

## Adolescent Girls Eating Behaviors about Calcium-Rich Foods

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**Abstract:** One of crucial nutrients in food basket is calcium. Calcium consumption is a main factor for making bones strong. We should pay attention to it from childhood and adolescence. Given the importance of women's role in arranging and preparing the family food basket, this study was performed with aimed to determine the mothers knowledge and attitude about calcium-rich foods in family food basket and adolescent girl's practice in city of Chabahar. This cross-sectional study was performed among 170 mother's female students in 5th grade at two primary schools in Chabahar, 2013. 170 eligible mothers were selected in voluntarily and acquiring written consent. Data collection tool was validated and reliable self administered questionnaire. The participant mother's score in knowledge and attitude were 83.13 83.2% and girls got 30.58% of total score. In point of view participants Cheese, fish and ice cream were the most important calcium resources. There was positive relation among knowledge, attitude and performance. But, just between knowledge and attitude that was significant ( $p < 0.001$ ,  $r = 0.343$ ). Academic mothers ( $p = 0.026$ ) and who had academic husband ( $p = 0.019$ ) had higher knowledge and attitude ( $P = 0.007$ ). Girls nutrient performance who their father was employee were more suitable ( $p = 0.038$ ). Regards to desire knowledge and attitude among mothers and weak (poor) performance of girls is supposed to some other factors addition to recognizing factors effects on doing nutrient behaviors for getting calcium among girls.

**Key words:** Family, calcium, mother, nutrients, girls

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### INTRODUCTION

Teen's behaviors affect public social health and unfortunately there has been a growth of risk behaviors in developing countries, especially among teens. It is important these risk behaviors replace with healthy behaviors. Some of risk behaviors include lack of doing screening behaviors, unhealthy nutrition not including calcium in diet and lack of daily physical activity which results in high hospital expenses due to multiple bone fractures all around the world (Drozdowaska *et al.*, 2004; Morowatishafabad *et al.*, 2015; Alavijeh *et al.*, 2015; Jalilian and Emdadi, 2011; Ahmadi *et al.*, 2009).

Life style has important role in life includes proper diet, sleeping, weight control, in this regards healthy nutrition and physical activity are crucial in treating physical and psychological disorders. Milk and dairy products provide >50% calcium in daily diet (Berarducci, 2004). In all societies with increasing age, reduces bone mass so, it leads to bone fractures and osteoporosis

(Shahroodi *et al.*, 2014). Fractures due to osteoporosis lead to dependence and less ability loneliness, speculation, less self esteem and depression which leads to lower levels of quality of life (De Kam *et al.*, 2009; De La Loge *et al.*, 2005).

There is higher chance for women to face diseases and feel weak due to physiological reasons such as pregnancy, breast feeding and menopause. Also, women suffer from the diseases which are relative to lack of physical activities (Steg *et al.*, 2012; Cooney *et al.*, 2010; Lee *et al.*, 2010). A study in shahroud in Iran showed adolescents consume calcium and iron in lower levels (4.35% 2-3 times in one week drink milk) (Piterman *et al.*, 2002) also, Kasper and coauthors showed that women do not consume the suggested amounts of calcium, they also did not practice the activities necessary to repair bones as they showed to be less worry about osteoporosis while considering not as serious as other diseases (Kasper *et al.*, 1994). A study in Iran also investigated the amount of calcium intake during 24 h

among 103 women over 45 years old in Jahrom, Iran; results showed that high levels of calcium deficiency among samples. Appropriate nutrition plays an important role in human psychological and physical health during their childhood (Javadi *et al.*, 2003). Also, it should be noticed that children and teenagers create a large part of country population and most healthy or unhealthy behaviors form at those ages (Orces *et al.*, 2003). On the other hand, noticing the important role of mothers to regulate family diet, provide food and affect children specially girls to follow their nutritional behaviors, it seems necessary to know about mothers attitude and knowledge to provide calcium in family diet and also create teen girls' nutritional habits.

On the other hand, Knowledge, attitude and practice, KAP study as the first and the basic behavior change model has been used with various behaviors including health care behaviors in different studies and has reported effective results (Aalto *et al.*, 2001). Therefore, considering the discussions above and, also, the point that previous studies reported weak shopping habits among people from Sistan and Baluchestan, Iran (Nazary *et al.*, 2006), the present study aims to assess mothers knowledge and attitude on supplying calcium in family diet and teen girls practice on eating calcium from others points of view in Chabahar, Iran.

## MATERIALS AND METHODS

It is a descriptive study among mothers with their student's at the 5 grade elementary school attending certain schools in Chabahar, Iran, during 2014. Participants were selected through stratified random sampling during several steps. First, two district state elementary schools for female students were selected randomly in Chabahar. Notice that the schools were at the same social and economical conditions. The needed sampling volume was determined as 90 (David and Machin *et al.*, 1999) considering  $\alpha = 5\%$  and power 80% and  $\delta = 0.3$  to gain score difference at least 20%. According to decrease in number of participants, finally 170 volunteer mothers with given conditions were chosen randomly from the two schools.

**Instruments:** A questionnaire was used to collect data. Its validity was confirmed by 14 experts in health education, nutrition and nursing (demographic information ( $n = 5$ ), Knowledge ( $n = 10$ ,  $\alpha = 0.86$ ), attitude ( $n = 5$ ,  $\alpha = 0.85$ ) and practice ( $n = 7$ ,  $\alpha = 0.97$ ) questions. Data collected were analyzed by SPSS 16 in use of descriptive statistical test at  $\alpha = 0.05$ .

**Knowledge questionnaire:** The questionnaire included 10 items such as "Are milk and dairy products good sources to provide calcium to body"? A three-choice Likert scale ranging from "True" (1 point), "No idea" and "False" (0 point) were used to answer the questions. The reliability of the questionnaire was 0.86 and scores ranged from 10-30, the higher score, the better the knowledge. Categorizing the scores, 10-20 was called poor, 20-25 average and 25-30 was considered as proper.

**Attitude questionnaire:** It includes 5 items such as "In my opinion, using milk and dairy products helps to strengthen bones and teeth." A three-choice Likert scale ranging from "Agree" (3 points), "No idea" (2 points) and "Disagree" (1 point) was used to answer the questionnaire its reliability was 0.86 and scores ranged from 5-15, the higher the score, the more positive the attitude to using foods containing calcium and its effectiveness. To categorize the score, 5-10 was considered poor, 10-12 average and 12-15 good.

**Practice questionnaire:** The questionnaire includes 7 items such as "how many glasses of milk did your child drink during last week?" Responses to the questions includes "x number of glasses" or "did not eat at all". Its reliability is 0.97 and scores ranged from 0-70, the higher the score, the better the nutrition in regard to calcium intake. The questionnaire was taken by mothers based on observing foods including calcium consumed by their daughters during a week. To categorize the score, 0-35 was considered poor, 35-60 average and 60-70 good.

Exclusion criteria from the present study included: mothers disagreement to continue their participation during every step of the study and not being a resident to Chabahar, Iran.

It should be mentioned that the study plan was checked with authorities of teacher training school, social welfare and health research center and education and training organization in Chabahar.

Selecting the mothers as participants and obtaining informed consent, questionnaires were distributed among them in a session. Filling out the questionnaires, researcher gathered them and data was analyzed using SPSS software version 16. Statistical tests used in the study included descriptive and analytical tests Chi square, t test, ANOVA, mean and standard deviation to determine mothers' knowledge and attitude and girls practice at meaningful level 0.05.

## RESULTS

Results from the study showed that majority of fathers (27.6%) educated up to guidance school, 20.6%

**Table 1: Frequency of demographic and field variables**

| Variables                     | N   | Percentage |
|-------------------------------|-----|------------|
| Fathers education, illiterate | 35  | 20.6       |
| Elementary                    | 43  | 25.3       |
| Guidance                      | 47  | 27.6       |
| High school                   | 31  | 18.2       |
| Academic                      | 14  | 8.2        |
| Total                         | 170 | 100.0      |
| Mothers education, illiterate | 49  | 28.8       |
| Elementary                    | 74  | 43.5       |
| Guidance                      | 25  | 14.7       |
| High school                   | 18  | 10.6       |
| Academic                      | 4   | 2.4        |
| Total                         | 170 | 100.0      |
| Mothers occupation, housewife | 150 | 88.2       |
| Worker                        | 4   | 2.4        |
| Employee                      | 8   | 4.7        |
| Self-employed                 | 8   | 4.7        |
| Total                         | 170 | 100.0      |
| Fathers occupation, housewife | 43  | 25.3       |
| Worker                        | 42  | 24.7       |
| Employee                      | 23  | 13.5       |
| Self-employed                 | 60  | 35.3       |
| Retired                       | 2   | 1.2        |
| Total                         | 170 | 100.0      |
| Housing, ownership            | 123 | 72.4       |
| Rental                        | 31  | 18.2       |
| State housing                 | 7   | 4.1        |
| Others                        | 9   | 5.3        |
| Total                         | 170 | 100.0      |

**Table 2: Mean score for knowledge items**

| Knowledge   | Mean  | SD   |
|---|-------|------|
| Milk and dairy products are good sources of calcium for body                                  | 2.86  | 0.34 |
| Regular physical activities lead to the production of muscles and bones                       | 2.73  | 0.59 |
| Consuming foods including calcium is essential to prevent osteoporosis                        | 2.67  | 0.57 |
| Drinking one or two glasses of milk is essential for teenagers to receive calcium daily       | 2.64  | 0.66 |
| Osteoporosis prevention should take place since childhood and teen hood                       | 2.50  | 0.74 |
| Vitamin D supplied through eating and exposure to sun is essential to absorb calcium received | 2.49  | 0.59 |
| Eating salty food results in losing calcium   | 2.41  | 0.72 |
| Jogging is one of the best activities to decrease the chance to face osteoporosis             | 2.27  | 0.76 |
| Osteoporosis means brittle bones  | 2.20  | 0.82 |
| Ice cream is a source of calcium  | 2.13  | 0.76 |
| Total   | 24.94 | 2.90 |

**Table 3: Mean score of attitude items**

| Attitude  | Mean  | SD   |
|---|-------|------|
| In my opinion, using milk and other dairy products helps to have healthy teeth and bones                      | 2.91  | 0.32 |
| I believe that drinking low fat milk increases calcium absorption   | 2.7   | 0.51 |
| In my opinion, drinking soda and can fruit juice are not good alternatives to milk                            | 2.46  | 0.79 |
| In my opinion, drinking coffee leads to losing calcium in body  | 2.21  | 0.71 |
| I believe that calcium in food prevents developing diseases such as high blood pressure and colorectal cancer | 2.17  | 0.74 |
| Total   | 12.48 | 1.85 |

were illiterate and 8.2% reported higher education. Study mothers educational level showed that majority of them (43.5%) finished elementary school and only 2.4% had university degrees. The data suggested low levels of education among parents of female teenagers in Chabahar.

Considering parents occupation, 88.2% of mothers were house wives and 25.3% of fathers were unemployed. As owning a job is a necessity to supply a family, fathers' unemployment faces their families with economical problems which in turn affects family nutrition. 72.4% of

the participants owned their housing building, though. Table 1 shows the information of demographic and field variables.

Mothers gained 83.13 and 83.2% of total score for knowledge and attitude and girls obtained 30.58% of total score for practice. Tables 2-5 show the information of knowledge, attitude and function scores, respectively. Considering knowledge 13 individuals (7.6%) gained poor scores, 85 individuals (50%) average and 72 (24.4%) good scores. For practice, 149 individuals (87.6%) obtained poor scores, 19 individuals (11.2%) average scores and 72 (1.2%) good scores.

Table 4: Mean score of function items

| Practice   | Mean  | SD    |
|--|-------|-------|
| How many slices of cheese as large as a match box did your child eat during last week? | 3.93  | 2.93  |
| How many slices of fish did your child eat during last week?                           | 3.5   | 2.87  |
| How many glasses of ice cream did your child eat during last week?                     | 3.44  | 2.26  |
| How many glasses of milk did your child drink last week?                               | 2.82  | 2.84  |
| How many small bowls of yogurt did your child eat last week?                           | 2.54  | 1.98  |
| How many glasses of yogurt drink did your child drink last week?                       | 2.44  | 2.24  |
| How many slices of red meat did your child eat last week?                              | 2.17  | 2.76  |
| Total  | 21.41 | 11.92 |

Table 5: Consumption rate of foods including calcium per week among teen girls under study

| Consumption rate | Milk |       | Dairy |       | Fish |       | Red meat |       | Fish and red meat |       |
|------------------|------|-------|-------|-------|------|-------|----------|-------|-------------------|-------|
|                  | N    | %     | N     | %     | N    | %     | N        | %     | N                 | %     |
| 0-7 units        | 162  | 95.3  | 38    | 224   | 152  | 89.4  | 156      | 91.8  | 121               | 71.2  |
| 8-14 units       | 7    | 4.1   | 58    | 34.1  | 17   | 10    | 13       | 7.6   | 40                | 235.0 |
| ≥15 unites       | 1    | 0.6   | 74    | 43.5  | 1    | 0.6   | 1        | 0.6   | 9                 | 5.3   |
| Total            | 170  | 100.0 | 170   | 100.0 | 170  | 100.0 | 10       | 100.0 | 170               | 100.0 |

There was a positive correlation between knowledge, attitude and practice which was only meaningful between knowledge and attitude, ( $p < 0.001$  and  $r = 0.343$ ). Mothers ( $p = 0.026$ ) and fathers ( $p = 0.019$ ) with academic education showed higher knowledge and attitude ( $p = 0.007$ ). Girls nutrition practice was better if their fathers were employees ( $p = 0.038$ ).

### DISCUSSION

The present study investigated mothers' knowledge and attitude and their girls practice to use food containing calcium in family diet. Results showed that half the population gained average scores in regard to knowledge and the rest gained good and poor scores, respectively. Considering that most mothers studied up to elementary levels, it could be concluded that they do not have the enough literacy to help them study and, therefore, auditory and visual media could help them be informed on the other hand as 50% of fathers were unemployed, it could be concluded that families suffer from low economical levels to gain information and spend more budget to it. As the result, using mass media such as radio, television, etc., could be helpful to distribute information in this regard. Evidence shows the essential role of knowledge in preventive behaviors of diseases (Riaz *et al.*, 2008).

Results from study by Soleymani Rahimabadi on knowledge level on consuming milk and dairy products (Ghaffari *et al.*, 2013) on knowledge on osteoporosis, calcium consumption and physical activity reported similarities. Considering the results from the present study where more than half of the mothers (56.5%) had positive attitude to calcium consumption and also, the positive correlation reported between knowledge and attitude, it could be concluded that improving knowledge leads to the improve positive attitude among study participants. It

in turn can be a milestone in individuals practice. Though, the present study showed that mothers' relative positive attitude and knowledge could not improve their daughters practice. Henandes-Ruda study showed barriers especially economic factors is important for consume insufficient calcium (Hernandez and Garcia, 2004). It should be noted that perceived sensitivity and perceived severity, also, could be effective to practice changes.

Considering girls practice, the present study reported that majority of the girls, 149 individuals, (87.6%) showed low practice about consuming foods including calcium; the reason could be eating habits of the people living in the region and economical and social factors. Girls low levels of practice could result from unemployment and worker of 50% of fathers, their levels of education (at guidance school) and mothers education levels (elementary levels). These results corresponded to the results from similar study by Kaheni *et al.* (2009), Gammage *et al.* (2009), Fernandez *et al.* (1996) and Kranz *et al.* (2007).

The reason could be the intolerance of girls to lactose in milk which creates gastrointestinal problems among them. To overcome the problem, it has been suggested that they try to consume yogurt and yogurt drinks and avoid using more than a cup of milk with each meal. Results from the present study which showed better nutritional practice of the girls whose fathers were employees suggested positive relationship between father's occupation and girl's nutrition which corresponded to results from a study by Kaheni *et al.* (2009). Vaghari, also, studied elementary school students north of Iran and suggested that mother's educational level was more effective on their nutrition than fathers'. Also, he reported that less amounts of milk is drunk in rural regions in comparison to cities; the reason could be more facilities and higher levels of education in families (Vaghari, 2013).

## CONCLUSION

Considering desirable levels of knowledge and attitude among mothers and girls poor practice, it seems that factors rather than mothers cognitive factors could be influential to nutritional behaviors to use calcium among girls. In this study, mothers gained good scores in knowledge and attitude with eliminating barriers can change their performance in prospering rich calcium foods for their children. Interaction on fathers can have good results because they have important role in economical situation in their family.

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