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Research Article

Body Image and Health-Related Quality of Life of Nigerian Nulligravid, Pregnant, and Postpartum Women

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Abstract

Background: Pregnancy-related changes in women's body shape and size predisposes to negative body image. However, the nexus between pregnancy-related body image and Health-Related Quality of Life (HRQoL) is still controvertible. This study assessed the relationship between body image and HRQoL among Nigerian nulligravid, pregnant, and postpartum women.
Methods: 385 women volunteered for this cross-sectional study between November 2016 and January 2017 from two selected clinics in Ile-Ife, Osun State, Nigeria. Body image was assessed using the Body Attitude Questionnaire (BAQ) and Body Shape Questionnaire (BSQ), respectively. HRQoL was assessed using the SF-12 questionnaire. Data was summarized using descriptive statistics. Inferential statistics including Chi-square test was used to test the associations between body image and HRQoL in pregnant and postpartum women. Alpha level was set at $P<0.05$.
Results: Body attitude satisfaction and pregnancy-related women status was significantly associated with respect to abdomen ($P=0.021$) and genitalia ($P=0.005$). Postpartum women were most satisfied with their abdomen (95.2%). There was significant correlation between BAQ score and health perception ($P=0.001$), emotional functioning ($P=0.001$), and mental health ($P=0.040$) scales of the SF-12. There was significant correlation between BSQ score and bodily pain ($P=0.020$), health perception ($P=0.001$), and emotional functioning ($P=0.003$) scales of the SF-12.
Conclusions: Postpartum women had better body attitude and body shape perception than their pregnant and non-pregnant counterparts. Body attitude is related to HRQoL in non-pregnant, pregnant and postpartum women. Body shape perception is only correlated with bodily pain, health perception and emotional functioning scales of the HRQoL.

Keywords: Body image, Health, Quality of life, Women

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1. Introduction

Women are much concerned about their body image (1, 2), which is described as a psychosocial depiction of the body, encompassing attitude and self-perception of appearance (body size and shape) (3, 4), sense of body in physical space (5), and the perception of the sexual attractiveness of the body (6). Thus, Altabe and Thompson (7) defined body image as a subjective and multidimensional construct that describes an individual's concept, mental picture, feelings, thoughts, and judgment of his or her own body. However, there is an apparent lack of consensus on what constitute an ideal body shape for women. Nonetheless, some suggest that an ideal female body is perceived as thin, shapely breast and unmarked skin (4). Consequently, many women take on a negative body image about their own bodies because of a feeling of inadequacy in comparison to a benchmark of the perfect body whether real or imagined (7).

There are a gamut of factors that may positively or negatively influence body image. Some of these include presence or absence of family support, pressure to conform to media, peer group, and popular culture representation of an 'ideal' body, puberty changes, aging process, stretch marks, and weight gain during or retained after pregnancy (7, 8). Accordingly, pregnancy is a significant physiologic factors that affect body image among women (9), as women describes pregnancy-related changes as causing a renegotiation of their identity moving them away from identities of being a sexually attractive woman and towards a mothering identity (4). Hodgkinson and other colleagues (4)

posited that women's perception of their pregnancy body image is varied and depends on the strategies they use to protect against the social construct of female beauty. Also, body image in pregnancy transgress the socially constructed ideal image and women protect against this through delineating between fatness and pregnancy, perceiving themselves excused (4). Thus, many women experience difficulty accepting the changes to their body while they are pregnant (10).

Pregnancy and postpartum body image have been associated with a myriad of health consequences that cause physical pain (11), cardiovascular and metabolic and eating disorders (12), as well as, psychosocial disorders including stress (13), depression and impairment in Health-related Quality of Life (HRQoL) (14, 15). As such, the effect of pregnancy-related body image perception on HRQoL has been documented in previous studies (16, 17). However, extrapolation of results from Western studies to culturally diverse context like the sub-Sahara Africa may be intricate considering that both body image and HRQoL have strong cultural influences. The objective of this study was to assess the relationship between body image and HRQoL among non-pregnant, pregnant, and postpartum women.

2. Methods

385 respondents participated in this cross-sectional study and yielded a response rate of 96.3% (385/400*100). However, 15 of the returned questionnaire were incomplete and excluded. Therefore, 370 questionnaires (164 non-pregnant (i.e. nulligravida), 101 pregnant and 105 postpartum) were used in the final data analysis (yielding a valid response rate of 96.1%). The respondents were purposively recruited from the Ife Hospital Unit and the Urban Comprehensive Health Centre of the Obafemi Awolowo University Teaching Hospitals Complex, (OAUTHC) Ile-Ife, Osun State, Nigeria. Any eligible non-pregnant, pregnant or post-partum woman with any obvious physical disfigurement or self-reported history of chronic illness including anorexia nervosa or bulimia nervosa were excluded.

Sample size for this study was calculated based on the sample size formula – i.e.

$$n = \left[\frac{z\frac{\alpha}{2}+z\beta}{\frac{1}{2}\ln\frac{1+r}{1-r}}\right]^2 + 3$$

used in a previous study by Kiarsipour and colleagues (18), involving 320 participants. The present study adopted a rounded figure sample size of 385 participants in order to accommodate for refusal to participate and incomplete filing of questionnaires.

This study explored body image in terms of 'body image attitude' and 'body shape'. Body Attitude Questionnaire (BAQ) was developed by Ben-Tovim and Walker (19). The 44-item questionnaire measures women's attitude towards their body. The tool has six subscales, which include feelings of overall fatness, self-disparagement, strength, salience of weight, feelings of attractiveness, and consciousness of lower body fat. The tool demonstrated the factorial validity and internal consistency of a=0.87 (20). It has also been employed in some previous studies (21, 22).

The Body Shape Questionnaire -10 (BSQ-R-10) was employed to evaluate body shape satisfaction (23). The BSQ-R-10 is a 10-item measure, in which respondents answer questions regarding their feelings toward their body shape. A Cronbach's alpha of 0.96 demonstrating strong internal consistency was reported by Conti and co-workers (24). Other studies found strong correlation between the tool and eating disorder test (r=0.74) (8).

The SF-12 General Health Status questionnaire by Ware and colleagues (25) was used to assess HRQoL. The 12-item scale derived from the original health survey-36 (SF-36) has eight scales, which are physical functioning, role-physical, bodily pain, general health, energy/fatigue, social functioning, role-emotional, and mental health. These scales are summarized to physical health and mental health component domains. The reliability for physical and mental health component were observed as 0.89 and 0.76, respectively. Relative validity of physical and mental health component summary ranges from 0.43 to 0.93 (median=0.67) and 0.60 to 1.07 (median=0.97), respectively (25). The SF-12 has been validated in health and disease populations across diverse patient group (26, 27). Ethical approval for this study was obtained from the Research and Ethics Committee of the OAUTHC. All respondents gave signed informed consent to participate in the study.

Computations

Body Attitude Questionnaire (BAQ) items are scored so that greater scores reflect greater attractiveness. BAQ scores were classified as poor or better using 75 percentile benchmark.

Body Shape Questionnaire is a 10-item measure. Each item is rated on a six-point scale. each with never=1

and always=6. A score less than 19 means no concern with shape, a score ranging from 19 to 25 means mild concern with shape, a score of 26 to 33 means moderate concern and a score over 33 means marked concern with shape. Scores ranges from 10 to 60, with higher scores indicating greater body dissatisfaction.

The SF-12 is a multipurpose short form survey with 12 items. To score the SF-12, the researchers followed the method proposed by the developers (25). The items were combined, scored, and weighted to form eight subscales (bodily pain [BP], general health [GH], vitality [VT], and social functioning [SF]; and physical functioning [PF], mental health [MH], role physical [RP], and role emotional [RE]), and the subscales in turn were computed to form two domains (mental component summary [MCS] and physical component summary [PCS]). Response categories for the 12 items vary from two- to six-point scales, and raw scores for items range from one to six. Raw scores for items were transformed by recoding (each ranging from 0 [the worst] to 100 [the best]) them in order to obtain the eight scale scores (25). The summary scores of the PCS and MCS scores were calculated from z-scores of the eight subscales, using weights from principal component analysis on the SF-36 scales (28).

Data Analysis

Descriptive statistics of frequency distribution

Table 1: Socio-demographic characteristics of the respondents (N=370)

Variable	Non-pregnant	Pregnant	Post-partum	x^2	P value*
	n(%) n=164	n(%) n=101	n(%) n=105		
Age					
≤ 20	119 (72.6)	3 (3.0)	0 (0.0)	95.977	0.001
20-30	45 (27.4)	62 (61.4)	68 (64.8)		
31-40	0 (0.0)	36 (35.6)	37 (35.2)		
Religion					
Christian	147 (89.6)	86 (85.1)	91 (86.7)	1.265	0.531
Islam	17 (10.4)	15 (14.9)	14 (13.3)		
Occupation					
Home maker	0 (0.0)	7 (6.9)	14 (13.3)	3.399	0.001
Business	10 (6.1)	73m(72.3)	73 (69.5)		
Civil Servant	0 (0.0)	21 (20.8)	18 (17.1)		
Student	154 (93.9)	0 (0.0)	0 (0.0)		
Education					
Secondary	73 (44.5)	19 (18.8)	19 (18.1)	68.45	0.001
NCE	10 (6.1)	14 (13.9)	24 (22.9)		
OND	14 (8.5)	28 (27.7)	24 (22.9)		
BSC	67 (40.9)	40 (39.6)	38 (36.2)		
Income (N)					
<10,000-20,000	114 (69.5)	47 (46.5)	49 (46.7)	42.76	0.001
20,000-50,000	45 (27.4)	36 (35.6)	31 (29.5)		
50,000-100,000	3 (1.8)	12 (11.9)	15 (14.3)		
100,000-150,000	2 (1.2)	2 (2.0)	9 (8.6)		
150,000-200,000	0 (0.0)	4 (4.0)	1 (1.0)		
Family Setting					
Polygamy	24 (14.6)	27 (267)	25 (23.8)	11.37	0.780
Monogamy	125 (76.2)	70 (69.3)	72 (68.6)		
Single parent	15 (9.1)	4 (4.0)	8 (7.6)		
Polyandry	0 (0.0)	0 (0.0)	0 (0.0)		
Pregnancy					
0	164 (100.0)	9 (8.9)	0 (0.0)	3.326	0.001
1	0 (0.0)	43 (42.6)	46 (43.8)		
2	0 (0.0)	29 (28.7)	31 (29.5)		
3	0 (0.0)	7 (6.9)	27 (25.7)		
4	0 (0.0)	7 (6.9)	1 (1.0)		
5	0 (0.0)	3 (3.0)	0 (0.0)		

*Descriptive statistics of frequency distribution and percentages were used.

and percentages were used to summarize the social demographic variables of respondents. Inferential statistics of One Way ANOVA was used for comparison; Spearman test was used for correlation between each of body attitude questionnaire and body shape questionnaire scores; and Descriptive statistics of mean, median and percentile were used for comparison of SF-12 scores across the groups. Alpha level was set at P<0.05. Data analysis was performed using IBM SPSS Statistics for Windows, Version 21.0.

3. Results

The non-pregnant respondents were mostly students (93.9%) and were of ≤20 years in age (72.6%) while the majority of the pregnant and post-partum respondents, respectively, were into business (72.3%; 69.5%) and are of 20-to-30-year age ranges (61.4%; 64.8%) (Table 1). Responses on body attitude satisfaction are presented in Table 2. The results showed significant association between body attitude satisfaction and pregnancy-related women status with respect to abdomen (P=0.021) and genitalia (P=0.005). Among the three pregnancy-related women status groups, the postpartum women were most satisfied with their abdomen (95.2%) followed by the pregnant women (87.1%).

Table 3 compares BAQ and BSQ scores using ANOVA. The results showed significant differences in BSQ scores (P=0.009) across the pregnancy-related women status groups. However, there was no significant difference in the BAQ scores across the pregnancy-related women status groups. Table 4 shows the mean scores, median, and interquartile percentile data on HRQoL across the groups. In non-pregnant women, bodily pain (77.8±26.3), and role limitation-physical (77.1±29.5) scales recorded the highest mean scores. Physical functioning scale had the lowest mean scores for the non-pregnant, pregnant and postpartum groups, respectively (41.1±29.2; 28.4±20.2; 27.9±14.7). The median values indicated that the pregnant (16.7) and the postpartum (16.7) women had lower physical functioning scores, while they had comparable scores in other scales of the SF-12. However, the pregnant and the postpartum group had lower median scores in physical health domain (61.3; 61.3) but higher mental health domain median scores (65.0; 68.3) than the non-pregnant counterpart.

Table 5 indicates the Spearman rank correlation between HRQoL and each of body image attitude and body shape perception. There was significant correlation between BAQ and health perception (P=0.001), emotional functioning (P=0.001), and mental health (P=0.040). Also, there was significant correlation between BAQ score and each of physical (0.001) and mental (0.040) health domain. Also, there was significant correlation between BSQ score and

Table 2: Frequency distribution of responses on Body Attitude Satisfaction (N=370)

Item	Nulligravid		Pregnant		Postpatum		x^2	P value*
	Sat	Unsat	Sat	Unsat	Sat	Unsat		
	n(%) n=164		n(%) n=101		n(%) n=105			
Weight	134(81.7)	30(18.3)	95(94.1)	6(5.9)	95(90.5)	10(9.5)	11.267	0.080
Height	150(91.5)	14(8.5)	95(94.1)	6(5.9)	102(97.1)	3(2.9)	5.323	0.503
Skin	151(92.1)	13(7.9)	93(92.1)	8(7.9)	102(97.1)	3(2.9)	4.563	0.601
Abdomen	130(79.3)	34(20.7)	88(87.1)	13(12.9)	100(95.2)	5(4.8)	14.890	0.021
Buttocks	146(89.0)	18(11.0)	92(91.1)	9(8.9)	101(96.2)	4(3.8)	6.979	0.323
Face	156(95.1)	8(4.9)	93(92.1)	8(7.9)	102(97.1)	3(2.9)	3.535	0.739
Hair	135(82.3)	29(17.7)	90(89.1)	11(10.9)	97(92.4)	8(7.6)	8.650	0.194
Genitalia	161(98.2)	3(1.8)	95(94.1)	6(5.9)	100(95.2)	5(4.8)	18.602	0.005
Breast	152(92.7)	12(7.3)	98(97.0)	3(3.0)	102(97.1)	3(2.9)	10.329	0.109
Arms	154(93.9)	10(6.1)	97(96.0)	4(4.0)	102(97.1)	3(2.9)	5.555	0.475
Hands	158(96.3)	6(3.7)	98(97.0)	3(3.0)	103(98.1)	2(1.9)	7.227	0.300
Legs	154(93.9)	10(6.1)	94(93.1)	7(6.9)	103(98.1)	2(1.9)	9.335	0.156

Key: Sat – Satisfied; Unsat – Unsatisfied; *Descriptive statistics of frequency distribution and percentages were used.

Table 3: Comparison of body attitude questionnaire and body shape questionnaire scores

Variable	Non-pregnant	Pregnant	Postpartum	F-ratio	P value*
BAQ scores	19.70±5.42	20.22±5.15	18.88±5.05	1.313	0.270
BSQ scores	51.80±7.45	54.18±8.98	54.5±7.40	4.824	0.009

Key: BAQ – Body Attitude Questionnaire; BSQ – Body Shape Questionnaire; *Inferential statistics of One Way ANOVA was used.

Table 4: Median scores and interquartile percentile data on health-related quality of life of the non-pregnant, pregnant, and the postpartum women

Variables	25th	Median	Mean±SD	75th	95th
Non-pregnant (n=164)					
Scale					
Physical Functioning	16.7	33.3	41.4±29.2	50.0	100.0
Role-Physical	65.0	100.0	77.1±29.5	100.0	100.0
Bodily Pain	85.0	85.0	77.8±26.3	100.0	100.0
Health Perception	60.0	60.0	61.4±20.4	85.0	85.0
Energy/Fatigue	30.0	60.0	62.8±28.3	80.0	100.0
Social Functioning	75.0	75.0	77.0±6.8	75.0	100.0
Role-Emotional	65.0	65.0	68.0±9.8	65.0	100.0
Mental Health	53.3	60.0	55.8±9.2	60.0	66.7
Domain					
Physical Health	60.4	65.0	63.2±10.9	71.3	77.1
Mental Health	51.7	63.3	61.4±12.7	69.3	78.8
Pregnant (n=101)					
Scale					
Physical Functioning	16.7	16.7	28.4±20.2	33.3	81.7
Role-Physical	65.0	100.0	86.8±24.8	100.0	100.0
Bodily Pain	45.0	85.0	70.5±27.7	85.0	100.0
Health Perception	42.5	60.0	53.5±18.0	60.0	85.0
Energy/Fatigue	60.0	80.0	65.3±25.3	80.0	100.0
Social Functioning	75.0	75.0	77.0±6.8	75.0	100.0
Role-Emotional	65.0	65.0	69.5±11.8	65.0	100.0
Mental Health	53.3	53.3	56.6±8.8	60.0	66.7
Domain					
Physical Health	53.5	61.3	58.6±9.5	65.0	69.6
Mental Health	57.3	65.0	65.1±12.3	71.0	85.0
Post-partum (n=105)					
Scale					
Physical Functioning	16.7	16.7	27.9±14.7	33.3	50.0
Role-Physical	100.0	100.0	90.5±20.0	100.0	100.0
Bodily Pain	85.0	85.0	77.6±22.5	85.0	100.0
Health Perception	60.0	60.0	56.5±13.5	60.0	77.5
Energy/Fatigue	60.0	80.0	73.5±21.6	80.0	100.0
Social Functioning	75.0	75.0	79.3±9.5	75.0	100.0
Role-Emotional	65.0	65.0	76.0±16.3	100.0	100.0
Mental Health	53.3	60.0	62.1±14.6	60.0	100.0
Domain					
Physical Health	60.4	61.3	62.1±8.2	69.6	69.6
Mental Health	65.0	68.3	72.7±11.6	93.8	93.8

Descriptive statistics of mean, median, and percentile were used.

bodily pain (P=0.020), health perception (P=0.001), and emotional functioning (P=0.003).

4. Discussion

This study assessed body image perception (encompassing body attitude and body shape) and HRQoL in non-pregnant, pregnant, and postpartum women. The finding of this study revealed a significant association between body attitude satisfaction and pregnancy-related women status with respect to abdomen and genitalia. Literature has shown that women's perception of their abdomen is an important public-health problem. Women seems to be concerned about the abdomen based on accumulation of fats (abdominal obesity) (29). In addition, other studies have related women concerns about their abdomen to pregnancy-related stretch marks (30), which affects about 90% of women and though not medically dangerous, can be disfiguring causing emotional and psychological distress (31). The findings of this study are correlated with literature on the impact

Table 5: Spearman Rank correlation between health-related quality of life and body attitude questionnaire and body shape questionnaire

HRQoL	BAQ Score	BSQ Score
	r(p)	r(p)
Scale		
Physical function	-0.03(0.580)	-0.09(0.070)
Role limitation physical	-0.08(0.120)	-0.05(0.310)
Bodily pain	-0.04(0.470)	-0.13(0.020)*
General health perception	-0.21(0.001)*	0.15(0.001)*
Vitality	-0.16(0.001)*	0.12(0.003)*
Social function	0.04(0.490)	-0.33(0.520)
Role limitation emotional	0.06(0.220)	-0.07(0.170)
Mental health	-0.11(0.040)*	0.05(0.390)
Domains		
Physical health	-0.13(0.001)*	0.05(0.320)
Mental health	-0.11(0.040)*	0.05(0.390)

* Indicate significant correlation; Key: BAQ – Body Attitude Questionnaire; BSQ – Body Shape Questionnaire; HRQoL - Health Related Quality of Life; Spearman test was used.

of pregnancy-related abdominal fat on body image. Zucker (32) reported that literature makes no secret of how very important it is that women "get their bodies back" instantaneously. Among women over 18 years looking at themselves in the mirror, research indicates that at least 80% are unhappy with what they see and many will not even be seeing an accurate reflection (2). In some studies, up to 80% of women over-estimated their size and an increasing numbers of normal, attractive women, with no weight problems or clinical psychological disorders look at themselves in the mirror and see ugliness and fat (2).

The finding of this study showed that the postpartum women were most satisfied with their abdomen followed by the pregnant women. Body satisfaction with genitalia was higher among nulligravida followed by the postpartum. The low satisfaction with genitalia among the pregnant women could be due to genitalia engorgement, which makes a tighter fit for their partner making sex less pleasurable (33). Also, several studies have indicated that pregnant women have a more positive body-image than non-pregnant women, although their 'ideal' body shape remains in line with the ultra-thin cultural ideal, their concerns about failing to match this ideal are reduced during pregnancy (2). This study also showed significant association between pregnancy-related changes and sexual feelings, exercise and reaction to people. Literature; however, shows that the pregnancy-related change is significantly associated with positive attitude to exercise in postpartum (34). It is believed that exercise improves mood and physical limitation during pregnancy and controls weight gain in postpartum (34).

Surprisingly, the findings of this study revealed that non-pregnant have poorer body image perception than the pregnant and postpartum counterparts. Because women are judged on their appearance more than men, and standards of female beauty are considerably higher and more inflexible (2). Some studies have shown that young women have distorted body image due to foregoing. Currently, 80% of women in the United State of America are dissatisfied with their appearance due to a "thin at all costs" movement that now defines Western culture (35). There are many reasons for poor body image perception in young females. Some studies reported that poor body image was largely due to peer influence (36, 37) while Ross (35) reported that the media is a far more powerful influence than ever before, sometimes taking precedence over friends, family or other real women. Magazines have weekly features such as "Body Watch" that criticize female celebrities for being too heavy or too thin. Though women used to admire moderately sized role models, they now evaluate themselves on impractical thin appearances seen on social platforms (35). Greater body image disturbance was observed among heavier than lighter women (3).

Comparison of body attitude across the women showed no significant difference in total score. It is adduced that the comparable age of the different groups of women may have influenced results. Also, the comparison of HRQoL across women groups revealed differences in scales and domain scores. Typically, higher item scores indicate better HRQoL (28). The finding of this study indicated that the non-pregnant population in this study rated their health status higher in 'bodily pain' and 'role limitation-physical' scales of the SF-12. It is adducible that physical and physiological problems such as aches, pain as well as

poor physical functioning may impact on quality of life rating during pregnancy (38). Compared with the non-pregnant counterparts, the finding of this study indicated that the pregnant and postpartum women had lower median values in the 'physical functioning' scale, while they had comparable scores in other scales of the SF-12. In addition, the pregnant and the postpartum group had lower median scores in 'physical health' domain. Lagadec and co-workers (39) indicated that physical and emotional changes associated, even with uncomplicated pregnancies can affect the quality of life of pregnant women, thus, impacting their rate of quality of life compared with non-pregnant women. The finding of this study is in line with earlier studies that concur that pregnancy, puerperium, and postpartum period reduce physical functioning (40, 41). From the finding of this study, 'physical functioning' scale had the lowest rating of the different scales of the SF-12, among the different populations. This observation is in agreement with previous results suggesting gender differences in HRQoL, with women reporting poorer 'physical functioning' than men (42). Furthermore, the finding of this study indicated that the pregnant and postpartum women had higher median scores in the 'mental health' domain than the non-pregnant counterparts. A number of studies have explored mental health domain of the HRQoL among different sub-groups of pregnant women (43, 44) while there seems to be an apparent dearth of such studies between pregnant and non-pregnant populations. Higher mental health scores among the pregnant and postpartum women may have cultural and religious undertones. In an earlier study on HRQoL and physical functioning in people living with HIV/AIDS, Mbada and colleagues (45) found that persons living with HIV/AIDS reported significantly higher mental health capacity than the apparently healthy controls. The authors (45) implicated their findings on spiritual and religious disposition of the people, as such that when they are in any form of health nethicseed tend to speak in terms of their anticipation for better health rather than accepting their current status if undesirable. As such, this form of mindset may also account for the higher mental health domain of the HRQoL observed among the pregnant and postpartum women than the non-pregnant counterparts.

5. Conclusions

Postpartum women had better body attitude and body shape perception than their pregnant and non-pregnant counterparts. Body attitude is significantly related to HRQoL in non-pregnant, pregnant, and postpartum women. However, body shape perception is only correlated with bodily pain, health perception, and emotional functioning scales of the HRQoL.

Ethical Approval

Ethical approval for this study was obtained from the Research and Ethics Committee of the Obafemi Awolowo University Teaching Hospitals Complex, (OAUTHC) Ile-Ife, Osun State, Nigeria. All respondents gave signed informed consent to participate in the study.

Conflict of interests: The authors declared no conflict of interest.

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