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