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Nutritional Knowledge Levels of Married Women Living in Turkey and Iran: A Cross-Cultural Comparison

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Abstract: This research has been planned in order to determine nutritional knowledge levels of married women living in the districts that represent middle socio-economic levels of Ankara of Turkey and Tabriz of Iran. Totally 300 women of which 150 live in Ankara and 150 live in Tabriz who have minimum high school education level have been involved in this research. Research findings have been collected by using face to face interviewig technique. In the questionnaire, there are questions related to the demographic characteristics and nutritional knowledge of subjects. The assesment has been made by giving 2.5 points to each correct answer. In order to determine the difference that depends on the variable chi-square and variance analysis have been applied. The findings show that nutritional knowledge points average of women from Tabriz is 28.75±5.83 and this figure for Turkish women is 24.98±6.15 ($p<0.01$). It has been found that the nutritional knowledge of 51.3% of women from Tabriz is 'enough', of 48.0% is 'moderate' besides of 65.3% of women from Ankara is 'moderate', of 28.0% is 'enough' ($p<0.01$).

Key words: Nutritional knowledge, education, Turkish women, Iranian women

INTRODUCTION

Many factors affect to be healthy and to maintain a healthy life. Those factors are classsified into two groups as invariables and variables. Invariables are age, gender and genetic characteristic.Variables are well-nutrition, regular exercise, enough and high quality sleeping and living in a balanced environment lack of stress. Well nutrition is as a result of enough and balanced nutrition. Well nutrition of people cannot be explained by only biological impulses and direct reactions to the sense of hunger. Nutrient selection and consumption patterns of the people are physiological and depend on satisfaction of social and psycological desires, traditions, customs and nutrition habits, nutrition knowledge and possibilities (Müftüoğlu, 2003; Parizkova, 1996). For providing enough and balanced nutrition, even if every sort of factor is available, having enough nutrition knowledge is very important. Among available nutrients, correct selection of nutrients that will meet the requirements, preparation from purchasing of selected nutrients to the serving of them and considering that cooking procedure not to damage to health and nutritive elements can be provided only by having knowledge about them. Wrong and harmful practices made because of the lack of nutrition knowledge play an important role especially in the nutrition of children and health of individuals show its effects on the physiological growth and development of the children (Sürücüoğlu and Balgamiş, 1987; Hasipek *et al*., 1992). Healthy members of families can be provided b completing phrases of the nutririon chain, moreover in those phases woman has an important role. Women are responsible for the nutrition of their family even whatever society they are in and whatever culture they have. Today, woman is a social symbol who carries out her traditional duties in the family as well as joins social production, shares responsibility, creates production and value and is witness of the era in art, politics, science, technology, education and industry. Whatever the women's expanded roles are, since their traditional roles continue with its all importance and expansion and since women can not give enough importance to the their nutrition because of the reasons like illness, tiredness, lack of knowledge and time expected looses may affect the nutrition and economic situation of family members as well as the economy of the country.

In many research carried out in Turkey, it has been indicated that the higher women's education level, the higher nutrition knowledge is. As a result of a research carried out with 260 married and working women. Sevenay (1996) as determined that 56.5% of the women have enough and 31.9% of the women have well, 8.9% have inadequate and 2.7% have very well nutritional knowledge level. Considering their education level, women who have

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high school or university degree (respectively; 28.6 and 39.4%) have well nutrition level, women who have primary school degree have not enough nutrition level. In Arici's (1997) research, that involves 450 married and working women, the nutritional levels of women of 35.8% who have secondary school degree, of women of 50.3% who have high school degree and of women of 65.9% who have university degree have been found well and very well. In his research Gündüz (2001)has been found that the point of average nutritional knowledge of the women who haven't graduated from any school is 17.14±1.12, of women who have primary school degree is 26.1±0.42, of women who have secondary school degree is 32.4±0.68, of women who have high school and university degree is 36.3±0.74 ($p<0.01$). Demirkaynak (2004) has been found that the average points of nutritional knowledge of women who have primary school degree as 62.59±1.48 and 74.33±0.74 for women who have university degree ($p<0.01$).

Research about this subject from other countries have been examined. In the research carried out on 200 married women in Rey city of Iran, it has been found that 65.0% of women have moderate, 18.5% of women have well, 16.5% of women have inadequate nutritional knowledge level (Alizadeh, 1995). Ko *et al.* (1995) in their research carried out on nutrition habits and nutritional knowledge levels of 198 adults, 47.0% have inadequate, 36.5% have moderate, 19.8% have adequate nutrition levels. Elbon *et al.* (1998) have examined the effects of education level and age on the nutritional levels of old women participated healthy life programmes and found that the points of women who have university degree are higher than women who have high school degree. Havas *et al.* (1998) in their research that examines many factors that affect fruit and vegetable consumption of 3122 women, they have found the percentage of correct answer given to the questions asked in order to measure knowledge levels of women as 35.9% for women who have primary school degree, as 38.5% for women who have high school degree, as 46.5% for women who have university degree ($p<0.01$).

In this research, it has been aimed to compare nutritional knowledge levels of women living in different countries and who have different cultural characteristic but share same responsibilities for their families.

MATERIALS AND METHODS

In order to determine the region where the research to be carried out; five districts both in Tabriz city of Iran and in Ankara city of Turkey have been selected considering the Statistical Classification of East Azerbaijan in Iran and Classification of Ankara City Center of State Statistical Institute of Turkey.

Housewives who have at least high school degree have been determined at random from the registrations and by visiting their homes, 300 voluntary women have selected as the sample of the research.

Findings of the research have been collected by questionnaires and by applying face to faceinterviewing technique.The first section of the questionnaire includes the socio-demographic characteristics of women and source of which women gain nutritional knowledge. In the second section, there are 17 multiple choice questions for determining nutritional knowledge levels of women. For the evaluation of the questions, 2.5 points has been given for each correct answer. In conclusion, the nutritional knowledge level of women who have got 42.5-30 points has been found 'adequate', for whom have 27.15-17.5 points it has been found as 'moderate' and for whom have 15> points has been evaluated as 'inadequate'.

Findings have been analyzed by using Statistical Package for Social Sciences (SPSS) version11.0. Absolute and percentage values and arithmetic averages have been taken and chi-square and variance analysis techniques have been applied. Since in one question that asks where they gain their nutritional knowledge, they mark more than one alternative, percentages have been calculated out of total answer number considering 'n' number in each alternative.

RESULTS AND DISCUSSION

When general informations are examined from Table 1, it has been observed that the rate of Turkish and Iranian women are higher in the 30-40 age groups (respectively; 40.0 and 43.3%) Average ages of the women are 36.53±9.28 year in Turkish women and 38.13±7.9 year in Iranian women.

Twenty percent of Iranian women have university degree, 80.0% of them have high school degree;13.3% of Turkish women have university degree and 86.7% of them have high schooldegree.

Average marriage ages of women is 21.93±3.87 for Iranians and 21.43±3.66 for Turkish women. In both countries, early age marriages are very common among women and for Iranian the percentage of married women between 15-26 ages is 86.6% and for Turkish women this percentage is 90.7%.

Comparing their marriage period, the percentage of women who have 11-20 years of marriage period is 46.7% for Iranians and for Turkish women who have 1-10 years of marriage period is higher (41.3%). This difference has been also statistically found significant ($p<0.01$).

Table 1: Demographic characteristics of women

	Iran (Tabriz)		Turkey (Ankara)		
	n	(%)	n	(%)	
Age group (years)					
19-24	27	18.0	42	28.0	X^2=5.889
30-40	65	43.3	60	40.0	p>0.05
41-51	51	34.0	38	25.3	
over 51	7	4.6	10	6.7	
Education					
High school	120	80.0	130	86.7	X^2=2.400
University	30	20.0	20	13.3	p>0.05
Marriege age of women(years)					
15-20	40	43.3	62	54	X^2= 4.120
21-26	70	43.3	40	36.7	p>0.05
27-32	35	11.4	42	8.7	
over 32	5	2	6	0.6	
Married period (years)					
10-Jan	65	26.7	81	41.3	X^2=13.654
20-Nov	65	46.7	55	26.7	p<0.05
21-30	17	23.3	13	28	
over 30	3	3.3	1	4	
Family status					
Small	137	91.3	138	92.0	X^2=0.044
Large	13	8.7	12	8.0	p>0.05
Child number					
0	7	4.7	17	11.3	
1	37	24.7	40	26.7	X^2= 14.570
2	84	56.0	56	37.3	p>0.05
3	17	11.3	30	20.0	
4	5	3.3	6	4.0	
5			1	0.7	

Table 2: The nutrional knowledge sources for women

	Iran (Tabriz) (n=198)		Turkey (Ankara) (n=201)	
	n	(%)	n	(%)
Experiences	2	1.7	30	21.0
School	9	7.7	18	12.6
Dietician	8	6.8	18	12.6
Doctor	70	59.8	39	27.3
Book	74	63.2	14	9.8
Tv programme book	17	14.5	67	46.9
and TV programme	18	15.4	15	10.5

In both countries, the rate of nucleus family is higher than the other family types. Comparing the number of children, the rate of women who have 1-2 children is higher for both Turkish and Iranian women (respectively, 80.0 and 64.0%).

The nutritional knowledge sources for women have been given in Table 2.

Most of the Iranian women (63.2%) tell that they gain their knowledge from nutrition books and doctors as well as Turkish women tell that they watch television programmes (46.9%). It has been thought that this situation derives from the fact that basic education period in Iran is 12 years for a long time thus reading habit is more common compared to Turkey. Another crucial point about this subject is that Turkish women give importance to their experiences. The rate of Turkish women who watch "always" and "sometimes" nutrition programmes on television is higher than Iranian women (95.3 and 78.0%). This difference has been also found statistically significant (p<0.01). In societies in which the rate of reading habit is low, television should undertake giving education duty and this is important from the point of the view of public awareness.

The distribution of answers given by Turkish and Iranian women to the questions asked in order to measure the nutrition levels of women and correct answers have been given in Table 3.

To the alternative of 'bread' which is the correct answer of the question of "In which is the carbohydrate higher than the others?", 86.0% of Turkish women have given correct answer, 8.7% of them have given wrong answer; 65.3% of Iranian women have given correct answer, 30.0% of them have given wrong answer. The results of statistical analysis indicated that given answers to the questions "In which is the carbohydrate higher than the others?" is affected by country variable (p<0.01).

Iranian women have answered correctly the question of which correct answer should be 'meat'in a high rate compared to the Turkish women (respectively, 86.0 and 58.0%). Differences among given answers to the question "In which is the protein higher than the others?" in compliance with the countries have been found significant (p<0.01).

As it is asked like in the first two questions, women have been asked that in which nutrients vitamin A is higher than the others. Approximately all women have given the correct answer of 'carrot' (92.0%). 94.7% of Iranian women and 89.3% of Turkish women have answered the question correctly. The result of the chi square analysis showed that country variable affected the rate of answers related to vitamine A (p<0.05).

It is shown in the Table 3 that the rate of women (for both Iranian and Turkish) who know orange in which vitamin C is higher than the others, is rather high (respectively, 95.3 and 97.3%). There is no woman who doesn't know the answer of this question, however 4.7% of Iranian women and 2.7% of Turkish women have given wrong anser to this question.

When Table 3 is examined in compliance with the countries related to the "In which is the calcium higher than the others?". It has been clear that Iranian women have given more correct answers than Turkish women (86.7 and 57.3%) The rate of women who have given wrong answer to this question is 42.7% for Turkish women and 11.3% for Iranian women. As a result of the statistical analysis showed that country variable is affected by the rate answers related to calcium (p<0.01).

Of the Iranian women 93.3% have given correct answer of 'grape molasses' to the question 'In which is the iron higher than the others?'however, even half of the

Table 3: The nutritional knowledge questions

Questions	Iran (Tabriz) (n =150)			Turkey (Ankara) (n = 150)		Total (n = 300)		
1-In which is the carbohydrate higher than the others?								
A) Lettuce								
B) Orange	C	98	65.3	124	86	227	756	X^2=21.955
C) Meat	F	45	30	13	8.7	58	19.3	p<0.01
D) Bread	UK	7	4.7	8	5.3	15	5	
E) Unknown								
2-In which is the protein higher than the others?								
A) Bread								
B) Orange	C	129	86	87	58	216	720	X^2=31.772
C) Egg	F	18	12	61	40.7	79	263	p<0.01
D) Meat	UK	8	2	2	1.3	5	1.7	
E) Unknown								
3- In which is vitamin								
A higher than the others?								
A) Meat								
B) Honey	C	142	94.7	134	89.3	276	92	X^2= 7.291
C) Carrot	F	8	55.3	9	6	17	5.7	p<0.05
D) Orange	UK	-	-	7	4.7	7	2.3	
E) Unknown								
4- In which vitamin C is higher than the others?								
A- Orange								
B- Potato	C	143	95.3	146	97.3	289	96.3	X^2= 6.844
C- Fish	F	7	4.7	4	2.7	11	3.7	p>0.08
D- Molasses	UK	---	---	---	---	---	---	
E- Unknown								
5- In which calcium is higher than the others?								
A- Yoghurt								
B- Milk	C	130	86.7	86	57.3	216	72	X^2= 39.25
C- Meat	F	17	11.3	64	42.7	81	27	p<0.01
D- Egg	UK	3	2	---	---	3	1	
E- Unknown								
6- In which iron is higher than the others?								
A- Spinach								
B- Grape molasses	C	140	93.3	58	38.7	198	66	X^2= 99.920
C-Cheese	F	10	6.7	91	60.7	101	33.7	p<0.01
D- Chickpea	UK	---	---	1	0.6	1	0.3	
E- Unknown								
7- In which pulp is higher than the others?								
A- Meat								
B- Maize	C	19	12.7	27	18	46	15.3	X^2= 86.818
C- Chickpea	F	34	22.7	103	68.7	137	45.7	p<0.01
D- Watermelon	UK	197	64.6	20	13.3	117	39	
E- Unknown								
8- In which of 100 gr energy is higher than the others?								
A- Veal								
B- Dried beans	C	3	2	35	23.3	38	12.7	X^2= 63.558
C- Strawbery	F	84	56	103	68.7	187	62.3	p<0.01
D- Ice-cream	UK	63	42	12	8	75	25	
E- Unknown								
9- In which satured fat is higher than the others?								
A- Meal								
B- Butter	C	34	22.7	103	68.7	137	45.7	X^2= 73.648
C- Spinach	F	47	31.3	33	22	80	26.7	p<0.01
D- Milk	UK	69	46	14	9.3	83	27.6	
E- Unknown								
10-In which cholesterol is higher than the others?								
A- Meat								
B- Milk	C	112	74.7	48	32	160	53.3	X^2= 66.881
C- Egg	F	29	19.3	99	66	128	42.7	p<0.01
D- Butter	UK	9	6	3	2	12	4	
E- Unknown								
11- Which one don't you eat in order to reduce daily fat amount?								
A- Cheese								
B- Macaroni	C	117	78	112	74.7	229	76.3	X^2= 2.967
C- Sausage	F	25	16.7	22	14.7	47	15.7	p> 0.05
D- Potato	UK	8	5.3	16	10.6	24	8	
E- Unknown								

Table 3: Continue

Questions	Iran (Tabriz) (n =150)			Turkey (Ankara) (n = 150)		Total (n = 300)		
12- Which cooking method does increase the fat amount of nutrients?								
A- Grill								
B- Boiling	C	144	96	142	94.7	286	95.3	X^2= 2.014
C- Frying	F	6	4	6	4	12	4	p> 0.05
D-Cooking in the oven	UK	---	---	2	1.3	2	0.7	
E- Unknown								
13- Which one is mostly lost while cooking and boiling of vegetables?								
A- VitD								
B- VitB	C	118	78.7	68	45.3	186	62	X^2= 37.38
C- Vit C	F	23	15.3	46	30.7	64	23	p<0.01
D- Vit E	UK	9	6	36	24	45	150	
E- Unknown								
14- When the boiling water of dried legumonious plants and macaroni which one is mostly lost?								
A- VitD								
B- VitB	C	103	68.7	74	49.3	177	59	X^2= 29.243
C- Vit E	F	42	28	34	26	81	27	p<0.01
D- Vit C	UK	5	3.3	37	24.7	42	140	
E- Unknown								
15- Which one does occur as a result of lack of calcium?								
A- Rachitis								
B- Gum blooding	C	140	93.3	122	81.3	262	87.3	X^2= 12.368
C- Diabetes	F	8	5.3	13	8.7	21	7	p<0.01
D- Anemia	UK	2	1.4	15	10	17	5.7	
E- Unknown								
16-Which one does occurs as a result of lack of iron?								
A- Diabetes								
B- Anemia	C	34	22.7	124	82.7	158	52.7	X^2= 18.455
C- Weakness	F	79	52.7	19	12.7	98	32.7	p<0.01
D- Vomitting	UK	37	24.6	7	4.6	44	14.6	
E- Unknown								
17- Which one does occur as a result of lack of vitamin C?								
A- Skin eruption								
B- Anemia	C	125	83.3	70	46.7	195	65	X^2= 46.677
C- Arthralgia	F	21	14	51	34	72	24	p<0.01
D- Gum blooding	UK	4	2.7	29	19.3	33	11	
E- Unknown								

Turkish women (38.7%) couldn't give the correct answer to this question. The rate of women who have given the wrong answer or who have not known the answer is 61.3% for Turkish women and 6.7% for Iranian women.It has been found that answers related to iron are significantly important for the differences according to countries (p<0.01).

To the question 7 in which 'what nutrient is rich for its fiber?' is asked, Turkish women have given more correct answer by saying 'chickpea' than Iranian women (18.0% for Turkish women and 12.7% for Iranian women). The rate of Iranian women who have not known the answer is higher than Turkish women (respectively, 64.6 and 13.3%). Considering this question as a result of chi0-square analysis showed that country variable is affected by the answers (p<0.01).

One of the questions which is wrongly answered is 'which 100 g of nutrient has higher energy than others'. The correct answer of dried beans has been answered by 23.3% of Turkish women however approximately no Iranian woman has answered correctly (2.0%).On the results of the applied chi square analysis, it was found that given answers to the question "which 100 g of nutrients has higher energy than others?" is affected by country variable (p<0.01).

The answers given to the ninth question can be examined from the same Table. The rate of Turkish women who have given the correct answer of 'butter' in which satured fat is high is three times higher than Iranian women have (respectively, 68.7 and 22.7%). Approximately half of the Iranian women (46.0%) said that they did not know the answer of this question and 31.3% of them have given wrong answer. This rate for Turkish women is 9.3% (for whom have not known the answer) and 22.0% (for whom have given the wrong answer). It has been found that answers related to "satured fat "have significantly important differences according to women" countries (p<0.01).

The rate of Iranian women who have answered correctly the question of 'which nutrient does have more cholesterol than others is higher than Turkish women have (74.7 and 32.0%).

Majority of Turkish women have given wrong answer (66.0%) and the rate of them who have not known the answer is 2.0%. 19.3% of Iranian women have given wrong answer and 6.0% of them said that they did not know the answer. As a result of the statistical analysis showed that country variable is affected by the rate answers related to cholesterol (p<0.01).

Table 4: The average nutritional knowledge of women

	X+SD	Min-max	Variance analysis
Iran (Tabriz) (n = 150)	28.75±5.83	12.5-42.5	F= 29.627
Turkey (Ankara) (n =150)	24. 98±6. 15	12.5-37.5	p<0.01
Total (n =300)	26.87±6.27	12.5- 42.5	

Table 5: The nutritional knowledge level of women

	Iran (Tabriz)		Turkey (Ankara)		Total		
	n	(%)	n	(%)	n	(%)	
Adequate	77	51.3	42	280	119	39.7	
Modarete	72	48.0	48	65.3	170	56.7	X^2= 21.634
Inadequate	1	0.7	10	6.7	11	3.6	p<0.01
Total	150	100.0	150	100.0	300	100.0	

The rate of Iranian women who have given correct answer to the question of 'which one do not you eat in order to reduce daily fat amount?' has been found as 78.0% and for Turkish women 74.7%. The rate of Turkish women who have not known the answner is higher than Iranian women (respectively, 10.6 and 5.3%).The results of the statistical analysis indicated that country variable is affected by the rate of answers related to sausage (p<0.01).

The question which has been mostly answered correctly is the question about cooking method. Both Iranian and Turkish women have given the correct answer of 'frying' in a mostly high level (96.0% for Iranian women, 94.7% for Turkish women). The average of the two countries about wrong answers have been found 4.0%. The ones who don't know the answer are 2 Turkish women.

There has been lost on some nutrient elements when cooking the vegetables if one does not obey the cooking and preparation rules. Vitamin C is the one whose value is mostly reduced. Thirteenth question which is related about the value of vitamin C has been answered more correctly by Iranian women than Turkish women (respectively, 78.7 and 45.3%). The differences among given answers to the question "which one is mostly lost while preparing and cooking of vegetables?" in compliance with the countries have been found significant (p<0.01).

To the question of 'which vitamin is mostly lost as a result of boiling the water of dried leguminous plants', 67.8% of Iranian women and 49.3 of Turkish women have given correct answer. The rate of women who have given wrong answer is close between two countries' women (28.0% for Iranian women, 26.0 for Turkish women). The rate of Turkish women who have not known the answer of this question is eight times higher than Iranian women. (respectively 24.7 and 3.3%). It has been found that answers related to losing nutrient elements in dried leguminous plants have significantly important differences according to the countries (p<0.01).

For the question of 'which disease can be occured as a result of the lack of calcium', 93.3% of Iranian women have given correct answer, 5.3% of them have given wrong answer and 1.4% of them said that they did not know the answer. 81.3% of Turkish women have answered correctly, 8.7% of them have given wrong answer and 10.0% of them said that they did not know the answer. Although the rate of correct and wrong answers is close to each other, the rate of Turkish women who have not known the answner is higher than Iranian women. This difference has been statistically found significant (p<0.01).

The rate of Turkish women who said that Anemia could occur as a result of the lack of iron is higher than Iranian women (Turkish women 82.7%, Iranian women 22.7%). Therefore, the rate of Iranian women who have not known the answer or given wrong answer has been found rather high (77.3%). As a result of chi square analysis the difference between the two countries has been statistically found significant related to anemia (p<0.01).

As last question, the question of 'which situation xcan occur as a result of the lack of vitamin C' has been asked to women involved the research and Iranian women have given mostly correct answer (83.3%) compared to Turkish women (46.7%). The differences between countries has been also statistically found significant according to this question (p<0.01).

Table 4 showes avarage nutritional knowledge points of Iranian and Turkish women.

When Table 4 is examined, the average nutritional knowledge point of 300 women is 26.87±6.27, this average is 28.75±5.83 for Iranian women and 24.98±6.15 for Turkish women. Considering this result, it is obvious that general nutrition knowledge of Iranian women is better than Turkish women have. As a result of variance analysis difference between two countries has been found significant related to nutritional knowledge points of women (p<0.01).

In Table 5, the nutritional knowledge levels of women have been evaluated as 'adequate', 'modetare' and 'inadequate'.

When Table 5 is examined; it has been found that more than half of the women (56.7%) have moderate level, 39.7% of them have adequate level and 3.6% of the have inadequate level of nutiritonal knowledge.

When we examine the situation according to the countries, 51.3% of Iranian women' and 28.0% of Turkish's nutritional knowledge level are adequate. It has been thought that this difference derives from the fact that Iranian women gain their nutrition knowledge from correct sources like nutrition books and doctors morover the rate of Iranian women who have university degree (20.0%) is higher than Turkish women have (13.3%). Of the Turkish women, 65.3% have moderate level of nutritional knowledge and this rate is 48.0% for Iranian women. The rate of Turkish women (6.7%) who have inadequate nutritional knowledge level is approximately 10 times higher than Iranian women have (0.7%).As the result of the applied chi-square analysis, it has been found that nutritional knowledge level of women varied according to country variable at $p<0.01$ level.

CONCLUSION

In societies of Turkey and Iran, one of the most important responsibilities belongs to women in respect of family nutrition. Adequate level of nutritional knowledge of women, preventing from wrong practices derive from traditions and wrong habits will affect the health and well-nutrition of individuals, families and societies. The most important factor for adequate and correct nutrition knowledge is 'education'. Nutrition education must be given in primary school for developing positive attitudes and behaviours related to nutrition and this should continue in every phase of life. To let the people to their own experiences or habits cause to continuation of wrong practices.

The fact that Iranian women have better nutritional knowledge level than Turkish women have derives from 12 years of obligatory basic education period in Iran for a long time than Turkey.

Research finding showed that mass media tools is well used in Turkey in respect of nutrition education so we may assume that Turkish women get their nutrition knowledge mostly from those tools. In Iran, there has been limited media channel so this kind of programmes are less than Turkey has.

It can be sugessted, that in Iran mass media tools can be used more effectively and both in Iran and in Turkey, basic education programmes should be contained nutritional subject.

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