ORIGINAL ARTICLE

# Evaluation of psychometric properties of Persian version of Body Compassion Scale: Validation with clinical and nonclinical samples

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**Background:** Body compassion combines the concepts of body image and compassion for oneself. This concept includes the three components of defusion, common humanity, and acceptance. Due to the importance of this concept, this study was conducted to investigate the psychometric properties of the Persian version of the Body Compassion Scale (BCS) in clinical and nonclinical samples. **Materials and Methods:** This research is of correlational type in the field of psychometrics. The statistical population of the clinical sample included patients referred to cosmetic surgery clinics in Tehran in 2019–2020. Accordingly, 379 people were selected using the convenience sampling. They completed the BCS, Body Image Shame Scale, The Levels of Self-Criticism, Appearance Anxiety Inventory, and Body Image Acceptance and Action Questionnaire. The statistical population in the nonclinical sample includes people present in public places (such as public parks and cinemas) and universities in Kermanshah in 2020–2019. Ultimately, 367 people were selected using the convenience sampling method. Participants completed the BCS, External Shame Scale, Self-Compassion Scale, and Body Imaging Psychological Inflexibility Scale. Data were analyzed using LISREL 8.80 and SPSS 24 software. **Results:** The results showed that the three-factor structure of the BCS in both clinical and nonclinical samples has a good fit. Reliability was appropriate by calculating Cronbach's alpha and the test-retest of scale in clinical and nonclinical samples. Convergent and divergent validity of the scale was also good in both clinical and nonclinical samples. **Conclusion:** The results showed that the Persian version of the BCS has good psychometric properties in both clinical and nonclinical samples. Therefore, this scale can be a valuable instrument in clinical and research work in the Iranian society.

**Key words:** Body compassions scale, clinical, nonclinical, Persian version, validation

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## INTRODUCTION

Compassion is the awareness of one's suffering and that of others with a desire to alleviate it.[1] When this compassion is focused on oneself, it is called self-compassion.[2] Neff defines self-compassion as the ability to perceive one's pain in a nonjudgmental way and understand one's suffering as the part of common humanity.[3] Neff considers three components of compassion: Self-kindness versus self-criticism, common humanity versus isolation, and mindfulness versus over-identification.[4] Self-compassion is associated with many factors. It is positively related to psychological well-being and negatively related to symptoms of psychological pathology such as anxiety, depression, and stress.[5]

Braun's meta-analysis in 2016 showed that self-compassion is a protective factor against appearance

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comparisons, body monitoring, body shame, and body dissatisfaction.[6] In addition, self-compassion is associated with the perception of body image and helps reduce body image-related anxiety.[7] Self-compassion reduces the adverse consequences of a negative body image and stops its destructive effects. Studies have shown a strong positive relationship between body shame and negative attitudes and body dissatisfaction among people with low self-compassion.[8] However, because self-compassion is so broad[9] and not limited to thoughts about the body,[10] it may not fully reflect individuals' relationship with their bodies.[9] This problem can be seen in the items of the Self-compassion Scale (SCS), for example, the item "failure in something important" or "judging my shortcomings and inadequacies," which are considered too general.[11] Thus, in an attempt to link body image and self-compassion, the concept of body compassion was introduced by Altman.[12]

This concept consists of three components: Defusion, common humanity, and acceptance.[12] By emphasizing body image, body compassion provides information about how people relate to their bodies.[13] In this regard, Body Compassion Scale (BCS) has proven its value in understanding how people relate to their bodies.[14] The psychometric properties of this instrument have been studied in Hong Kong,[11] Italy,[15] and Portugal,[14] and its three-factor structure has been confirmed. Moreover, its validity and reliability have been reported as favorable. However, the mentioned studies and Altman's research[12] used nonclinical populations and did not examine the clinical and nonclinical groups in the same study.

Therefore, there are several reasons for using an instrument to measure body compassion for research purposes and clinical work. First, it is necessary to study the factor structure of the psychometric properties of instruments in societies with different cultural contexts. Furthermore, body compassion is a characteristic that can be perceived differently in different cultural contexts. Moreover, Iran is experiencing a high rate of cosmetic surgery and other actions related to the changes in appearance. The present study is one of the first studies that have examined the BCS in both clinical and nonclinical groups. It seems that psychometric information and higher analytical power are provided using samples from the clinical and nonclinical populations. Therefore, the present study was conducted to investigate the psychometric properties of the Persian version of the BCS in both clinical and nonclinical samples.

## MATERIALS AND METHODS

The design of this research was cross-sectional. The clinical sample's statistical population includes people referred to cosmetic surgery clinics in Tehran in 2021-2020. Three hundred and seventy-nine people were selected by the convenience sampling. The nonclinical sample's statistical population included people in public places (such as public parks and cinemas) and students of universities in Kermanshah in 2021–2020, from which 367 were selected by convenience sampling method.

In order to evaluate the psychometric properties, the BCS was initially developed based on intercultural adjustment guidelines.[16] Accordingly, the original version of the BCS was first translated from English into Persian by the four professors of clinical psychology. Then, the text was translated into Persian by two mental health professionals who were fluent in both English and Persian. In the next step, the authors reviewed the final translation of the BCS in terms of comprehensibility. In a pilot study, the initial translation of the instrument was completed by a sample of 25 patients referred to cosmetic surgery clinics to check the comprehensibility of the questions for the participants and to correct the errors in sentences. Errors in the questions were corrected based on a preliminary study. After preparing the final version of the questionnaire, the nonclinical sample completed the below instruments.

The face validity and content validity were evaluated using the presentation of the preliminary 23-item scale to seven experts in the field of clinical psychology. In the qualitative method of face validity, the experts confirmed that the questions with the dimensions of scale are appropriate and related and the words also reflect the concept of body compassion. In a qualitative approach of content validity, experts affirmed that scale questions cover the concept of body compassion.

### Instruments

#### *The body compassion scale*

The BCS is a 23-item new scale that measures peoples' attitudes toward their bodies regarding compassion, respect, and acceptance. Participants rate each item on a 5-point Likert scale from 1 (almost never) to 5 (almost always). Items that have negative expressions get a reverse score. Higher scores indicate greater compassion for the body. Ratings are aggregated for each item. The total score of compassion for the body ranges from 23 to 115. In addition to the total score, body compassion consists of three subscales: defusion, common humanity, and acceptance.[12]

#### *Body image shame scale*

This scale was designed by Duarte *et al*.[17] The body image shame scale (BISS) consists of 14 items that measure body image shame and includes two subscales: (a) The externalized body image shame that measures perceptions by which others judge individuals based on their physical appearance. (b) The internalized body image shame that

measures self-negative evaluations of physical appearance. Each item is scored on a 5-point Likert scale (from 0 = never to 4 = almost always).[17] In this study in Iran, the two-factor structure of this scale had a good fit, and its validity and reliability have been reported as appropriate.[18]

### *External shame scale*

This scale is a self-report instrument designed by Goss *et al*.[19] to measure the external shame. It has 18 items and includes three components: feeling inferior, empty, and ashamed of making mistakes. Each item is scored on a 5-point Likert scale (0 = never to 4 = almost always). Goss *et al*. reported the reliability of this scale with Cronbach's alpha of 94% and the test-retest reliability of 94%.[19] In the study in Iran, the three-factor structure of this scale had a good fit, and good validity and reliability were reported.[20]

### *The levels of self-criticism*

A 22-item scale consists of 1-Comparative self-critical dimension and 2-Internal self-critical dimension. Items are rated on a 7-point Likert scale from 1 (strongly agree) to 7 (strongly agree). Higher scores indicate higher levels of self-criticism.[21] Thompson and Zuroff[21] reported Cronbach's alpha ($a$ = 87) and the mean correlation between the two factors ($r$ = 0/45).

### *Self-compassion scale*

The 26-item scale assesses self-compassion-related thoughts, feelings, and behaviors. The SCS examines the three main components of self-compassion (i.e., self-kindness, human commonalities, and mindfulness) and their negative poles (i.e., self-judgment, isolation, and extreme assimilation) in the daily life. On a Likert scale from 1 (almost never) to 5 (almost always), items assess how respondents perceive their actions in difficult situations.[22] Cronbach's alpha for each of the components is as follows: Self-kindness (0.93), self-judgment (0.92), human commonalities (0.90), isolation (0.90), mindfulness (0.87), and extreme assimilation (0.87).[22]

### *Appearance anxiety inventory*

The 10-item appearance anxiety inventory (AAI) is used to assess repetitive thoughts and behaviors related to appearance-related worries and anxieties.[23] For example, one of the items says: "I stay away from situations or people because of my appearance." Each item is scored on a 5-point Likert scale from 0 (not at all) to 4 (always). The overall score maybe somewhere between 0 and 40. A higher total score indicates more severe symptoms. None of the items receive a reverse score.[23]

### *Body imaging psychological inflexibility scale*

This questionnaire was developed by Callaghan *et al*.[24] A 16-item self-report questionnaire assesses psychological resilience concerning body image anxiety. Each item is rated on a Likert scale from 1 (completely incorrect) to 7 (completely correct). All items on the Body Image Psychological Inflexibility Scale are aggregated, with higher scores indicating higher levels of body image inflexibility. The initial validation study showed good reliability and validity for body imaging psychological inflexibility scale.[24]

### *Body image acceptance and action questionnaire*

The body image acceptance and action questionnaire (BI-AAQ) Questionnaire is a 12-item instrument designed to assess body image flexibility. Each item is rated on a 7-point Likert scale from 1 (completely incorrect) to 7 (completely correct).[25] Each item has a negative wording and needs to be scored in reverse. The sum of all items is then calculated. Higher scores indicate more flexibility in body image. BI-AAQ has shown high internal stability with alpha between 0.92 and 0.95 in U.S. and international studies.[26]

### Ethical considerations

This study received ethical approval from the Iran University of Medical Sciences (Approval No. IR.IUMS.REC.1398.555). Written informed consent was obtained from all the participants before their inclusion in the study.

### Data analysis

Confirmatory factor analysis (CFA) was used to assess the construct validity of the BCS. CFA was conducted to compute the model fit indices of the scale in clinical and nonclinical samples. The model's fit was examined using multiple indices, including the ratio of Chi-square, and degrees of freedom (df), the comparative fit index (CFI), Normed Fit Index (NFI), non-NFI (NNFI), incremental fit index, root mean square error of approximation (RMSEA), and Standardized Root Mean Residual (SRMR). CFI, NFI, and NNFI values >0.90 were judged to indicate acceptable fit, as were RMSEA and SRMR values <0.08.[27,28] The ratio of $\chi^2$/df should be <3 for an acceptable model. The goodness of fit index and adjusted GFI, which adjust for the number of parameters, were estimated, ranging from 0 to 1 with the values of 0.90 or greater indicating a good fitting model.[29] Divergent and convergent validity was assessed using the Pearson correlation test between BCS and AAI, BISS, DSQ, FSCRS, and AAQ-BI scores. BCS reliability was assessed by internal consistency and test-retest reliability. Cronbach's alpha was used to calculate the internal consistency of BCS. The interclass correlation coefficient was calculated for the test-retest reliability (with a 2-week interval between two measurements with 30 study participants) of the BCS. Independent $t$-test was performed to investigate the difference between clinical and nonclinical samples. In this study, for continuous data (body compassion, appearance anxiety, body image shame, self-criticism, body image acceptance, and action), mean and standard deviation were

calculated. For the categorical data (gender, marital status, and education), frequency and percentage were calculated. SPSS software (version 24.0, IBM Corp., Armonk, NY, USA) and LISREL version 8.80 were used for the data analysis.

## RESULTS

In a clinical sample, 379 patients who refer to cosmetic surgery clinics participated in this study, with an age range of 16–54 years and an age mean ± standard deviation of 25.87 ± 6.36. In the nonclinical sample, 367 people participated in this study with the age range of 18–62 years and age mean ± standard deviation of 25.55 ± 6.31. The profile of the samples is presented in Table 1.

### Confirmatory factor analysis

CFA was performed to investigate the three-factor structure of the Persian version of the BCS in the clinical and nonclinical samples [Figure 1]. Fit indexes of the three-factor structure in the clinical sample show that the three-factor structure of the BCS has a good fit. Furthermore, the fit indexes of the three-factor structure in the nonclinical sample indicate that the three-factor structure of the BCS has a good fit [Table 2].

### Item-total correlations of body compassion scale

The relationship between body compassion subscales ranged from 0.32 to 0.57 in the clinical sample and 0.63 to 0.79 in the nonclinical sample. Furthermore, the relationship between subscales with the total score ranged from 0.77 to 0.81 in the clinical sample and 0.88–0.92 in the nonclinical sample.

### Internal consistency

Cronbach's alpha coefficient in the clinical sample for defusion, common humanity, acceptance, and total score of BCS were obtained 0.83, 0.84, 0.69, and 0.88, respectively. Furthermore, Cronbach's alpha coefficient in the nonclinical sample for the subscales of defusion, common humanity, acceptance, and total score of BCS was obtained 0.91, 0.90, 0.88, and 0.95, respectively.

**Table 1: Profile of samples**

| Category | Clinical sample, *n* (%) | Nonclinical sample, *n* (%) |
|---|---|---|
| Gender | | |
| Male | 132 (34.8) | 149 (40.6) |
| Women | 247 (65.2) | 218 (59.4) |
| Marital | | |
| Single | 297 (78.4) | 254 (69.2) |
| Married | 82 (21.4) | 113 (30.8) |
| Education | | |
| Less than a high school diploma | 32 (8.5) | 11 (3) |
| High school diploma | 132 (34.8) | 86 (23.4) |
| Bachelor | 156 (41.2) | 193 (52.6) |
| Master | 57 (15) | 70 (19.1) |
| PhD | 2 (0.5) | 7 (1.9) |

### Test-retest reliability

To assess the test-retest reliability, ICC was calculated using a one-way random effects model. The ICC of defusion, common humanity, and acceptance and total score of BCS in the clinical sample were of 0.81 (95% CI: 0.65, 0.91), 0.88 (95% CI: 0.76, 0.94), 0.87 (95% CI: 0.74, 0.94), and 0.85 (95% CI: 0.72, 0.93), respectively. Also, the test-retest reliability of defusion, common humanity, and acceptance and total score of BCS in the clinical sample were. 85 (95% CI: 0.71, 0.93), 0.87 (95% CI: 0.74, 0.93), 0.86 (95% CI: 0.73, 0.93), and 0.81 (95% CI: 0.65, 0.91), respectively.

### Convergent and divergent validity

In the clinical sample, the Pearson correlation coefficient results showed a positive and significant correlation between body compassion and its subscales with body image flexibility. In the nonclinical sample, there is a positive and significant relationship between body compassion and its subscales with self-compassion, which shows that the scale has a good convergent validity in the clinical and nonclinical samples [Table 3].

The Pearson correlation coefficient results showed a significant and negative relationship between body compassion and its subscales with the shame of body image, self-criticism, and appearance anxiety in the clinical sample. In the nonclinical sample, there is a significant and negative relationship between body compassion and its subscales with external shame and psychological inflexibility of the body image, which shows that the scale has a good divergent validity in the clinical and nonclinical samples [Table 3].

### Group validity

The mean ± standard score of BCS was for the clinical sample (72.98 ± 19.49) and the nonclinical sample (76.31 ± 14.62). The independent *t*-test showed a significant difference between clinical and nonclinical groups in terms of body compassion so that the average body compassion for the clinical sample is lower than the nonclinical sample; $t(744) = 2.64$, $P = 0.008$.

## DISCUSSION

This study aimed to investigate the psychometric properties of the factor structure of the Persian version of the BCS in two Iranian clinical and nonclinical samples. The results showed that this instrument has a suitable three-factor structure. These results are in line with Altman[12] and research conducted in Portugal,[14] Italy,[15] and Hong Kong.[11] In line with Altman's study, the present study identified three

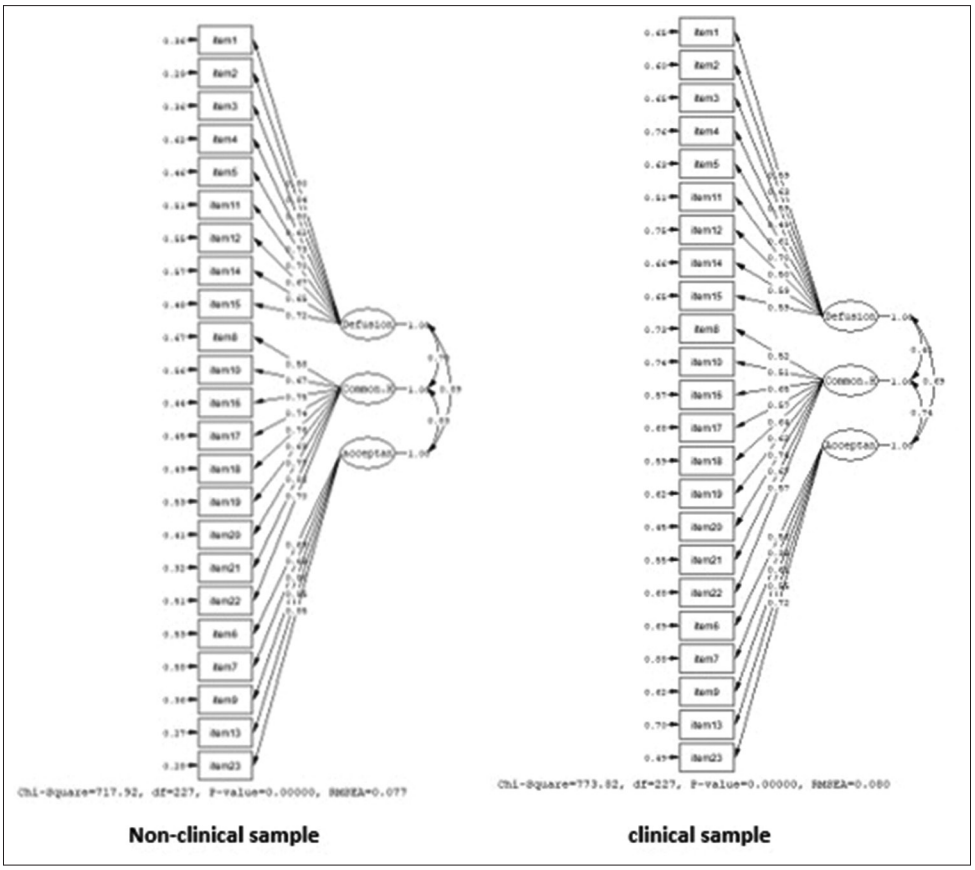


**Figure 1:** Three-factor structure of the body compassion scale

**Table 2: Fit indexes of the three-factor structure of body compassion scale**

| Fit indexes | $\chi^2$ | *P* | $\chi^2$/df | SRMR | GFI | IFI | CFI | AGFI | NNFI | NFI | RMSEA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Clinical | 773.82 | 0.001 | 3.41 | 0.06 | 0.85 | 0.92 | 0.92 | 0.82 | 0.91 | 0.89 | 0.08 |
| Nonclinical | 717.92 | 0.001 | 3.16 | 0.05 | 0.85 | 0.98 | 0.98 | 0.82 | 0.98 | 0.97 | 0.08 |

SRMR=Standardized root mean residual; GFI=Goodness of fit index; IFI= Incremental fit index; CFI=Comparative fit index; NNFI=Non-NFI, NFI=Normed fit index; RMSEA=Root mean square error of approximation; AGFI=Adjusted goodness of fit index

factors: defusion, common humanity, and acceptance. The first component of body compassion, i.e., defusion, is based on mindfulness. Although the two concepts of compassion and mindfulness are related, there are differences between them. Mindfulness focuses on experience, while compassion focuses on the experiencer. Compassion is more emotionally active than mindfulness, and teaching compassion can uniquely help shame.[30] Mindfulness can moderate a range of effects of anxiety on body deformity. It also helps people accept the transient nature of experiences and not consider them as reality by engaging in extreme assimilation and rumination about them.[8] The component of common humanity is the second component of compassion for the body. This component refers to encountering negative body image experiences that exist as common experiences in humans.[14] Through this component, the individual accepts and comes to the cognitive understanding that his feelings and concerns about his body are ordinary, shared, and part of the larger human experience.[31] It also points out that everyone has certain flaws and that pain and sadness are common human experiences.[8] Recalling the shared human experience makes us feel less isolated when we are in pain.[1] Acceptance as the third component of body compassion involves consciously accepting our body's appearance, health, and function exactly as it is now[32] and being open and kind toward painful experiences related to our body rather than being self-critical or self-judgmental.[14] A person who is kind to himself considers himself worthy unconditionally. On the other hand, a self-blame person is expectant and critical of himself.

The present study results also showed that the BCS has a good internal consistency. These findings are consistent with Altman *et al*.[12] on the internal consistency of this instrument. It is also consistent with the findings of the study carried out by Wong *et al*.,[11] and Ferreira *et al*.[14] on the internal consistency of this instrument. In this case, all three subscales of body compassion obtained a higher alpha

**Table 3: Convergent and divergent validity in clinical and nonclinical samples**

| Convergent and divergent validity in clinical sample | | | | | | |
|---|---|---|---|---|---|---|
| **Variable** | **Defusion** | **Common humanity** | **Acceptance** | **External shame** | **Self-compassion** | **Body image psychological inflexibility** |
| BCS | 0.91** | 0.88** | 0.92** | −0.52** | 0.63** | −0.47** |
| Defusion | - | 0.63** | 0.79** | −0.47** | 0.59** | −0.47** |
| Common humanity | | - | 0.75** | −0.44** | 0.52** | −0.36** |
| Acceptance | | | - | −0.50** | 0.59** | −0.42** |

| Convergent and divergent validity in nonclinical sample | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Variable** | **Defusion** | **Common humanity** | **Acceptance** | **Shame** | **Self-criticism** | **Appearance anxiety** | **Body image flexibility** |
| BCS | 0.77** | 0.81** | 0.81** | −0.56** | −0.54** | −0.58** | 0.51** |
| Defusion | - | 0.32** | 0.51** | −0.51** | −0.49** | −0.56** | 0.54** |
| Common humanity | | - | 0.57** | −0.39** | −0.32** | −0.36** | 0.28** |
| Acceptance | | | - | −0.46** | −0.52** | −0.47** | 0.42** |

BCS=Body Compassion Scale, ***P*< 0.01

score in the nonclinical sample. This difference was greater in the acceptance subscale, which indicates embracing the healthy appearance and function of the body.[11]

The present study results also showed that BCS has a good test-retest reliability that is consistent with the study of Wong *et al*.[11] Thus, the scores obtained from BCS are relatively stable over time.

Several scales were used for divergent validity of the BCS, including body image shame, external shame, self-criticism, physical anxiety, and psychological inflexibility scales. The analysis results showed a negative and significant relationship between body compassion and its subscales with body image shame, self-criticism, and appearance anxiety in the clinical sample. Furthermore, in the nonclinical sample, there is a negative and significant relationship between body compassion and its subscales with psychological inflexibility of body image and external shame, which shows that the scale has a good divergent validity in both clinical and nonclinical samples. These findings are consistent with Oliveira *et al*., who showed that body compassion is negatively related to external shame.[33] It is also consistent with other studies that have shown that body compassion is negatively associated with eating disorders,[2] shame on body image,[14] and negative emotion.[12] In explaining these findings, it can be said that external shame arises from the experience of being judged by others as incompetent and unattractive. It can also be attributed to the feeling that one cannot create a positive image, and emotions in others can have a devastating effect on mental health problems, especially in maladaptive attitudes and behaviors related to the body.[33] Individuals use self-criticism as a defensive strategy to avoid feelings of shame. Therefore, compassion-based skills can protect against body dissatisfaction and shame. Decreased acceptance and mindfulness are also associated with increased appearance anxiety.[34] People who have a compassionate attitude toward their body's inadequacies perceive negative body image-related experiences as shared human experiences and treat their painful feelings and thoughts with kindness.

Furthermore, the convergent validity of the BCS in the clinical sample showed a positive correlation between body compassion and its subscales with body image flexibility. Moreover, there is a positive and significant relationship between body compassion and its subscales with self-compassion in the nonclinical sample. As expected, body compassion is positively associated with an attitude of acceptance, care, and kindness toward the body. This suggests that people who are more compassionate about their bodies may also increase their capacity for flexibility and change in health and appearance processes.[12]

## CONCLUSION

In general, based on the results of this study, the Persian version of the BCS has appropriate psychometric properties in both clinical and nonclinical samples. Therefore, this scale can be a helpful instrument in clinical and research work in the Iranian society.

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### Conflicts of interest

There are no conflicts of interest.

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