Psychometric Characteristics of the Inventory of Irrational Food Beliefs

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ABSTRACT

The inventory of irrational food beliefs is a self-report instrument. Taken from Ellis theory, it evaluates people's unhealthy beliefs to ward foodstuff. The aim of this research was to study the psychometric characteristics of irrational food beliefs among college students. 300 male and female students of Educational Sciences College, Shahid Chamran University were the study sample. They were selected in a simple random way from among the statistical universe. The inventory of irrational food beliefs and the inventory of eating attitude were used as instruments. The results showed that the inventory of irrational food beliefs enjoys desirable internal consistency; moreover, this inventory had meaningful correlation with the total score of the inventory of eating attitude and its subscales, namely, eating habit, eating tendency, and oral control. Furthermore, the results of confirmatory factor analysis illustrated that the inventory of irrational food beliefs desirably fits the data.

Keywords: Irrational food beliefs, Reliability, Validity

INTRODUCTION

Overweight and obesity have been growing since the beginning of 20th century, and have involved many people in developed and developing countries. Obesity hinders physical, mental, and social well- being, and also lays the grounds for more serious diseases and disorders [1]. Life style and its various constituents, including mechanical life, lack of time or will for working out, immobility, and dependency toward fast food, which is high in fat and Calorie, are said to lead to acquired obesity [2]. World health organization [WHO] predicts that by 2020, 1.3 billion of world population will be involved with overweight and 573 million with obesity [3]. During the last century, obesity was only a health issue in many industrial countries, but the outbreak has recently been so high that the WHO has warned that the prevalence of obesity is a global threat for general well-being. It has been predicted that by 2025 obesity would be the first issue to threat well-being in the world [4]. Different therapeutic programs have been designed to treat obesity and overweight, and also to prevent health issues related to them; these programs insist particularly on decreasing energy intake and increasing physical activities. But a great number of researchers involving Werrij and colleagues (2009) believe that those interventions become relatively inefficient in the long term, since follow-up studies show the great possibility of weight relapse [5]. In most people trying to lose weight, like previous diets is faced with failure, thus it causes undesirable cycle of losing and gaining weight. One of the reasons behind failure in dietic plans and weight relapse might be that in such programs peoples psychological issues are not paid attention to taking psychological issues into consideration, other than minimizing psychological problems, concomitant with obesity, can

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help in losing weight. Psychologists hold the view that there are many factors that affect ones healthy behavior modification, one of which is a person's irrational belief about food stuff. Irrational food beliefs as deviated and unhealthy beliefs toward food-stuff can negatively affect losing and controlling weight [6]. These beliefs include the following: eating is my biggest pleasure in life. I can't live without eating sweets and fatty food. Holding such beliefs, particularly among obese people make them lose control of [their] eating, and therefore they stop losing weight or relapse in to weight. Findings illustrate that those having such beliefs think that food stuff can ease negative feelings and emotions, and bring about comfort and tranquility [7-9] and Osberg and Eggert (2011) illustrated that when under stress, people may long to eat greasy food due to irrational food beliefs.

Osberg and Eggert (2011) findings showed that stress directly affects gluttony, but it affects body mass index indirectly, and through irrational food beliefs. These irrational beliefs, among those suffering from obesity result from low tolerance for failure, unreal self-expectancy, and lack of responsibility. Therefore, due to un-real self-expectancy and lacking self-acceptance, obese people are incapable of adjustment and resolving conflicts; thus, when facing an environmental stressor, instead of solving the problem they tend to inefficient emotions such as eating food stuff and deserts [junk food] which result in gaining weight. Therefore, taking such psychological issues as irrational food beliefs in educational, professional and clinical aspects of dietic programs into consideration can help people change their way of eating behavior and habits, and also establish a healthy eating behavior. Thus, it is necessary to have a Persian version scale of irrational food beliefs. To meet this need, the aim of the present research was to prepare and study the psychometric characteristics of the inventory of irrational food beliefs proportionate to Iranian society.

MATERIALS AND METHODS

The present study is descriptive. The statistical universe was all male and female students of Education Sciences College, Shahid Chamran University of Ahwaz; 300 students were chosen in a simple random way, and the inventories were distributed among them. From among the students, 288 filled and handed out the inventories. Mean and the standard deviation of their age were 22.40 and 2.33, respectively; mean and standard deviation of their weight were 61.59 and 9.61; and mean and standard deviation of their height were 2.22 and 11.57, respectively. 41.3 percent of the subject was male and 58.7 percent were female.

The inventory of irrational food beliefs

This inventory was introduced by Osberg et al. [10]. Taken from Ellis theory, this self-report instrument evaluates people's unhealthy beliefs toward food stuff. It consists of 57 articles and 2 subscales. Applying exploratory factor analysis with main constituents, osberg and colleagues illustrated 2 factors. First, subscale of irrational food beliefs including 41 articles, and second, rational food beliefs involving 16 articles. Answers are according to a 4 degree likert scale, ranging from "absolutely agree" to "absolutely disagree. Each article scores between 0.3 [0 = absolutely disagree, 3 = absolutely agree]. Getting a high score in the subscale of irrational food beliefs shows holding irrational food beliefs, and getting a high score in the subscale of rational food beliefs means having rational food beliefs. To estimate the reliability of this scale in the students sample, Osberg and colleagues (2008) applied Cronbach's alpha and reported 0.89 and 0.70 for subscales of irrational food beliefs and rational food beliefs, respectively; this shows the reliability of the two subscales. Osberg and colleagues (2008) also reported that regarding convergent validity, the validity of the inventory way desirable.

RESULTS AND DISCUSSION

Reliability

To test the reliability of the scale, Cronbach's alpha was taken use of in this study. The results were 0.95 for the scale of irrational food beliefs, 0.91 for rational food beliefs, and 0.89 for the whole inventory.

Table 1. Reliability coefficient of the inventory of irrational food beliefs in this study.

Inventory	Cronbach's alpha
Irrational food beliefs	0.95
Rational food beliefs	0.91
Total inventory	0.89

Validity

Since the inventory of irrational food beliefs was used for the first time in this study, in Iran, to evaluate its formal validity first it was translated from English to Farsi; then, regarding meaning, word selection, and agreement between Farsi sentences and the original text, it was reviewed by the professors of the Department of Clinical Psychology, Shahid Chamran University; two of the question were deleted because they did not suit our culture. Then the Persian version of the inventory was applied to a small sample and the problem was resolved; after that, the find inventory was prepared for the student's sample. Construct validity of the inventory of irrational food beliefs was obtained through the application of confirmatory factor analysis AMOS, version 20; convergence validity of the inventory was obtained via correlating its articles with those of the inventory of eating attitude [11,12].

The construct of irrational food beliefs consists of two hidden factors, namely, irrational food beliefs and rational food beliefs. To do the confirmatory factor analysis data related to each factor is given to analysis of moment structures [AMOS 20] to get the measuring model of these hidden variables and the parameters for measuring related articles. Table 2 shows the results of confirming factor analysis and factor loading of the articles of the inventory of irrational food beliefs.

As it is evident in table 2, none of the articles related to the first and second factors were deleted to do confirmatory factor analysis. Factor loading of the articles of first factor was between 0.44-0.66, and second factor was between 0.38-075. In table 3 it is shown that the measuring model of the inventory of irrational food beliefs Goodness of fit. As it can be seen in table 3, study data have goodness of fit with factor structure of this inventory. According to the results of confirming factor analysis, the index of root mean square error approximation [RMSEA] was 0.05, and the indices of comparative fitness index [CFI] and goodness of fit index [GFI] were 0.99 and 0.97, respectively. Other indices also enjoyed remarkable numbers that shows goodness of fit with data.

To obtain convergent validity, subjects were asked to fill both inventories of irrational food beliefs and eating attitude at the same time. Results showed that correlation coefficient of the total score of the inventory of irrational food beliefs with the inventory of eating attitude is 0.61 [$p \leq 0.001$]; and correlation of such subscales as eating habits, eating tendency, and oral control, with the inventory were 0.57, 0.53, and 0.57, respectively; all of which have meaningful relationship at the level $p \leq 0.001$, and show good validity of inventory. Table 4 illustrates the results of the convergent validity Coefficients of the inventory of irrational food beliefs with the inventory of eating attitude.

The world wide prevalence of overweight has tripled during last 2-3 decades, and this number has raised from 5% to 17.1% among teenagers [12-19 years old]; also, in Iran most overweight is seen among teenagers, and having bad and irrational food beliefs and beliefs is a threat for their health; therefore, other than studying psychometric characteristics of the inventory of irrational food beliefs in college student's sample, the researcher has conducted this inventory in a smaller sample for female teenagers [14-18 years of age] and has studied its psychometric characteristics.

Table 2. The results of confirmatory factor analysis and factor loading of the articles related to the inventory of irrational food beliefs.

Articles of First factor	Factor loading	Articles of First factor	Factor loading	Articles of second factor	Factor loading
1	0.60	31	0.50	3	0.38
2	0.55	32	0.57	5	0.48
4	0.59	34	0.54	9	0.66
6	0.55	36	0.58	12	0.67
7	0.66	37	0.54	17	0.69
8	0.53	38	0. 62	20	0.63
10	0.61	39	0.53	21	0.72
11	0.62	40	0.53	24	0.68
13	0.52	42	0.51	28	0.51
14	0.50	44	0.58	29	0.65
15	0.59	45	0. 63	35	0.75
16	0.55	46	0.65	41	0.65
18	0.55	49	0.57	43	0.67
19	0.60	50	0.55	47	0.50
22	0.56	51	0. 60	53	0.70
23	0.55	52	0.57	56	0.64
25	0.56	54	0.59	-	-
26	0.60	55	0.50		
27	0.52	57	0.44		
30	0.55	-	-		

Table 3. Goodness of fit for the inventory of irrational food beliefs in confirmatory factor analysis.

Fit Index	value
x^2	2928.62
P	P <0.001
df	1538
CMIN/DF	1.90
Goodness of fit index [GFI]	0.97
Adjusted goodness of fit index [AGFI]	0.94
Normalized fit index [NFI]	0.95
Comparative fit index [CFI]	0.99
Incremental fit index [IFI]	0.90
Tucker-Lewis Index [TLI]	0.99
Root-mean-square error [RMSEA]	0.05

Table 4. Convergent validity Coefficients and total scores of the inventories of irrational food beliefs with the inventory of eating attitude.

Inventories of irrational food beliefs		Correlation Coefficient	Level of significance [P]
Inventory of eating attitude	Eating habits	0.57	0.001
	Eating tendency	0.53	0.001
	Oral control	0.57	0.001
	Total score	0.61	0.001

Here are the results in short: internal consistency of the inventory of irrational food beliefs was calculated via Cronbach's alpha and split half. Cronbach's alpha for the whole inventory and the two subscales, namely, irrational food beliefs and rational food beliefs were 0.79, 0.75, and 0.79, respectively; applying split half the number was 0.67. Moreover, it, s convergent validity was 0.30 [P≤0.02] which was obtained via its correlation with a general question from the inventory of eating attitude. This indicates the existence of reliability and validity in the inventory of irrational food beliefs in the teenagers' sample too.

CONCLUSION

The aim of this research was to study the psychometric characteristics of the inventory of irrational food beliefs among college students. This inventory is designed to estimate people's unhealthy beliefs about food stuff. Regarding reliability of the inventory, results indicated that it enjoys desirable internal correlation. Internal correlation indices obtained in this study were harmonious with the internal correlation indices reported by Osberg and collogues (2008). Besides, the results of construct validity of this inventory showed that the articles of this test positively load related factors, and that, this inventory enjoys a desirable fitness with the data. The results of convergent validity also illustrated that the inventory of irrational food beliefs enjoys significant relationship with the total score of eating attitude inventory and its subscales. Generally, study results indicated that the inventory of irrational food beliefs has acceptable validity and reliability values among college students and teenagers; moreover, it is applicable to over 14 year old people. One of the limitations faced was the sample, namely students and college students, thus generalizing the results to other societies should be done with caution. It is suggested that this inventory be conducted on a broader level, because it strengthens the possibility of generalization. Since food beliefs can have cultural aspects, it is suggested that other researchers take this into consideration, along with paying attention to comparing different subcultures regarding the possibility of holding irrational food beliefs.

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REFERENCES

[1] Kelsey KS, Devellis BM, Gizlice Z, et al. J Community Health. 2011, 10.
[2] Grossniklaus DA, Dunbar SB, Gary R, et al. J Cardiovasc Nurs. 2011, 27.
[3] WHO. http:/ www, WHO, Geneva, 2009.
[4] Bidadian, M, Bahrami E, Hadi B. 2012, 10(7):757-771.
[5] Werrij MQ, Jansena A, Mulkensa S, et al. J Psychosomatic Res. 2009, 67:315-324.
[6] Osberg TM, Eggert M. Eating Behav. 2011, 13:54-57.

[7] O'Connor DB, Jones F, Conner M, et al. Health Psychol. 2008, 27:20-31.
[8] Habhab S, Sheldon JP, Loeb RC. Appetite 2009, 52:437-444.
[9] Goldfield GS, Adamo KB, Rutherford J, Legg C. Physiol. Behav. 2008, 93:579-587.
[10] Osberg TM, Poland D, Aguayo G, MacDougall S. Eating Behav. 2008, 9:25–40.
[11] Garner DM, Olmsted MP, Bohr Y, Garfinkel PE. Psychol Medic. 1989, 12:871-878.
[12] Moradi kor N, Akbari M, Olfati A. Int J Biometeorol. 2015, 59(244):1-6.