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An analytic cross-sectional study of Somali women on the sexual and psychosocial status during pregnancy

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Abstract

Background Pregnancy is associated with physical, psychological, hormonal, and social alterations that may lead to detrimental effects on sexual function and psychological well-being. This study sought to examine sexual function and psychosocial well-being of pregnant women in Somalia in comparison with their non-pregnant counterparts.

Methods We enrolled 487 consecutive women in monogamous marriages. Data included maternal age, gravida, parity, gestational week, education status of wives and husbands, and residence area. The participants completed the Female Sexual Function Index (FSFI) and the Brief Symptom Inventory-18 (BSI-18).

Results Of 487 women, 241 were pregnant, and 246 were non-pregnant. The overall incidence of sexual dysfunction was 57.7%, being 64.0% for pregnant and 51.6% for non-pregnant women ($p=0.010$). Pregnant women exhibited significantly lower FSFI scores on desire, arousal, lubrication, and orgasm, and significantly higher total BSI, anxiety, depression and somatization scores. The frequencies of sexual dysfunction were 57.9%, 45.9%, and 78.9% during the first, second, and third trimesters, respectively ($p=0.0001$). As compared with the first and second trimesters, and non-pregnancy, the third trimester of pregnancy was associated with a significantly lower total FSFI score and significantly decreased levels of desire, arousal, lubrication, and orgasm, as well as a significantly higher total BSI score and a significantly increased level of anxiety. In regression analysis, pregnancy was inversely associated with sexual function parameters of desire, arousal, lubrication, and orgasm, and with BSI parameters of depression, anxiety and somatization.

Conclusion Our findings suggest that pregnant women experience considerable sexual and psychosocial deterioration as compared with their non-pregnant counterparts.

Keywords Pregnancy, Sexual dysfunction, Depression, Anxiety, Somalia

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Introduction

Pregnancy has been considered an integral part of woman's health. Due to many biological and psychological factors, there has been growing evidence that pregnancy may have adverse effects on women's physical, emotional, and psychosocial well-being, contributing to sexual dysfunction and psychological problems [1–4]. Anatomical changes during pregnancy may induce feelings of distorted body image and decreased sense of attractivity in both partners of marriage, leading to reluctance to and even cessation of sexual activity [5]. In addition, pregnant women experience increased levels of fear and anxiety concerning the health of the foetus, and the risks for abortion and preterm birth [6, 7].

Apart from adverse biological effects of pregnancy, sexual health is closely related to roles assigned to women in a particular society. The World Health Organisation defines sexual health as "a state of physical, emotional, mental and social well-being in relation to sexuality" [8], which is particularly compromised in developing and underdeveloped countries. Somalia is a unique example of such countries where women do not have adequate access to basic human and social rights in such areas of education, social roles, employment and monogamous marriage, all complicated by famine, violence and a civil war. These unfavourable circumstances have adverse effects not only on sexual health but also on psychological health of pregnant women. In Somalia, addressing sexual and psychological health issues during antenatal examinations has been and will be an elusive attempt.

To date, reports on adverse effects of pregnancy have focused either on women's sexual health or psychosocial health [3, 4, 7]. Moreover, these reports have mainly come from regions other than Africa, where women's sexual health and psychosocial well-being have largely been away from attention and interest, particularly in the context of pregnancy [3, 9–12]. Thus, assessing the effects of pregnancy on sexual health or psychosocial health of women may lead to some degree of overestimation unless other more important factors throughout most African societies are taken into consideration. Somalia has many distinct characteristics in this respect. As in many African countries, traditional gender roles are deeply ingrained, with women often expected to fulfil domestic duties and to adhere to cultural norms, dictating their behaviours and limiting their autonomy and participation. Access to education is another major problem, in that a third of all Somali women have been deprived of education [13], rendering them totally illiterate. Those who may have access to schooling also have limited opportunities to pursue higher education and vocational training. Women also face great challenges in accessing healthcare services due to limited infrastructure, lack of social security, and cultural barriers. In contrast to more civilized societies, women in Somalia are greatly unprotected by legal frameworks, leading to legal discrimination in areas such as marriage, divorce, and inheritance. These adverse factors affecting women's lives are even amplified by polygamous marriages accounting for nearly a third of all marriages [13]. Last but not the least, the practise of female genital mutilation, which affects nearly 98% of girls between the ages of 5–11 represents one of the most debilitating factors in the context of sexual health and function, because it mainly aims to control female sexuality [14].

This study sought to examine sexual function and psychosocial well-being of pregnant women in Somalia in comparison with their non-pregnant counterparts. To our knowledge, this the first report in the medical literature to analyse pregnancy in terms of sexual and psychosocial health, especially from Somalia where women are highly victimized by social, economic, and gender-based problems amid a civil war.

Methods

Study design and participants

This an analytic cross-sectional study included data on 487 consecutive pregnant and non-pregnant women in monogamous marriages who had presented to the department of obstetrics of Mogadishu Somali Turkey Training and Research Hospital in Mogadishu, the capital city of Somalia, between August 1 and December 1, 2022. Data included maternal age, gravida, parity, gestational week, education status of wives and husbands, and residence area.

The participants were asked to complete two questionnaires: The Female Sexual Function Index [15] and the Brief Symptom Inventory-18 [16]. In interrater reliability analysis, Cronbach's alpha coefficients of the BSI-18 and FSFI in the Somalian language were found as 0.94 (range 0.86–0.96) and 0.88 (range 0.82–0.92), respectively. Content-related validity coefficients for the corresponding tests were 0.32 and 0.35 [13].

Inclusion criteria were being married in a monogamous marriage, literate, and sexually active. Exclusion criteria were being married in a polygamous marriage, illiterate, comorbid conditions (e.g., renal or liver failure, diabetes mellitus, hypertension, and coronary artery disease), history of a previous major pelvic trauma, psychiatric or neurological disorder, alcoholism, illicit drug use, and use of drugs that might affect sexual function.

Questionnaires

The FSFI was developed by Rosen and colleagues to assess six domains of female sexual function (sexual desire, sexual arousal, lubrication, orgasm, satisfaction, and pain) and has become one of the most widely used measures of sexual functioning of women. The 19-item

FSFI is easy to understand and has been adapted to a number of languages. The items are scored on a five-point (1 to 5) Likert scale, with lower scores corresponding to lower levels of sexual functioning and a score of less than 26.55 indicating sexual dysfunction. Fifteen items also include a sixth response option scored with zero indicating no sexual activity in the past four weeks. Each individual domain score is calculated by the summation of individual scores of the domain multiplied by a factor for each domain ranging from 0.3 to 0.6. Finally, the individual domain scores are added to obtain the overall score [17].

The BSI-18 is a short form of the Symptom Checklist-90-Revised. It contains three (somatization, depression, and anxiety) six-item domains, whose total score ranges from 0 to 72, with higher scores indicating increased negative feelings about the self [16].

Ethics approval and consent to participate

The study was approved by the Ethics and Research Committee of Mogadishu Somali Turkey Training and Research Hospital (Permission number: MSTH/10901/04.07.2022/636). The study was performed in accordance with the principles and guidelines of the Declaration of Helsinki. All participants were informed about the study and gave written informed consent to publication of the results. Analysis and reporting of the results are in compliance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) checklist.

Table 1 Clinical characteristics

	Mean ± SD	Count	Percent
Current age (years)	20 ± 4		
Type of women			
Non-pregnant		246	50.5
Pregnant		241	49.5
First trimester		48	20.0
Second trimester		78	32.3
Third trimester		115	47.7
Parity			
Nullipara		77	15.8
Primipara		107	22.0
Multipara		303	62.2
Residence			
Urban		430	88.3
Rural		57	11.7
Education status of wives			
Primary school		218	44.7
Secondary or/and high school		157	32.2
University		112	23.0
Education status of husband			
Primary school		251	51.6
Secondary or/and high school		11	2.2
University		225	46.2
Sexual dysfunction *		281	57.7
Pregnant		154	64.0
First trimester		28	57.9
Second Trimester		36	45.9
Third trimester		90	78.9
No-pregnant		127	51.6

*A FSFI score of <26.55 indicates sexual dysfunction. SD: standard deviation

Data processing and analysis

Data were collected using a structured format including relevant sociodemographic features and were processed using the Statistical Package for Social Sciences (SPSS) version 29 (IBM Corp., Armonk, N.Y.; USA). Quantitative data were expressed as means, standard deviation (SD), median, minimum, and maximum, and qualitative data as frequencies and percentages. Homogeneity was checked using the Levene's test where a p value of >0.05 was considered in favour of homogeneity. The Shapiro-Wilk normality test was used to check whether continuous variables were normally distributed.

For pairwise comparisons, numerical variables were compared using the independent t-test if normally distributed. Multigroup comparisons of normally distributed variables were made using the one-way ANOVA test. The post hoc multiple comparisons (Bonferroni) were used to determine between-group differences. Nominal variables were analysed with the Pearson's chi-squared test. Univariate analysis was performed to determine the effect of pregnancy on parameters of sexual and psychosocial function. A p value of less than 0.05 was accepted as statistically significant. All variables were expressed with 95% confidence intervals (CI).

Results

During the study period, a total of 1200 women presented to the obstetrics and gynaecology outpatient clinic. Due to physical limitations and the time required for completion of each questionnaire, a random selection was made pointing to the third presenting patient after completion of each set of the questionnaires. As a result, 755 women were asked to participate in the study and 487 women gave consent and completed the two questionnaires. Each set of questionnaires took approximately 30 min to complete for literate women.

Sociodemographic characteristics

The characteristics of the participants are summarised in Table 1. Of 487 participating women, 241 were pregnant, and 246 were non-pregnant. Of 241 pregnant women, 48, 78, and 115 were in the first, second, and third trimesters, respectively. The overall mean age was 27.5 ± 6.3 years (range 16–43). The two groups were similar with respect to the age ($p=0.468$), education status of the wives

($p=0.322$) and husbands ($p=0.313$), and area of residency ($p=0.107$) (Table 2).

Sexual dysfunction and psychosocial deterioration

The overall incidence of sexual dysfunction was 57.7% (Table 1). Comparisons of the two groups with respect to the scores on FSFI and BSI are presented in Table 2. More than half of the women in the pregnant and non-pregnant groups had sexual dysfunction (64% for pregnant women and 51.6% for non-pregnant women; $p=0.010$). As compared with the non-pregnant women, pregnant women exhibited significantly lower scores on all the FSFI sub-domains except for satisfaction and pain. As to the BSI, pregnant women had significantly higher scores, showing higher levels of anxiety, depression and somatization ($p=0.008$, $p=0.018$, and $p=0.31$, respectively).

Table 2 Comparison of non-pregnant and pregnant women with respect to age, education, residence, female sexual index, and brief symptominventoryy

Parameters	Pregnant ($n=241$) *N* (%)	Non-pregnant *n* (246) *N* (%)	*P*
Age (years) mean ± SD	27.0 ± 5.6	27.9 ± 6.7	0.468**
Education status of wives			
Primary school	111(46.1)	107 (43.5)	0.322*
Secondary or/and high school	82 (34.0)	75 (30.5)	
University	48 (19.9)	64 (26.0)	
Education status of husband			
Primary school	133 (55.2)	118 (48.0)	0.313*
Secondary or/and high school	5 (2.0)	6 (2.4)	
University	103 (42.7)	122 (49.6)	
Area of residency			0.107*
Urban	206 (85.5)	222 (90.2)	
Rural	35 (14.5)	24 (9.8)	
	Mean ± SD	Mean ± SD	P
FSFI			
FSFI total score	24.32 ± 4.92	25.62 ± 4.76	**0.006****
Desire	4.17 ± 1.39	4.48 ± 1.20	**0.012****
Arousal	4.26 ± 1.30	4.55 ± 1.18	**0.017****
Lubrication	3.82 ± 1.18	4.10 ± 1.06	**0.009****
Orgasm	4.19 ± 1.11	4.46 ± 1.08	**0.012****
Satisfaction	4.64 ± 1.18	4.66 ± 1.28	0.929**
Pain	3.27 ± 0.80	3.37 ± 0.96	0.244**
Sexual dysfunction, n (%)	121 (64.0)	127 (51.6)	**0.010****
BSI			
BSI total score	13.6 ± 11.6	10.7 ± 10.9	**0.008****
Anxiety	4.7 ± 4.6	3.6 ± 4.2	**0.008****
Somatization	5.2 ± 4.5	4.2 ± 4.3	**0.018****
Depression	3.8 ± 3.7	3.0 ± 3.6	**0.031****

N: Number; %: Percentage; SD: standard deviation; *Chi-square test; **Independent-Samples T Test; p≤0.05: Statistically significant;A FSFI score of <26.55 indicates sexual dysfunction

Between-group comparisons

The results of between-group comparisons including the three trimesters of pregnancy are summarised in Table 3. Among pregnant women, the frequencies of sexual dysfunction were 57.9%, 45.9%, and 78.9% during the first, second, and third trimesters, respectively ($p=0.0001$). As compared with women in the first and second trimesters, and non-pregnant women, women in the third trimester of pregnancy not only had significantly lower total FSFI scores and significantly decreased levels of desire, arousal, lubrication, and orgasm, but also had significantly higher total BSI scores and a significantly increased level of anxiety. Scores for satisfaction, sexual pain, somatization, and depression were similar across the groups ($p>0.05$).

Regression analysis

The results of the univariate analysis are summarised in Table 4. As to female sexual function, pregnancy was inversely associated with the total FSFI score and its subdomains of desire, arousal, lubrication, and orgasm. In psychosocial terms, pregnancy was significantly associated with the total BSI score and all of its sub-domains.

Discussion

We evaluated sexual and psychological well-being of pregnant women, as determined by the FSFI and BSI scores. To our knowledge, this is the first study in Somalia and Africa involving a relatively large sample size of pregnant women to examine the sexual and psychological conditions in comparison with non-pregnant counterparts. Although pregnancy is often celebrated as a beautiful and transformative journey in a women's life, it is accompanied by a wide range of physical, emotional, and psychosocial alterations. In our sample, pregnant women differed significantly from non-pregnant controls with decreased levels of sexual function as indicated by the total FSFI score, and scores of desire, arousal, lubrication, and orgasm, as well as increased levels of psychological problems as indicated by the total BSI score and scores of anxiety, depression, and somatization.

Almost all previous studies, whether from developed or developing/underdeveloped countries, addressed pregnancy with respect to its detrimental effects on either sexual function or psychological well-being. [3, 11, 18–20]. To our knowledge, studies from Africa are very rare [13, 21], with none from Somalia. A study from Spain reported an increasing trend in the prevalence of sexual dysfunction among 180 pregnant women from the first (65.0%) to the third (81.1%) trimesters [22]. In a similar study of Brazilian pregnant women, the incidence of sexual dysfunction steadily increased through the pregnancy course from 36.8% in the first to 55.2% in the second, ending up with 76.7% in the third trimester [18]. There

Table 3 Comparisons across non-pregnant and trimesters of pregnancy with respect to education, residence, female sexual index, and brief symptom inventory

	Pregnant (Trimesters) (*n* = 241)			**Non-pregnant (*n* = 246)**	***P****
Parameters	**First (< 14 weeks) n (%)**	**Second (14–28 weeks) n (%)**	**Third (> 28 weeks) n (%)**	**n (%)**	
Education status of wives					0.401
Primary school	25 (52.1)	35 (44.9)	51 (44.4)	107 (43.5)	
Secondary or/and high school	15 (31.3)	28 (35.9)	39 (33.9)	75 (30.5)	
University	8 (16.7)	15 (19.2)	25 (21.7)	64 (26.0)	
Education status of husbands					0.336
Primary school	33 (68.8)	37 (47.5)	63 (54.8)	118 (48.0)	
Secondary or/and high school	1 (2.1)	1 (1.3)	3 (2.6)	6 (2.4)	
University	14 (29.2)	40 (51.3)	49 (42.6)	122 (49.6)	
Residence					0.366
Urban	41 (85.4)	65 (83.3)	100 (87)	222 (90.2)	
Rural	7 (14.6)	13 (16.7)	15 (13.0)	24 (9.8)	
	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD	P**
FSFI					
Total FSFI Score	24.44 ± 3.88	26.14 ± 4.72	22.68 ± 4.90	25.62 ± 4.76	**P3:0.001 P5:0.021 P6:0.0001**
Desire	4.40 ± 1.17	4.66 ± 1.33	3.73 ± 1.39	4.48 ± 1.20	**P3: 0.0001 P5:0.036 P6:0.0001**
Arousal	4.50 ± 1.12	4.68 ± 1.23	3.89 ± 1.33	4.55 ± 1.18	**P3: 0.0001 P5:0.057 P6:0.001**
Lubrication	4.11 ± 0.96	4.13 ± 1.16	3.49 ± 1.20	4.10 ± 1.07	**P3: 0.0001 P5:0.021 P6:0.00**3
Orgasm	4.47 ± 0.94	4.52 ± 1.05	3.86 ± 1.12	4.46 ± 1.08	**P3: 0.0001 P5:0.029 P6:0.002**
Satisfaction	4.82 ± 1.03	4.85 ± 1.12	4.43 ± 1.26	4.65 ± 1.28	0.170
Pain	3.18 ± 0.89	3.31 ± 0.78	3.28 ± 0.77	3.37 ± 0.96	0.594
Sexual dysfunction n (%)	28 (57.9)	36 (45.9)	90 (78.9)	127 (51.6)	**P:0.0001**
BSI					
Total BSI score	12.11 ± 11.75	12.64 ± 10.26	14.96 ± 12.25	10.74 ± 10.87	**P3:0.014**
Anxiety	4.11 ± 4.81	4.28 ± 4.05	5.20 ± 4.86	3.55 ± 4.18	**P3:0.014**
Somatization	5.00 ± 4.68	4.74 ± 4.03	5.59 ± 4.70	4.19 ± 4.27	**P:0.069**
Depression	3.00 ± 3.43	3.62 ± 3.71	4.17 ± 3.92	2.99 ± 3.58	**P:0.059**

N: Number; %: Percentage; SD: standard deviation; *Chi-square test; **One-Way ANOVA test (Bonferroni); p≤0.05: Statistically significant, A FSFI score of υ26.55 indicates sexual dysfunction, P: Across-group comparisons; P1: No pregnancy-first; P2: No pregnancy -second trimester; P3: No pregnancy-third trimester; P4: First-second trimester; P5: First-third trimester; P6:Second-third trimester

have been only two studies from Africa coming from Nigeria and Egypt. The former reported an overall incidence of 50.7% for pregnancy-related sexual dysfunction with a significant difference in the rates of the first and third trimesters [12]. The latter reported the highest incidence of sexual dysfunction in the third trimester, along with a lower incidence in the second trimester as compared with the first trimester [15]. Higher levels of sexual dysfunction during the first and third trimesters are probably due to the unique characteristics of these periods that keep couples away from sexual intercourse during pregnancy. Nausea, vomiting, and fear of losing the baby in the first trimester, distorted body image particularly weight gain and fear of preterm labour in the third trimester possibly play roles in decreased sexual function.

The other dimension in the context of pregnancy is the deterioration in the psychological well-being of women. In our study, pregnant women were found to have significantly higher scores of anxiety, depression, and somatization, as well as the total BSI score than their non-pregnant counterparts. The highest scores for the BSI, anxiety, depression, and somatization were recorded in the third trimester. A meta-analysis from African countries of 28 studies found that antenatal depression

Table 4 Associations of pregnancy with the parameters of the female sexual functional index and brief symptom inventory

Dependent variables	Estimate	95% CI		T	*P* *
FSFI					
Total FSFI score	-1.30	-2.22	-0.376	-2.76	**0.006**
Desire	-0.313	-0.558	-0.0682	-2.51	**0.012**
Arousal	-0.288	-0.523	-0.0521	-2.40	**0.017**
Lubrication	-0.284	-0.496	-0.0712	-2.62	**0.009**
Orgasm	-0.267	-0.476	-0.0579	-2.51	**0.012**
Satisfaction	-0.0108	-0.248	0.226	-0.0897	0 0.929
Pain	-0.101	-0.271	-0.0691	-2.21	0.244
BSI					
Total BSI score	2.90	0.776	5.02	2.68	**0.008**
Anxiety	1.13	0.298	1.96	2.67	**0.008**
Somatization	1.00	0.175	1.83	2.38	**0.018**
Depression	0.765	0.0682	1.46	2.16	**0.031**

*Univariate analysis; p≤0.05: Statistically significant; CI: Confidence intervalence; reference: Non-pregnant women

was associated with economic difficulties, unfavourable marital condition, poor support from relatives, bad obstetric history, and history of mental health problems [23]. In a study from the Netherlands, depression and anxiety scores showed an opposite trend, with the former increasing and the latter decreasing significantly throughout pregnancy [9]. In an Australian prospective study, pregnancy was not associated with increased symptoms of depression or anxiety; in contrast, it was associated with decreased levels of anxiety [10]. Another study from Greece reported depressive symptoms and clinically significant anxiety symptoms in more than a third of pregnant women [11]. In contrast to decreased sexual function due to the characteristics of pregnancy itself, adverse effects on psychosocial health resulting in increased levels of anxiety and depression possibly result from factors other than pregnancy such as economic problems, social difficulties, limited health resources, and problems within the family.

The authors feel that evaluation of sexual function and psychological well-being among pregnant women would not yield accurate results unless other factors are taken into consideration, which is of particular importance for African countries. Somalia is a unique example of such countries where women do not have adequate access to basic human and social rights in such areas of education, social roles, and employment, all complicated by famine, violence and a civil war. These unfavourable circumstances have adverse effects not only on sexual health but also on psychological health of pregnant women. Female genital mutilation alone, being so widespread among Somali women at 98% [14], undoubtably represents one of the leading factors having adverse effects on both sexual function and psychological well-being. There is no doubt that these problems would have adverse effects on the sexual and psychological health of women, whether or not they are pregnant. The high incidences of sexual dysfunction among pregnant (64.0%) and non-pregnant women (51.6%) substantiate our thesis. Overall, poor social and economic conditions in Somalia along with the civil war victimize women, whether or not they are pregnant, to such an extent that individual efforts from the medical society and obstetricians to improve women's sexual and psychosocial health may not yield desired results. More importantly, this is not a problem of Somalia itself, but a problem of international interest and endeavours.

Strengths and limitations

Despite clear-cut data with a relatively large sample size about the adverse effects of pregnancy on sexual and psychological well-being of Somali pregnant women, generalization of our findings may be limited because they represent a single-centre experience.

Conclusion

Our findings suggest that pregnant women experience considerable sexual and psychosocial problems as compared with their non-pregnant counterparts. We also found that sexual dysfunction was common in more than half of the non-pregnant women. Many unfavourable circumstances peculiar to Somalia have adverse effects not only on sexual health but also on psychological health of pregnant women. In Somalia, addressing sexual and psychological health issues during antenatal examinations has been and will be an elusive goal. It should also be noted that a great majority of problems encountered in Somalia are of international nature, requiring international cooperation and collaboration.

Abbreviations

AOR	Adjusted odds ratio
CI	Confidence interval
SPSS	Statistical package for social science
FSFI	Female sexual Function Index
BSI-18	Brief symptom Inventory-18

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Author contributions

All authors (A.B, S.A.M., U.E., and I.S.H.) made substantial contributions to the proposal design, data collection, analysis, report, writing and drafting the manuscript. Finally, all authors reviewed, revised and approved the manuscript for publication.

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Data availability

Yes. All data generated or analysed during this study are included in this article. The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request, but restrictions apply to the availability of these data, which were used under license for the current study, and so are not publicly available. The corresponding author (email: dradilbarut@gmail.com) can be contacted for the data with a reasonable request.

Declarations

Ethics approval and consent to participate

The study was approved by the Ethics and Research Committee of Mogadishu Somali Turkey Training and Research Hospital (Permission number: MSTH/10901/04.07.2022/636). The study was performed in accordance with the principles and guidelines of the Declaration of Helsinki. All participants were informed about the study and gave consent to publication of the results. As a considerable proportion of the participants were illiterate, informed consent was obtained from their legal representatives. Analysis and reporting of the results are in compliance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) checklist.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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