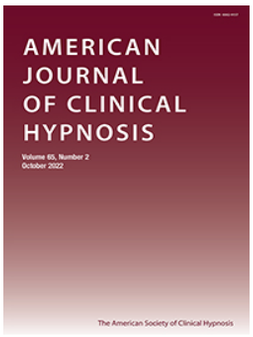

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Does hypnosis result in greater weight loss compared to conventional approach?

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ABSTRACT

Hypnosis has been increasingly used in recent years as an alternative treatment to maintain well-being. Yet, limited evidence is available regarding its role in weight management, especially in Malaysia. Hence, this quasi-experimental study was conducted to evaluate the effectiveness of hypnosis on weight loss and body composition (body mass index, waist circumference and body fat percentage) among staff and students of a public university in Terengganu, Malaysia. Participants with body mass index (BMI) ≥ 25.0 kg/m^2 were randomly assigned to either intervention group (IG = 53) or control group (CG = 54), for 12 weeks. All participants received health education (diet + exercise + behavioral recommendations) with those in IG had additional three hypnotherapy sessions, once a month. Body weight was measured at week 1, 7, and 12 while body compositions were measured at weeks 1 and 12. Descriptive, univariate, and repeated-measures analysis of covariance (ANCOVA) were utilized. A total of 104 participants completed the trial (mean age = 26.28 ± 8.01; female = 82.2%; BMI = 31.39 ± 4.89). A significant weight loss was observed in the intervention (−4.61%) and control (−3.04%) groups (mean difference = −1.57; 95%CI: −2.59, −0.54; p = .003) after 12 weeks. Participants that frequently practiced self-hypnosis lost more weight (−6.27%; t(50) = −5.331, p < .001). Body fat percentage and waist circumference did not significantly change from baseline in both groups. Essentially, the positive outcomes indicated the promising potential of hypnosis as an alternative tool in facilitating weight loss efforts for those in need.

KEYWORDS

Complementary and alternative therapies; hypnosis; hypnotherapy; obesity; overweight; weight loss

Overweight and obesity exert widespread effects on health and well-being through a combination of excess fat mass and various adipose tissue depots' physiologic or endocrine actions. This phenomenon causes a global burden, accounting for at least 2.8 million people dying each year due to health conditions related to excess weight (World Health Organization [WHO], 2021). The global burden continues to increase, and it has been estimated that 2.16 billion (38%) of the world's adult population will be overweight, and 1.12 (20%) will be obese by 2030 (Finkelstein et al., 2012). In Malaysia, the National Health and Morbidity Survey 2019 found that overweight and obesity among adults were 30.4% and 19.7%, respectively. Furthermore, Malaysia was ranked first among Southeast Asian

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countries with the highest obesity rate in adults (Mohd-Sidik, Lekhraj, & Foo, 2021). Obesity prevention is imperative to prevent further increase as excess weight problems have adverse consequences, including type 2 diabetes mellitus, hypertension, cardiovascular diseases, sleep apnea and certain type of cancers (Javaid, Omar, Shah, & Ahmad, 2021).

Obesity prevention and treatment are commonly based on lifestyle modifications (i.e., reduced calorie intake or increased physical activity); however, this conventional approach is typically ineffective, and most individuals struggle to achieve and sustain clinically healthy weight loss for the long-term (Abdul Manaf, Ahmad, & Mohd Yusoff, 2018; Bellicha et al., 2021; Mann et al., 2007). In addition, individuals are often concerned about drug toxicity and the side effects of anti-obesity medications and endoscopic/surgical bariatric therapies (Tak & Lee, 2021). Therefore, this poses a higher demand for seeking alternative ways to improve health, and about 70% of people worldwide are found to use complementary and alternative therapies (CATs). However, there is insufficient scientific assessment evidence to prove its safety and effectiveness (Ernst, 2000).

According to the National Center for Complementary and Alternative Medicine (NCCAM), CATs is an umbrella term describing a range of health systems, modalities, and practices that are not generally considered part of conventional medicine. The reported global prevalence of CATs use ranges from 9.8% to 76.0%, while the prevalence of CATs uses among Malaysians was 69.4%, with herbal and dietary supplements being the most popular choice (Harris, Cooper, Relton, & Thomas, 2012; Siti et al., 2009). In weight management care, the use of CATs is becoming increasingly popular, and more than 50% of patients considered joining any CATs-based approach to lose their weight (Lua et al., 2021). Scientific evidence indicates that some CATs (e.g. hypnotherapy, acupuncture, mindfulness, herbal, and dietary supplements) may help to reduce body weight (Bo et al., 2018; Esteghamati, Mazaheri, Rad, & Noshad, 2015).

Hypnosis (i.e. a process that uses a trance-like state to bring about positive changes in an individual) is a particular alternative approach that gained attention as an adjunct to weight loss strategies (Bo et al., 2018; Bolocofsky, Spinler, & Coulthard-Morris, 1985). Generally, hypnosis enhances motivation, improves eating behavior, and effectively fights excess weight problems (Gelo et al., 2014; Sapp, Obiakor, Scholze, & Gregas, 2007). Furthermore, as Erşan and Erşan (2020) claimed, this therapy is easy to apply, inexpensive, noninvasive, and generally lacks the potential of adverse effects. However, the clinical evidence justifying its use is still debatable, and studies that addressed this therapy within our local settings is also notably lacking. This study, therefore, aimed to evaluate the effectiveness of hypnosis on body weight as well as body composition (BMI, waist circumference [WC] and body fat percentage [BF%]) among overweight and obese individuals in a public university in Malaysia.

Materials and methods

Ethical approval

This research has been approved by the UniSZA Human Research Ethics Committee (UHREC) with a study protocol code of UniSZA/UHREC/2019/116. The participants were given a verbal briefing and had their queries resolved about the study. Written consent was obtained from participants prior to their enrollment.

Study design and sample selection

The pre- and post-test quasi-experimental study was conducted in Kampus Gong Badak, Kampus Besut and Kampus Perubatan, Universiti Sultan Zainal Abidin (UniSZA), Terengganu, Malaysia, among overweight and obese individuals. In this study, 107 staff and students were conveniently sampled and recruited. The sample size was calculated using G*Power software version 3.1 with a significance level at 0.05, 80% power, 20% of attrition rate and effect size *g* of 0.15 based on the general recommendations for experimental study and advice from statistician (Faul, Erdfelder, Lang, & Buchner, 2007; Schäfer & Schwarz, 2019). Eligible participants were randomized either to the intervention group (hypnosis + standard lifestyle modifications, i.e., diet + exercise + behavioral recommendation) or the control group (standard lifestyle modifications). The random assignment was made sequentially from an Excel's random number generator with a ratio of 1:1 to the two groups to prevent selection bias. Figure 1 depicts the recruitment process and the reasons for the exclusion or discontinuation of participants using CONSORT flow diagram (Moher et al., 2012).

Participation was entirely voluntary, and the selection of samples was essential to ensure that they met the study's requirements. The inclusion criteria included staff and students aged 18 years or older who had a BMI greater than 25 kg/m^2 and understood and wrote in

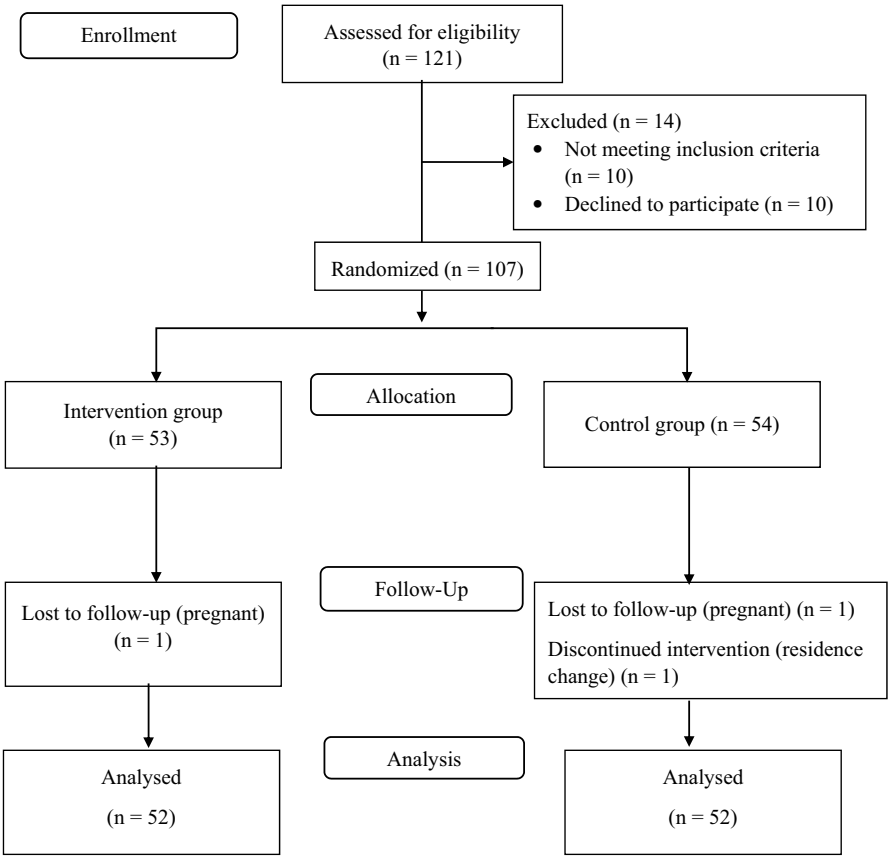

Figure 1. CONSORT flow diagram of the study.

Malay or English. Meanwhile, participants were excluded if they had underlying chronic health conditions requiring regular medication such as hemodialysis or organ failure, had been diagnosed with psychological issues or hearing impairment, were pregnant or post-menopausal, or were currently involved in another weight management program.

Data collection method

Upon recruitment, eligible subjects who gave written consent were briefed about this study and were first asked to complete a self-administered demographic questionnaire at baseline. The anthropometric measurements (height, WC and BF%) were assessed at baseline and three months later, while weight was measured at weeks 1, 7 and 12. All participants in both groups received health education covering various aspects of diet, exercise, and tips for diet adherence (e.g., do not buy foods on an empty stomach, properly chew the food before swallowing) were given to all patients once a month (at Week 1, 7 and 12). During health education sessions, participants were asked about adverse events and compliance with the intervention. During the study, those who were pregnant or changed residence (unable to attend the next session) were considered dropouts. Each participant then received a token of appreciation after going through the whole procedure at the end of the study.

Intervention

In addition to health education, participants in the intervention group received three hypnosis sessions, a month apart (week 1, 7 and 12), performed by a trained and qualified hypnotherapist. The 30-minute hypnosis session was conducted in Malay and held in a comfortable room at an academic building. During the first session, the hypnosis procedure, information, and its potential effects were briefly explained. Thereafter, a rapid induction technique was used to increase the sense of relaxation and enabled participants to go into a hypnotic condition in a few minutes (Bo et al., 2018). After deepening was achieved, ego-strengthening techniques with positive suggestions to have a healthy and balanced diet were applied. Then, participants were brought out of the hypnosis state during the realerting phase. Finally, the participants were taught and encouraged to practice self-hypnosis using the same techniques daily. The positive suggestions were emphasized again during subsequent sessions at week 7 and 12 of the study. In addition, participants were reminded to do self-hypnosis during their follow-up sessions.

Measurements

Baseline demographic and anthropometric measurements were obtained from participants to accomplish the objectives.

Sociodemographic data

This form consisted of several basic information regarding participants' demographic characteristics such as age, gender, ethnicity, educational level, marital status, and income.

Anthropometrics measurements

Anthropometric measurements were conducted with respondents in light clothing, without shoes, and assessed according to the WHO protocol (WHO, 1995). Height, weight, BF% and WC measurements were taken in an upright standing position to the nearest 0.1 cm and 0.1 kg by using Seca 213 portable stadiometer (Seca, Germany), TANITA Model BC-583 digital weighing scale (TANITA, Japan) and Seca 201 measuring tape (Seca, Germany), respectively. The body weight and height were used for BMI calculations according to the formula BMI = weight (kg)/height^2 (m^2). The BMI was categorized according to WHO Expert Consultant (2004) cutoff points as such: (a) normal: 18.5–24.9 kg/m^2, (b) overweight: 25.0–29.9 kg/m^2, (c) obese type I: 30.0–34.9 kg/m^2, (d) obese type II: 35.0–39.9 kg/m^2, and (e) obese type III: >40.0 kg/m^2. The BF% was defined as unhealthy ≥ 25% for men and ≥ 35% for women (WHO, 1995). The cutoff points for waist circumference (men ≥ 94 cm; women ≥ 80 cm) were used to determine abdominal obesity among participants. All measurements were measured twice, and the average values were used in the analysis.

Statistical analyses

The collected data were analyses using the IBM (SPSS Statistics for Windows) Version 23.0 (Armonk, NY, US). Descriptive statistics were employed to summarize the demographic characteristics and anthropometric measurements presented using frequencies (n) and percentages (%). Independent samples t-test was used to determine the differences between the groups (IG and CG) for continuous variables while chi-square test was used to determine the association between categorical variables at the pre-intervention. The univariate and repeated-measures analysis of covariance (ANCOVA) was used to assess the impact of hypnotherapy on the measures between groups (IG and CG) with pre-intervention variables, age, and gender as covariances. The Bonferroni adjustments were used when necessary and a p-value of $< .05$ was considered statistically significant.

Results

Characteristics of the participants

A total of 107 staff and students were enrolled and randomized: 53 into the intervention group and 54 into the control group. At 12 weeks, three individuals withdrew (one from the intervention group and two from the control group), providing a total of 104 completed participants for data analyses. The majority of the participants were female (82.2%) and Malays (98.1%) with a mean age of 26.3 years (SD = 8.0). Of them, 71.0% were students (94 undergraduates, 13 postgraduates), unmarried (72.7%) and had no income (57.9%). Based on the WHO classification, 54.2% were obese, while the other 45.8% were overweight. There were no statistically significant differences in sociodemographic, body weight, BMI, BF%, and WC variables between the IG and CG at baseline. Sociodemographic characteristics of the participants at the time of enrollment are given in Table 1.

Table 1. Sociodemographic characteristics of participants at baseline (n = 107).

Characteristics	IG (n = 53)	CG (n = 54)	*p*-value[a]
Age (years); Mean ± SD	26.3 ± 8.53	26.2 ± 7.55	.323
Gender, *n* (%)			
Male	10 (9.3%)	9 (8.4)	.766
Female	43 (40.2)	45 (42.1)	
Ethnicity			
Malay	51 (47.7)	54 (100.0)	.243
Sabahan	2 (1.9)	0	
Marital status			
Single	36 (33.6)	42 (53.8)	.252
Married	17 (15.9)	12 (11.2)	
Educational level			
Pre-University	17 (15.9)	20 (18.7)	.108
Degree	26 (24.3)	31 (29.0)	
Master's degree/PhD	10 (9.3)	3 (2.8)	
Occupation			
Staff	17 (15.9)	14 (13.1)	.483
Student	36 (33.6)	40 (37.4)	
Income			
No income	30 (28.0)	33 (30.8)	.620
B40 (≤RM 2,500–RM 4,849/USD 608–USD 1,179)	16 (15.0)	12 (11.2)	
M40 (RM 4,850–RM 10,959/USD 1180–USD 2,666)	7 (6.5)	9 (8.4)	
Baseline BMI Status; Mean ± SD	31.3 ± 5.0	31.5 ± 4.8	.816
Overweight (BMI: 25.0–29.9 kg/m^2)	27 (25.2)	22 (20.6)	
Obese type I (BMI: 30.0–34.9 kg/m^2)	11 (10.3)	21 (19.6)	
Obese type II (BMI: 35.0–39.9 kg/m^2)	12 (11.2)	7 (6.5)	
Obese type III (BMI: > 40.0 kg/m^2)	3 (2.8)	4 (3.7)	
Baseline waist circumference (cm); Mean ± SD	91.7 ± 14.1	95.3 ± 13.7	.181
Baseline body fat percentage (%); Mean ± SD	37.3 ± 9.8	37.6 ± 9.5	.896

Data are presented as n (%) or mean ± standard deviation (SD)
[a]*p*-values generated from independent t-test or Pearson chi-square test where appropriate.
*Significant difference ($p < .05$)

Changes in body weight and body composition

Table 2 shows the differences from baseline to post-intervention in each outcome (body weight, BMI, BF%, and WC) for each group. Those in IG reported a significantly greater reduction in body weight (mean weight loss = 3.68 kg or 4.61% of their baseline weight (p = .003), compared with CG (mean weight loss = 2.30 kg or 3.04%). There was a statistically significant differences in BMIs between groups at post-study after adjusting for baseline BMI, age, and gender (adjusted mean difference = −0.31 kg/m^2, 95% CI = −0.61, −0.02; p = .034). Regarding the BF% and WC variables, the differences from baseline to post-study were not significant between the groups (BF%, p = .081; WC, p = .611).

On the other hand, 24 participants from IG (45.3%) claimed to practice self-hypnosis more than once per day, while 28 (52.8%) claimed to practice it rarely or never (Table 3). Those who practiced self-hypnosis on a regular basis lost statistically significant body weight (−6.27 ± 2.26%) compared to those non-practicing (−3.14 ± 1.97%), t (50) = −5.331, $p < .001$. However, no significant association was evident with the BF% and WC variables.

Discussion

Hypnosis is a mind-body interaction involving focused attention that could reinforce a healthy eating behavior and has been shown to be an effective, alternative adjunct tool to combat overweight and obesity problems (Bo et al., 2018; Milling, Gover, & Moriarty,

Table 2. Mean values and between-group differences for % weight loss, BW and body composition (n = 104).

		Post		
Variable (s)	Pre-mean (SD)	Adjusted mean (95% CI)[a]	Adjusted mean difference (95% CI)[b]	*p*-value
% weight loss				
IG	–	−4.61 (−5.33, −3.88)	−1.57 (−2.59, −0.54)	.003*
CG	–	−3.04 (−3.77, −2.31)		
Body weight				
IG	79.39 (15.3)	75.31 (74.75, 75.86)	−0.81 (−1.49, −0.13)	.021*
CG	79.50 (4.8)	76.70 (76.15, 77.26)		
BMI				
IG	31.26 (5.0)	29.73 (29.50, 29.97)	−0.31 (−0.61, −0.02)	.034*
CG	31.53 (4.8)	30.28 (30.04, 30.51)		
BF%				
IG	37.3 (9.8)	37.24 (36.86, 37.64)	−0.48 (−1.04, −0.06)	.081
CG	37.6 (9.5)	37.73 (37.35, 38.11)		
WC (cm)				
IG	91.7 (14.1)	90.05 (88.92, 91.17)	−0.41 (−2.00, 1.18)	.611
CG	95.3 (13.7)	90.45 (89.33, 91.58)		

[a]Adjusted mean using analysis of covariance after controlling for age, gender and baseline values
[b]Bonferroni adjustment for 95% confidence interval (CI) for difference
*Significant different ($p < .05$)

Table 3. Summary of self-hypnosis use and variable changes in the IG (n = 52).

	Mean (SD)				
Variable (s)	≥ once/day	Rarely /never	Mean difference (95% CI)	*t* statistics (d.f)	*p*-value
% weight loss	−6.3 (2.3)	−3.1 (1.9)	−3.13 (−4.33, −1.94)	−5.275 (46)	<.001*
BF%	35.6 (9.8)	35.7 (11.7)	−0.72 (−6.05, 5.90)	−0.024 (49)	.981
WC (cm)	90.0 (12.4)	87.1 (13.1)	2.90 (−4.21, 10.01)	0.820 (49)	.416

*Significant different ($p < .05$).

2018). In our study, those in the hypnosis group showed a greater reduction in body weight, BMI, BF% and WC post-study than their control counterparts, consistent with the findings of previous similar studies (Bo et al., 2018; Erşan & Erşan, 2020; Rini, Hardika, & Suryani, 2020). The statistically significant decrement in body weight among participants in the IG after controlling the baseline values, age and gender (with mean weight loss of 3.68 kg) showed that these findings could offer supportive measures to explore the effectiveness of hypnosis in combating obesity among Malaysians. Nevertheless, those in IG who practice self-hypnosis frequently lost much more weight (mean weight loss of 5.12 kg) than those who used it occasionally or never.

These weight loss differences between the groups with and without hypnosis are generally smaller, which is well below the criteria of clinically significant weight loss (CWL) than those typically reported in previous research (range from 4 to 8 kg) (Bo et al., 2018; Bolocofsky et al., 1985). Similarly, other psychological approaches on weight loss found that CWL is unlikely to occur following the intervention, most likely due to no or minimum physical activity suggestions (Mercado et al., 2021; Olson & Emery, 2015). The American College of Sports Medicine claims that participants with excess weight are more likely to reach the CWL threshold if they undertake aerobic exercise training at levels consistent with public health guidelines on physical activity (Donnelly et al., 2009). However, the present study was considerably brief (a

2-hour session once a month), which was less demanding and easy to implement. This is in contrast to the weekly hypnosis sessions that were generally employed in previous studies (i.e., Bolocofsky et al., 1985; Gelo et al., 2014). In addition, prior trials were limited (mainly from the 90s) and lacked a rigorous methodology (based on case studies, small cohorts, and variability in techniques), emphasizing the relevance of further exploring this issue.

Furthermore, the relaxation and suggestion techniques utilized during the hypnosis session in this study helped the IG participants to reduce their weight consistently every week. Previous evidence supported this, demonstrating that obese patients experienced consistent weight loss after undergoing hypnosis sessions (Erşan & Erşan, 2020). In addition, the hypnosis script included suggestions for healthier eating and simple exercise to help reduce body weight and boost motivation among participants. The successful use of incorporating healthy lifestyle modifications in hypnosis to assist weight loss is supported by previous studies that found that those who undergo hypnosis showed changes in eating and exercise habits after the intervention phase than those receiving conventional approach only (Bo et al., 2018; Bolocofsky et al., 1985). Gelo et al. (2014) also reported significant eating behavior improvements after undergoing hypnotherapy for 6 months. Thus, it is conceivable that hypnosis could help improve lifestyle behavior and facilitate weight loss.

Additionally, hypnosis has been associated with enhanced capacity and a higher ability for responding to suggestions (Elkins, Barabasz, Council, & Spiegel, 2015). Hypnotized individuals are more likely to immerse themselves in the weight-losing paradigm (reduce calorie consumption and increase physical activity) offered to them and to follow the hypnotherapist's recommendations than those who have not been hypnotized. As Barabasz and Spiegel (1989) claimed, hypnosis allows individuals to alter their responses and act in accordance with their goals (i.e., desire for certain types of food, recognizing bodily signals of hunger and fullness to prevent overeating). Accordingly, few researchers have demonstrated that hypnotherapy improves eating habits and eliminates unpleasant food cravings (Erşan & Erşan, 2020; Milling et al., 2018). It is possible that these results support the hypnotherapist's ability to modify and change unfavorable dietary habits and reinforce a new ideology during the hypnotherapy session, which could boost motivation and self-control in reducing impulsiveness and overeating (Pellegrini et al., 2021). However further research will be required to prove that there is a causal link, since these results are also consistent with other interpretations.

On a separate issue, a non-significant reduction of obesity indices such as the BF% and WC were denoted among the two groups after the 12 weeks of study. Our findings corroborate earlier research that found no significant differences in BF% and WC variables between arms following a weight loss program among people with obesity (Bo et al., 2018). The lack of significant changes in these variables could be attributable to the study's short duration and lack of intensive dietary and physical activity guidelines. It is also likely that three hypnotherapy sessions might have been insufficient to accomplish a substantial reduction in BF% and WC, therefore the subject of the optimal number of sessions to achieve a significant reduction should be investigated further. As in this study, those who regularly use self-hypnosis lost body weight more consistently compared with those practicing rarely or not at all. This underscores the importance of self-hypnosis as a reinforcement tool to support weight management.

The strengths of this present study include the novelties of using population-based data and integrating the new alternative approach of combating overweight and obesity problems in Malaysia. In addition, the application of hypnosis may result in positive improvements related to healthy lifestyles among this cohort. However, several drawbacks in this study had to be acknowledged. For example, the involvement of only one study location and the adoption of convenience sampling during recruitment might not be entirely representative of all people with overweight and obesity.

Conclusion

Generally, this study suggests that over a 12-week duration of hypnotherapy, there was a statistically significant weight reduction between the treatment and control group. Participants also exhibited minimal, non-significant, between-group improvement of BF % and WC. The outcomes from this study may contribute to the early indicator for the design of more extensive, long-term upcoming research to reconfirm the effectiveness of hypnosis in combating excess weight problems.

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Disclosure statement

No potential conflict of interest was reported by the author(s).

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