

Validity and reliability assessment of Persian adaptation of Mannheim Dream questionnaire (MADRE)

Masoud Shahabian¹, Ali Taghipour², Gholamreza Khademi³, Niyosha Sahbaie Ferdosi⁴, Haniye Jahantiq⁵, Elham Rahmanpour Salmani¹, & Mohammad Ebadirad¹

¹ Health Education & Research Development Company, Knowledge_based, Mashhad, Iran.

² Department of Biostatistics and Epidemiology, Faculty of Health, Mashhad University of Medical Sciences, Mashhad, Iran

³ Department of Pediatric, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

⁴ Student, Medical college, Islamic Azad University, Mashhad, Iran.

⁵ Hygiene & Medical Branch of Quchan, Mashhad University of Medical Science, Mashhad, Iran.

Summary. This study aimed to adapt the MADRE to Persian and to examine the validity and reliability of the new scale. For the adaptation, the translation and back-translation method was used and after some variations a shorter version of questionnaire having 26 items was developed from the original MADRE. Validity testing involved a panel consisted of 15 psychologists to fulfill a quantitative assessment by calculating content validity ratio (CVR) and content validity index (CVI). Since the lowest acceptable quantity of CVR in the presence of 15 panelists and CVI is determined 0.49 and 0.79 respectively, all the items of developed instrument enjoyed a proper level of content validity in terms of essentiality, relevance, and clarity with an exception for one item relevance. Reliability of the instrument was assessed by a test-retest method and use of Cronbach's alpha. Persian scale demonstrated good test-retest reliability and Cronbach's alpha coefficient was achieved 0.752 for the overall scale. The findings of current investigation suggest that Persian adaption of MADRE is a valid and reliable instrument which can be tried on target populations in further studies.

Keywords: Mannheim Dream Questionnaire, MADRE, reliability, Persian scale, validity

1. Introduction

It has been stated that about one-third of every human life-time is spent in sleep mode (Domhoff, 2003). The experience which occurs while sleeping in the inner world of humans is known as dreaming (Schredl, Berres, Klingauf, Schellhaas, & Göritz, 2014). Dreams that often are repeated every 90 minutes (Domhoff, 2003) are only accessible if the dreamer recalls them upon awaking (Schredl et al., 2014). As dreams do not happen in the conscious state, some have considered them useless (Kets-de-Vries, 2014). Although dreaming is known to be an entirely subjective experience (Schredl, 2010a), but differing interpretations about dreams since the dawn of time until today, well represent the importance of research in the area of dream. Use of dreams for predicting weather or future prophecies in the primitive cultures can be a good instance for ancient times. While in the present era on the basis of scientific explorations, various roles have been considered for dreams. For instance, nowadays

psychologists have accepted a psychotherapeutic effect for dream (Kets-de-Vries, 2014). Moreover, with respect to the experts' beliefs who worked on the dream, dreams have meanings (Barrett & McNamara, 2012).

In many works conducted in the field of dream, numerous questionnaires have been developed and used (Schredl et al., 2014). Use of questionnaire which is a retrospective measure to assess dream (Bernstein & Belicki, 1996) compared with some of the other paradigms of dream assessment like diaries has achieved superiorities in some aspects of dream such as measuring dream recall frequency, nightmare frequency, and lucid dream frequency (Stumbrys, Erlacher, & Schredl, 2013). For example, use of dream diaries to measure the frequency of dream recall may affect the results because it can lead to more reports of dream recall as it attracts the participant attention directly to the dream (Schredl, 2002).

A questionnaire which deals with various aspects of dream is the Mannheim Dream questionnaire. Items of this scale have been designated to measure the frequency of dream recall and dream telling, nightmares, lucid dreams, attitude towards dream, reading about dreams, effects of dreaming on coming waking life, and emotional intensity (Woznicki, 2015). Aspects of dream included in MADRE have been individually widely explored from various standpoints through quite a number of studies using numerous methods. Assessing the effects of age, sex, and income on dream recall frequency (Chellappa, Munch, Blatter, Knoblauch, &

Corresponding address:

Mohammad Ebadirad, Health Education & Research Development Company, Knowledge_based, Mashhad, Iran.
Email: mohebarad@gmail.com

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Cajochen, 2009), differences between men and women in reading literature for dream interpretation (Schredl, 2010b), or for sharing dreams (Curci & Rimé, 2008), the correlation between personality dimensions and attitude toward dreams (Beaulieu-Prevost & Zadra, 2007), the ability of dreams to solve emotional/non-emotional problems of the dreamer (Van-de-Castle, 1994), and effect of nightmares on daytime mood (Köthe & Pietrowsky, 2001), are some of the examples. Although, MADRE scale or issues provided in its items have been taken into consideration by many of the studies conducted in the dream scope, but a comprehensive review of the literature ensured us that MADRE scale has not been assessed for its content quality by a second user or developer. To draw conclusion about the quality of an instrument, achieving information about the content validity and reliability of the measure has been viewed as a necessity (Polit & Beck, 2006).

The aim of current study was preparing the Persian scale of MADRE questionnaire and later evaluating the validity and reliability of contents of the new instrument.

2. Method

2.1. Participants

The participants were selected according to the convenience method of sampling from students of all universities including governmental and nongovernmental centers studying in Mashhad city, Iran. The questionnaire was filled by 38 students, 76.3% male and 23.7% female. 62.2% of students were married. The mean age of the participants was 32.65 ± 6.56 years (range: 20 to 45 years). Higher academic qualifications had lower proportions amongst students: 39.4% of responders had a diploma, 30.3 % were with an associate degree, 27.3% had a bachelor's degree, and 3% were Ph.D. candidate.

2.2. Research instrument

To develop the Persian version of the questionnaire, the English form of MADRE was translated into Persian by two English language experts. Then the Persian form obtained from translations was translated back into English by two other specialists of English language. The final translated form was compared with the original form and the consistency between them was confirmed by the authors. In the Persian version of MADRE questionnaire, 1 qualitative item was removed and 19 items were retained one of them contained 8 questions. So, a questionnaire containing 26 items was developed in which five point scales were considered. According to various nature of questions, different phrases were assigned to each point in different items. The points were scored as (1) corresponding to one of the: seldom, very negative, more than 20, not at all, (2) corresponding to one of the: little, negative, 16-20, not so much, (3) corresponding to one of the: not too much, not-so-positive, 11-15, partly, (4) corresponding to one of the: much, positive, 6-10, sometimes and finally (5) corresponding to one of the: too much, very positive, 1-5, exactly. As an example, for item number 1 (How much have you recalled your dreams in the recent several months) points 1 to 5 were seldom, little, not too much, much, and too much respectively. The questionnaire was also comprised of questions regarding demographic variables of age, gender, material status and level of education.

2.3. Procedure

To make the instrument acceptable by respondents it should be attractive in appearance (Nunnally & Bernstein, 1994). So, face validation of Persian MADRE questionnaire was fulfilled using an expert panel consisted of 10 psychologists and they were asked to express their opinions in terms of level of difficulty of items, appropriateness of items with the principal objective of the instrument and possible misunderstanding of the words meanings (Banna, Becerra, Kaiser, & Townsend, 2010). After collecting comments of experts, minor corrections were done on some items.

Content validity of Persian MADRE questionnaire has been evaluated by calculating content validity ratio (CVR) and content validity index (CVI) to yield the most important and correct content of the instrument (Hosseini, Ghorbani, & Ebnahmady, 2015). For this purpose, 15 psychologists received questionnaires and they were asked to decide about a particular item based on the essentiality level set by Lawshe (Lawshe, 1975) as 'essential,' 'useful, but not essential,' or 'not necessary'. The numeric value varies between 1 and -1. Whatever the score be closer to 1 reveals further agreement of panelists on the necessity of items in the scale. CVR of each item is obtained through inserting the total number of panel persons (N) and number of experts who assigned the essential range for an item (N_e) in the formula $CVR = (N_e - N/2)/(N/2)$ (Zamanzadeh et al., 2015). Based on Lawshe table, when the number of experts is 15, the least accepted value of CVR is 0.49.

It has been reported that CVI is the most utilized tool for content validity assessment of a developed instrument (Grant & Davis, 1997). It is said that number of experts has always been determined partly arbitrary to decide on the relatedness and clearness of items, but to decrease the probability of chance agreement of judges' viewpoints on each item, it is better to appoint more number of experts. The relevance and clarity of each of the items was characterized by specialists using a 4-point Likert spectrum (1 [not relevant, not clear], 2 [somewhat relevant, somewhat clear], 3 [quite relevant, quite clear], 4 [highly relevant, highly clear]) according to Waltz and Basel approach. (Waltz & Bausell, 1981). CVI is computed according to the following equation: $CVI = N_{3,4} / N$, where $N_{3,4}$ is the number of respondents assigning a rating 3 or 4 to the relevancy or clarity of each item, and N is the total number of experts (Lynn, 1986). Proportions greater than 0.79 have been known acceptable for CVI while values between 0.7 and 0.79 need revision and items having indexes less than 0.7 must be eliminated from the scale (Abdollahpour, Nejat, Nourozian, & Majdzadeh, 2010).

In the present research, the scale reliability has been evaluated by calculating the internal consistency & applying re-test method. To determine the internal correlation of whole scale, α -Cronbach coefficient was utilized (Santos, 1999). To evaluate the external consistency of the instrument, re-test method was performed among 10 of the participants using validated questionnaire (Persian adoption) at a three-week interval.

3. Results

Items of final revised scale are shown in Table 1. As it is visible, the arrangement of questions has been changed in the Persian version of MADRE in comparison with the original scale.

Table 1. Final scale

Items	Contents
1	How often have you recalled your dreams recently (in the past several months)?
2	How intense are your dreams emotionally?
3	What is the emotional tone of your dreams on average?
4	How often have you experienced nightmares recently (in the past several months)? Definition: Nightmares are dreams with strong negative emotions that result in awakening from the dreams. The dream plot can be recalled very vividly upon awakening.
5	If you currently experience nightmares, how distressing are they to you?
6	Do you experience recurring nightmares that relate to a situation that you have experienced in your waking life?
7	How much of your nightmares are recurrent one?
8	How often did you experience nightmares during your childhood (from 6 to 12 year of age)?
9	How much do you experience so-called lucid dreams (see definition)? Definition: In a lucid dream, one is aware that one is dreaming during the dream. Thus, it is possible to wake up deliberately, or to influence the action of the dream actively, or to observe the course of the dream passively.
10	If you have experienced lucid dreams, how old were you when they occurred the first time?
11	How often to you tell your dreams to others?
12	How often do you record your dreams?
13	How often do your dreams affect your mood during the day?
14	How often do your dreams give you creative ideas?
15	How often do your dreams help you to identify and solve your problems?
16	How often do you experience Déjà vu (see definition)? Definition: During a déjà vu experience one is convinced one is reliving real-life situation that was already experienced in a dream.
17	Have you ever read something on the topic of dreams? [Books or magazine articles]
18	Did the literature about dreaming / dream interpretation help you to better understand your dreams?
Attitude towards dreams	
19	How much meaning to you attribute to your dreams?
20	How strong is your interest in dreams?
21	I think that dreams are meaningful.
22	I want to know more about dreams.
23	If somebody can recall and interpret his/her dreams, his/her life will be enriched.
24	I think that dreaming is in general a very interesting phenomenon.
25	A person who reflects on her/his dreams is certainly able to learn more about her/himself.
26	Do you have the impression that dreams provide impulses or pointers for your waking life?

According to Table 2, CVR value for all items is greater than 0.49 which signifies the importance and essentiality of questions included in the scale. The complete score of CVR calculated for items 12 & 24 indicates the agreement of all the members of panel on the necessity of the relevant questions in the instrument. Given that an appropriate number of specialists considered rating 3 or 4 for the relevance of 25 items of the instrument, index of content validity was achieved higher than 0.79 indicates on satisfying relevance of all items except item number 11 with the objective of the questionnaire. 12 experts or more confirmed the clarity of

whole instrument. All 15 commenters agreed on the relevance of item 26 and clarity of item 15 of the instrument. Despite the importance and clarity of item number 11, it must be eliminated from the scale as it was recognized irrelevant by one third of the experts. The Cronbach's Alpha coefficient of internal consistence of the MADRE was calculated 0.75. For calculation of this index, all the items of the Persian adoption of the MADRE that are shown in table 1 were used. The results obtained from the retest method were satisfactory indicating on repeatability of the responses given to the items of the Persian adoption of MADRE.

Table 2. The results of the content measurement

Items	CVR	N _e	CVI(relevancy)	N _{3,4}	CVI(clarity)	N _{3,4}	Interpretation
1	0.6	12	0.80	12	0.93	14	Appropriate
2	0.86	14	0.80	12	0.80	12	Appropriate
3	0.6	12	0.80	12	0.86	13	Appropriate
4	0.86	14	0.80	12	0.93	14	Appropriate
5	0.6	12	0.86	13	0.86	13	Appropriate
6	0.73	13	0.93	14	0.86	13	Appropriate
7	0.6	12	0.86	13	0.86	13	Appropriate
8	0.73	13	0.86	13	0.80	12	Appropriate
9	0.6	12	0.86	13	0.80	12	Appropriate
10	0.6	12	0.80	12	0.93	14	Appropriate
11	0.86	14	0.66	10	0.86	13	Rejected
12	1	15	0.86	13	0.86	13	Appropriate
13	0.6	12	0.86	13	0.86	13	Appropriate
14	0.73	13	0.80	12	0.80	12	Appropriate
15	0.6	12	0.80	12	1	15	Appropriate
16	0.86	14	0.86	13	0.80	12	Appropriate
17	0.73	13	0.80	12	0.80	12	Appropriate
18	0.6	12	0.80	12	0.80	12	Appropriate
19	0.86	14	0.8	12	0.86	13	Appropriate
20	0.73	13	0.93	14	0.86	13	Appropriate
21	0.6	12	0.86	13	0.80	12	Appropriate
22	0.6	12	0.86	13	0.80	12	Appropriate
23	0.86	14	0.80	12	0.93	14	Appropriate
24	1	15	0.86	13	0.80	12	Appropriate
25	0.6	12	0.80	12	0.86	13	Appropriate
26	0.6	12	1	15	0.86	13	Appropriate

Note. N_e: Number of experts evaluated the item essential, N_{3,4}: Number of judges who considered rating 3 or 4 for showing the relevancy or clarity of each item, CVR = content validity ratio, CVI = content validity index

4. Discussion

This study is the first in Iran which has pioneered to measure the validity and reliability of a Persian version of MADRE. In current study, the face validity was evaluated to improve the items of the developed instrument and it was not considered as a tool for scale judgment. Judgment on the basis of face validity has been discouraged by some researchers. Judging by appearance increases the likelihood of fallibility, can cause to differing perceptions among developers and users, and may lead to counterproductive inferring about the intent of the scale (De-Vellis & Dancer, 1991).

Despite Lawshe's opinion which has considered a minimum of four panelists for content validation, in present research it was decided that more number of experts be included in the panel. In spite of practical difficulties, a maximum of fifteen experts were participated in survey. Involving a greater number of specialists reduces the chance of finding more researchers having such a credentials to challenge the purported content validity of the scale. It can be assumed in interpreting CVR results that when all panelists are fully agreed on an item essentiality they could be either

all wrong or all right, but regarding their expertise, it must be concluded that some of them may be right and the item can enjoy of some degree of content validity (Allahyari, Hasanzadeh, Khosravi, & Zayeri, 2011). Actually concluding an instrument as valid or not valid is inaccurate since the validity is the property of inference, not the instrument (Cook & Beckman, 2006).

Measuring reliability is a necessity because the lack of reliable scores prevents achieving valid interpretations for an instrument (De-Vellis & Dancer, 1991). Internal consistency is a way of reliability measurement to show the level of correlation among scores of individual items with each other. Confronting with large variations in scores upon retesting indicates on low reliability of an instrument (Downing, 2004). The reliability of developed Persian form of MADRE was checked through the calculation of Cronbach's Alpha coefficient. It was calculated to determine the internal consistency of Persian MADRE. The reliability coefficient is usually reported as a decimal number ranged between 0 and 1. As the lowest level of Cronbach's Alpha coefficient for indicating on reliability has been determined 0.7 (Downing, 2004), the Cronbach's Alpha coefficient which was found out as

0.75 in current study was implying on proper level of internal consistency of the questionnaire.

Although validation is a lengthy multi-step process consisted of validity and reliability assessments but this research and similar studies show us that how well we can objectify the subjective process of content validity. Moreover, challenging the content of research instruments helps us to better understand, use and criticize them with a more accurate approach.

5. Conclusion

According to the results the existing developed scale enjoys a content fairly valid and reliable. Hence, authors propose other compatriot researchers to take the MADRE in Persian version as an authentic tool to study on dreams.

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Conflicts of interest

There are no conflicts of interest.

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Appendix

English translation of Persian edition of Dream Questionnaire (MADRE)

This questionnaire aims at obtaining a good overview of different aspects of dreaming. It takes about 5 to 10 minutes to complete. Please take your time and answer all questions carefully and completely.

Age: ____ years

Gender: O male O female

Occupation / Study discipline (students): _____

Items	Contents	Very much	Much	Partly	Low	Very low
1	How often have you recalled your dreams recently (in the past several months)?	<input type="checkbox"/>				
2	How intense are your dreams emotionally?	<input type="checkbox"/>				
3	What is the emotional tone of your dreams on average?	<input type="checkbox"/>				
4	How often have you experienced nightmares recently (in the past several months)? Definition: Nightmares are dreams with strong negative emotions that result in awakening from the dreams. The dream plot can be recalled very vividly upon awakening.	<input type="checkbox"/>				
5	If you currently experience nightmares, how distressing are they to you?	<input type="checkbox"/>				
6	Do you experience recurring nightmares that relate to a situation that you have experienced in your waking life?	<input type="checkbox"/>				
7	How much of your nightmares are recurrent one?	<input type="checkbox"/>				
8	How often did you experience nightmares during your childhood (from 6 to 12 year of age)?	<input type="checkbox"/>				
9	How much do you experience so-called lucid dreams (see definition)? Definition: In a lucid dream, one is aware that one is dreaming during the dream. Thus, it is possible to wake up deliberately, or to influence the action of the dream actively, or to observe the course of the dream passively.	<input type="checkbox"/>				
10	If you have experienced lucid dreams, how old were you when they occurred the first time?	<input type="checkbox"/>				
11	How often do you record your dreams?	<input type="checkbox"/>				
12	How often do your dreams affect your mood during the day?	<input type="checkbox"/>				
13	How often do your dreams give you creative ideas?	<input type="checkbox"/>				
14	How often do your dreams help you to identify and solve your problems?	<input type="checkbox"/>				
15	How often do you experience Déjà vu (see definition)? Definition: During a déjà vu experience one is convinced one is reliving real-life situation that was already experienced in a dream.	<input type="checkbox"/>				
16	Have you ever read something on the topic of dreams? [Books or magazine articles]	<input type="checkbox"/>				
17	Did the literature about dreaming / dream interpretation help you to better understand your dreams?	<input type="checkbox"/>				
18	How much meaning to you attribute to your dreams?	<input type="checkbox"/>				
19	How strong is your interest in dreams?	<input type="checkbox"/>				
20	I think that dreams are meaningful.	<input type="checkbox"/>				
21	I want to know more about dreams.	<input type="checkbox"/>				
22	If somebody can recall and interpret his/her dreams, his/her life will be enriched.	<input type="checkbox"/>				
23	I think that dreaming is in general a very interesting phenomenon.	<input type="checkbox"/>				
24	A person who reflects on her/his dreams is certainly able to learn more about her/himself.	<input type="checkbox"/>				
25	Do you have the impression that dreams provide impulses or pointers for your waking life?	<input type="checkbox"/>				