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Effects of Emotion Regulation Training on Attachment Style of Primiparous Pregnant Women with Insecure Attachment

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Abstract
Background: Pregnant women with insecure attachment style are at high risk of psychiatric disorders. Since emotions are the first coordinators of attachment behavior, emotion regulation training can alter maternal attachment style. In this study, we aimed to evaluate the effects of emotion regulation training on the attachment styles of primiparous pregnant women with insecure attachment style.

Aim: This study aimed to evaluate the effects of training programs on the headache of patients after spinal anesthesia.

Method: This randomized, clinical trial on 40 primiparous pregnant women with age range of 30-34 years, who were referred to healthcare centers of Mashhad, Iran, during 2014. The data collection instrument was Revised Adult Attachment Scale (RAAS). The participants were assigned to intervention and control groups. A training program was implemented on emotion regulation based on dialectical behavior therapy (DBT) for the intervention group. After delivery, RAAS was completed by the mothers again. The control group only received the routine care. To analyze the data, Chi-square and independent t-test were run using SPSS, version 15.

Results: Mean ages of the mothers in the intervention and control groups were 26.9±4.04 and 27.5±3.5 years, respectively. According to the results of independent t-test, the difference between the groups was non-significant (P=0.77). The groups were analogous in terms of attachment style pre-intervention. After the intervention, independent t-test did not reflect any significant differences between the groups regarding avoidant (P=0.37) and anxious (P=0.11) attachment styles. However, mean score for secure attachment style was significantly enhanced (P=0.01).

Implications for Practice: Our findings revealed that implementation of emotion regulation training increased secure attachment scores. Thus, implementing emotion regulation training program is recommended as part of a program for pre-natal care in healthcare centers.

Keywords: Object Attachment, Behavior Therapy, Emotions

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Introduction

Pregnancy is one of the most stressful periods in women's life, particularly during the third trimester (1). Stress of birth of the first child is classified as severe stress (2). Forouzandeh et al. (1981) proposed that mental disorders such as depression and anxiety in the third trimester of pregnancy are highly common among women (3). Tabrizchi and Vahidi (1994) demonstrated that pregnant women are often psychologically distressed. Moreover, pregnant women experience a great deal of negative emotions (4). Stress and negative emotions can disrupt attention, cognition, and problem-solving process in mothers. Lack of affectionate and responsible behaviors might reduce infant-mother interaction (5).

Scholars believe that attachment, as a protective factor, can aid with higher adaptation with special conditions of pregnancy. Attachment is a relatively stable affective-emotional connection between child and the primary caregiver (usually the mother), which initiates and gradually increases during pregnancy between the mother and fetus (6). Children along with receiving primary care, develop a set of “active models” (or member of their own psyche and others) that can affect their emotional, behavioral, and personality development.

Self-psychological models represent self-worth, and others’ psychological models characterize availability and responsiveness of others to oneself. These relatively fixed models are the origin of developing different attachment styles (7).

Adult attachment styles are described as three categories of secure, insecure anxious/secures anxious insecure, and avoidant. Secure attachment is identified by confidence in oneself and others as well as feeling comfortable with intimacy and interdependence. Anxious/ambivalent attachment is characterized by feeling insecure about one’s values and capabilities and feeling the urgent need for interpersonal intimacy. Moreover, in this style, uninterrupted worrying over rejection or abandonment is noted. Finally, avoidant attachment style, is characterized by being reluctant to confide in others, emphasizing on personal independence and high self-confidence, and having relatively low tolerance for interpersonal intimacy (8).

Thus, attachment style is an individual’s internal visualization of his/her attachment relationship in childhood. Mothers with insecure attachment style implicates not having responsive and sensitive parents to the emotional situations in childhood, and they have not learned how to regulate their emotions and communicate with others. They show low flexibility in their relationships and experience more negative emotions than positive ones. Insecure mothers use more negative emotion regulation strategies such as self-reproach, blaming others, rumination, and catastrophizing, which results in depression, anxiety, stress, and anger (9).

Robert et al. (1996) believed that psychological consequences of insecure attachment styles in stressful situations such as pregnancy are anxiety and depression, while secure attachment in such conditions help with mental relaxation (10). Maintaining and promoting mental health, especially in high-risk groups, is of optimum importance. Given the persistence of attachment styles during life, pregnancy and insecure attachment styles are considered as risk factors for mental disorders (11, 12). Implementing interventions for modifying insecure attachment style seems to be essential to prevent mental disorders. As emotions are the regulators of attachment behaviors (13), emotion regulation techniques can be effective in this regard.

In fact, controlling emotions is one of the most important skills that should be learned. Emotion regulation alleviates and manages negative emotions, develops positive emotions, and if timely and appropriate, it can boost organizing power, flexibility, and adaptability of individuals in stressful situations (14). Accordingly, process-oriented emotion regulation can promote all aspects of human performance through effective responses to stressful situations. Dialectical behavior therapy (DBT) is applied for emotion regulation. This type of therapy, the term dialectical signifies combination of conflicts, while the term behavior refers to prevention of certain types of behaviors and encouraging others. This technique, while stressing the need for challenge and transformation, accentuates acceptance of the reality.

DBT is an integrated therapeutic method, enabling patients to integrate and grow amidst conflicts to progress. It can also help patients recognize conflicts within themselves or between themselves and the environment and integrate them to achieve an effective result. Four components involved in this treatment method are mindfulness skills (to help understand the painful experiences of the past, present, and future and avoid making judgments about oneself or others), distress tolerance (reducing
the impact of turbulent conditions), acceptance and emotional adjustment (emotion regulation), and interpersonal effectiveness (observing the principle of respect in interpersonal relationships) (15). Based on dialectical point of view, emotion regulation training should teach cognitive, emotional, and behavioral techniques to reach equilibrium, so that tranquility replaces inflexible postures (extreme) and causes adaptive and compliant responses will be consistently flexible (16).

Salehi et al. (2011) showed that emotion regulation training based on DBT can reduce symptoms of emotional problems including interpersonal sensitivity, depression, and anxiety (17). A randomized, clinical trial by Alizadeh et al. (2013) exhibited that individual DBT could significantly reduce depressive symptoms in intervention group (18). Another study was performed by Alavi et al. (2010) to evaluate the efficacy of group DBT (based on core mindfulness, distress tolerance, and emotion regulation components) in alleviating depressive symptoms in university students. The results reflected that DBT diminished depressive symptoms in the intervention group (19). Hoseinzadeh et al. (2008) concluded that emotion-focused therapy is effective in modifying attachment style (20). The results of studies by Naaman et al. (2005) (21) and Hollist and Miller (2005) (22) confirmed impact of emotion regulation on attachment style. Given the importance of the quality of parent-child interaction and emotional experiences during childhood in evolution and formation of emotional capabilities, attention to emotional regulation strategies for mothers is of great importance as effective parenting can improve interpersonal relationships. This study aimed to investigate the effects of emotion regulation training on attachment styles of primiparous pregnant women with insecure attachment style.

Methods
This randomized, controlled clinical trial was conducted on insecure primiparous mothers at 30–34 weeks' gestation referring to two healthcare centers in Mashhad, Iran, 2015. The sample size was calculated based on the pilot study using a formula comparing the mean and standard deviation (the variable was the level of mother-to-child attachment after the intervention) in the intervention (67.2±6.4) and control groups (61.1±5.9). At significance level of 0.05 and power of 90% and considering dropout, 25 patients were assigned to each group and a total of 50 participants were recruited.

The inclusion criteria were 1) aged 18-35 years, 2) primiparous, 3) pregnant at 30-34 weeks, 4) willingness to participate in the study, 5) insecure attachment style based on Revised Adult Attachment Scale (RAAS) questionnaire, 6) at least high school education, 7) no history of maternal chronic diseases such as diabetes, hypertension, cardiovascular diseases, and epilepsy, 8) absence of major psychological disorders, 9) no psychiatric history, 10) no use of medications for psychiatric problems, 11) no records of hospitalization due to mental illnesses in the past year, 12) no use of narcotics and stimulants, and 13) no experience of major stress in the recent years (mother or wife's serious illness, death of a close relative, or migration).

The exclusion criteria comprised of 1) unwillingness to participate, 2) absence more than three sessions in the training session, 3) no assignments for more than one session, 4) use of stimulants, drugs, alcohol, or smoking at the time of the study, 5) experience of major stress at the time of the study (serious illness of the mother or wife, death of a close relative, or migration), 6) severe complications of pregnancy, 7) separation of the mother and baby for more than 24 hours after birth and during the study period, and 8) death of mother. The exclusion criteria pertinent to newborns included 1) delivery before 37 weeks gestation or after 41 weeks, 2) birth weight less than 2500 g or higher than 4000 g, 3) birth abnormalities or defects that prevent Revised Adult Attachment Scale and 4) death of newborn.

Sampling was performed through convenience sampling. In this study, two healthcare centers affiliated to centers No. 1 were selected so that the respondents were culturally, socially, and economically the same and to prevent the possibility of counseling and exchanging information between the two groups. To that end, the names of health centers affiliated to center No. 1 were put in a bag and the two centers were randomly selected. The first center, which was assigned to the control, was Najafi health center, and the second one, which was allocated to the intervention group, was Shahrake Lashkar health center.

The data collection instruments included a demographic form as well as Revised Adult Attachment scale (RAAS). The demographic form was designed based on scientific studies.
RAAS was developed in early 1990 by Collins and Read, and was evaluated in 1996 (23). It examines individual communication skills and is comprised of 18 questions. The items are rated on a five-point Likert scale ranging from one (does not apply to me) to five (it totally applies to me). The scale comprises three subscales, each composed of six items. For options 1-5, one to five points were considered, respectively. The questions 1, 6, 8, 12, 13, 17 are about secure attachment. The questions 2, 5, 7, 14, 16, 18 are about avoidant attachment, and the questions 3, 4, 9, 10, 11, 15 are about ambivalent/anxiety measures.

The total score of each subscale is calculated by the sum of the six questions’ scores and then divided to six. The mothers were placed in one of the following three groups based on their obtained score. Secure attachment style: the participants who score lower than average on the anxiety subscale. Ambivalent attachment style/anxiety: people who score higher than average on the anxiety subscale. Avoidant attachment style: people whose scores on each subscale are low. Collins and Read showed that all scores are reliable and stable during a period of between 2-8 months. Additionally, Cronbach's alpha obtained in all the subscales were equal to or above than 0.8.

In Iran, validity and reliability of this scale were approved through test-retest on 100 students within one month by Pakdaman et al. (2004). The results showed that the test is valid at the level of 95% (24). The reliability of the instrument was confirmed in the present study using Cronbach’s alpha (α=0.79)

The health medical charts of pregnant women were reviewed by the researcher, and then the participants were recruited based on inclusion criteria. The researcher briefly introduced herself to the mothers and explained the objectives of the study. The mothers, who met the inclusion criteria, were given the RAAS questionnaire. The questionnaires were reviewed and a psychologist was assigned as collaborator.

According to the study by Salehi et al. (2011), eight mothers in the intervention group received 90-minute sessions (one session per week), including lecture and group discussion, in the training room at the center with the researcher and collaborator (clinical psychologist). At the end of each session, mothers were given assignments to do at home and bring in the next meeting to be discussed. Thereafter, 15-19 days after delivery, RAAS was completed by both groups again.

The training content were based on the Dialectic Behavioral Therapy by Matthew McKay (2007) (25), and the training sessions were held by a psychologist and co-researcher. (Table 1)

In the intervention group, five mothers were excluded due to travelling, abdominal pain, preterm delivery. In the control group, five mothers were excluded due to not responding to telephone follow-up, and relocation (being referred to another health center).

Due to moral considerations, after receiving permission from the Ethics Committee of Mashhad University of Medical Sciences and the School of Nursing and Midwifery and providing a letter of recommendation to Lashkar and Najafi health centers, information about the study and its importance were explained to the patients in both groups. The mothers were assured that participation in the training sessions were optional, and lack of participation would not interfere with the provision of other healthcare facilities. During the sessions, they were free to be in any physical condition they were comfortable with. In the class, the participants could walk, stand, eat, drink, and ask any questions from the researcher. An informed consent was obtained from women who met the inclusion criteria.

To study the normal distribution of quantitative data, the Kolmogorov-Smirnov test was performed. For data analysis, Chi-square, Fisher’s exact test, independent t-test, and Pearson's correlation coefficient were run using SPSS, version 15. P-value less than 0.05 was considered statistically significant.
Table 1: Training sessions for dialectical behavior therapy

<table>
<thead>
<tr>
<th>Session</th>
<th>Agenda</th>
</tr>
</thead>
<tbody>
<tr>
<td>The first session</td>
<td>The participants were introduced to each other and practiced basic skills of distress tolerance. Agenda: 1- Meeting the and interact with the researchers, clinical psychologist, and other participants; 2- Stating the main objectives and sub-objectives and discussing them with the mothers; 3- Stating the framework and rules; 4- Familiarizing the participants with fundamental skills distress tolerance, awareness and self-soothing distraction through the sense of hearing and vision and practicing them. Assignment: focus on emotional events, recording the events, and the type of employed skills.</td>
</tr>
<tr>
<td>The second session</td>
<td>Familiarizing the mothers with advanced skills of distress tolerance: The skills can help mothers to reduce the effects of turbulent conditions. Agenda: Having a group discussion on emotional events that happened last week, practicing feeling the moment by using relaxation exercises, focusing the mind on the present, and exercising conscious breathing. Assignment: focus on emotional events, record the events, identify the type of skills applied in the face of the event, and exercise conscious breathing.</td>
</tr>
<tr>
<td>The third session</td>
<td>Teaching the fundamental skills of awareness: these skills will aid mothers to experience the present with greater awareness and prevent them from focusing on the past and future threats. Agenda: doing focus exercises for a minute, practicing their experiences internally and externally, practicing describing feelings, and practicing conscious attention. Assignment: Recording turbulent emotions and the appropriate strategy to encounter them.</td>
</tr>
<tr>
<td>The fourth session</td>
<td>Teaching advanced skills of conscious attention: Mothers are taught these skills to become familiar with the negative judgments and to be able to control them. Agenda: practicing negative judgments, providing a record of thoughts to initiate conscious attention in daily life. Assignment: practicing conscious attention and recording the outcome.</td>
</tr>
<tr>
<td>The fifth session</td>
<td>Exploring conscious attention: these skills are to complement the previous trainings. Agenda: improving the mindfulness skills with compassion, retaining affection toward self and others, meditation activity to achieve peace and quiet. Assignment: Use one of the above-mentioned exercises to encounter turbulent emotions, and take note of one of them to be discussed the next session.</td>
</tr>
<tr>
<td>The sixth session</td>
<td>Essential skills of emotion regulation: Agenda: emotion: what is it and how does it act? Practice: recognition and recording of emotions, identifying self-deleterious behaviors, lowering cognition vulnerability (using coping thoughts and balancing between thoughts and feelings). Practice: incompatibility of thought and emotion and increasing positive emotions. Assignment: recording the emotions experienced during the week. The emotions should be recorded with their multiple dimensions (triggering events, physical changes, facial expressions, and the desire for action).</td>
</tr>
<tr>
<td>The seventh session</td>
<td>Advanced emotion regulation skills. Practice: conscious attention to emotions without judging them, dealing with emotions, taking action against the intense emotional desires, planning counteracting, and problem solving. Assignment: completing a sheet on a weekly basis for emotion regulation to reduce the physical and physical vulnerability, recording positive events, and filling out a form on observing and accepting emotions and coping with them.</td>
</tr>
<tr>
<td>The eighth Session</td>
<td>Fundamental and advanced skills for effective communication: Agenda: identifying what you want and practicing communication styles. Exercise: adjusting demands, propounding a simple request, composing resourceful drafts, keen listening, and practicing saying no.</td>
</tr>
</tbody>
</table>

Results

The mean ages of the intervention and control groups were 26.90±4.04 years and 27.5±3.5 years, respectively. Independent t-test showed no significant differences between the two groups (P=0.77).

As was reflected by Chi-square, 11 (55%) of the mothers in the intervention group and 12 patients (60%) in the control group had an avoidant attachment style. There were no significant differences between the two groups in terms of frequency of maternal attachment (P>0.75).

Ten (50%) patients from in the intervention group and 12 patients (60%) from the control group were housewives, and Fisher's exact test did not show a significant difference between the two groups (P=0.83).

In terms of educational level, based on Chi-square test, 12 patients (60%) from the intervention group and 14 patients (70%) from the control group had university education; no significant differences were observed between the two groups in this regard (P=0.51; Table 2).

Average scores of avoidant, anxious, and secure attachment styles were compared in terms of homogeneity pre-intervention. Results of the independent t-test showed no significant differences between the two groups with respect to avoidant (P=0.05), anxious (P=0.75), and secure (P=0.45) attachment styles. After training, independent t-test demonstrated no significant differences between the two groups regarding avoidant (P=0.37) and anxious (P=0.11) attachment styles, but there was a significant difference in terms of secure attachment (P=0.01).

In the intervention group, paired t-test showed that average score of anxious attachment styles reduced and the score of secure attachment increased after the intervention (P<0.001), but in the control group paired t-test showed no differences regarding avoidant (P=0.33), anxious (P=0.61), and secure (P=0.21) attachment styles before and after the intervention (Table 3).
Table 2: comparing Demographic characteristics of participants

<table>
<thead>
<tr>
<th>Variables</th>
<th>Intervention group Mean±SD</th>
<th>Control group Mean±SD</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (year)</td>
<td>26.9±4.4</td>
<td>27.2±3.5</td>
<td>0.77*</td>
</tr>
<tr>
<td>Educational level</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High school/diploma</td>
<td>8 (40)</td>
<td>6 (30)</td>
<td>0.51**</td>
</tr>
<tr>
<td>University</td>
<td>12 (60)</td>
<td>14 (70)</td>
<td></td>
</tr>
<tr>
<td>Mother’s job</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Housewife</td>
<td>10 (50)</td>
<td>12 (60)</td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td>4 (20)</td>
<td>3 (15)</td>
<td>0.83***</td>
</tr>
<tr>
<td>Employee</td>
<td>6 (30)</td>
<td>5 (27)</td>
<td></td>
</tr>
<tr>
<td>Attachment style</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avoidant</td>
<td>11 (55)</td>
<td>12 (60)</td>
<td>0.75**</td>
</tr>
<tr>
<td>Anxious/ambivalent</td>
<td>9 (45)</td>
<td>8 (40)</td>
<td></td>
</tr>
<tr>
<td>Gestational age (week)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30-31</td>
<td>8 (40)</td>
<td>9 (45)</td>
<td>0.55**</td>
</tr>
<tr>
<td>32</td>
<td>7 (35)</td>
<td>4 (20)</td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>5 (25)</td>
<td>7 (35)</td>
<td></td>
</tr>
</tbody>
</table>

*Independent t-test  
**Chi-square  ***Fisher’s exact test

Table 3: comparing attachments styles scores before and after intervention, in two groups

<table>
<thead>
<tr>
<th>Variables</th>
<th>Group</th>
<th>Mean±SD Before training</th>
<th>Mean±SD After training</th>
<th>Comparison Within groups*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoidant attachment style</td>
<td>Intervention</td>
<td>15.5±2.0</td>
<td>14.1±1.9</td>
<td>0.001&lt;P</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>15.0±2.5</td>
<td>14.7±2.5</td>
<td>0.33</td>
</tr>
<tr>
<td></td>
<td>Comparison between groups**</td>
<td>1.5</td>
<td>0.37</td>
<td></td>
</tr>
<tr>
<td>Anxious attachment style</td>
<td>Intervention</td>
<td>19.4±5.5</td>
<td>16.2±3.7</td>
<td>0.001&lt;P</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>18.8±6.0</td>
<td>18.7±5.7</td>
<td>0.64</td>
</tr>
<tr>
<td></td>
<td>Comparison between groups**</td>
<td>0.75</td>
<td>0.11</td>
<td></td>
</tr>
<tr>
<td>Secure attachment style</td>
<td>Intervention</td>
<td>13.7±3.3</td>
<td>15.5±2.6</td>
<td>0.001&lt;P</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>12.9±3.1</td>
<td>13.3±2.5</td>
<td>0.21</td>
</tr>
<tr>
<td></td>
<td>Comparison between groups**</td>
<td>0.45</td>
<td>0.01</td>
<td></td>
</tr>
</tbody>
</table>

*paired T- Test  
**Independent t-test

Discussion

The results of this study exhibited that the intervention group had lower anxious and avoidant attachment style scores and the mean score increased for secure attachment. The difference between the intervention and control groups in terms of secure attachment was statistically significant. Hosseinzadeh Taghvai et al. (2009), in their study entitled ‘Effect of Emotion-focused Therapy’ investigating attachment style of 20 couples, demonstrated the significant effect of emotion-focused therapy on attachment style of couples (20). This result was in line with the results of the current study.

Heidari et al. (2013) conducted a short-term analytical psychotherapy on 20 students of Babol University, who had insecure attachment style. Paired t-test presented that short-term analytical psychotherapy could significantly increase secure attachment style and decrease of avoidance attachment style; however, no significant effect on the ambivalent attachment style was noted (26). In the present study, emotion regulation could significantly boost secure attachment style score, and the score of avoidant attachment style were higher than that of the anxious attachment style.

The above-mentioned result can explain the reason behind the fact that individuals with insecure attachment style regulate their emotions more effectively to improve their personal well-being and that they experience lower levels of emotional intensity. Therefore, we can say that probably "experiencing lower levels of emotional intensity” facilitates cognitive processing of emotions of those with avoidant attachment style.

In other words, people with avoidant attachment style are reluctant to expressing their emotions. They are extremely self-reliant and consider others unreliable. Thus, they cannot be good at social and communication skills as well as learning effective strategies to solve problems. Halchuk et al. (2010) studied the impact of emotion-based training on couple's attachment disorders. To that end, 12
couples received emotion-based therapy, and its influence on anguished relations of couples, caused by attachment disorders, was investigated post-treatment and three years later. The results indicated enhancement of compatibility, trust, and forgiveness between couples and a reduction in the severity of the attachment disorders (27).

The main characteristic of insecure attachment style is lack of self-confidence. In this study, emotion-focused therapy could promote sense of confidence in the intervention group. This is consistent with results as the mean score of secure attachment increased. The impact of emotion regulation training on maternal insecure attachment may be due to content of the training program, so that four DBT skills including mindfulness, emotion regulation, distress tolerance, and interpersonal skills were taught to mothers with insecure attachment.

In various studies, emotional problems were reduced by implementing emotion regulation training programs. The results of Schutte and Malouff (2011) showed that mindfulness training could enhance individual comfort, adaptive functioning, affective skills such as comprehension and management of emotions and could alleviate anxiety and depression (28).

Fatehizadeh et al. (2006) concluded that emotion regulation programs based on DBT may be effective in the treatment of emotional problems and disorders (15). In the study by Salehi et al. (2012), entitled "Evaluation of the effectiveness of two methods: teaching emotion regulation based on Gross model and DBT in reducing symptoms of emotional problems" DBT alleviated the symptoms of emotional problems (e.g., anxiety, depression, and interpersonal sensitivity) (17). This result is congruent with those of the present study since DBT could lower anxious attachment style scores.

Individual differences regarding the ability to learn, mental status, culture, and pregnancy status imposed some limitations for the mothers and the researcher. Sometimes religious and cultural backgrounds may exert a heavy influence on the attachment style and maternal role, and some beliefs and superstitions can obstruct certain behaviors.

Implications for Practice
The results showed that emotion regulation training based on DBT could have a positive impact on the secure attachment style score in mothers with insecure attachment style. Implementation of emotion regulation training can enhance secure attachment. This outcome can be used in the care plan for prenatal care in health centers. Further studies on insecure mothers with separating each of the four DBT skills are recommended.

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Conflict of interest
The authors declare that there is no conflict of interest.

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