

Nutritional Knowledge Levels Of Adult Prisoners In Amasya, Turkey

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ABSTRACT

Background. Prisoners and convicts are deprived of important aspects of health promotion, health education and disease prevention and tend to have poorer health status in comparison to the general public. **Objective.** This study was planned to determine the level of nutritional knowledge of adult prisoners in Amasya E Type Closed Penal Institution, and to understand the training requirements for these individuals. **Methods.** The questionnaire aimed to measure nutrition knowledge levels were administered to 200 individuals between April 2014 and March 2015, by means of face-to-face interview. **Results.** Of the prisoners 76,5% stated that they had not undertaken any kind of training during their stay and 85,4% acknowledged that the trainings that they had undergone were from non-health related fields. Half of the participants mentioned that they obtained nutrition related knowledge from the mass media such as newspapers, TV and internet. Regarding nutrition related questions, less than 50% of the participants provided correct answers for food sources of nutrients. Rate of correct responses for nutrition and health related questions were also found to be low. **Conclusion.** In general the nutrition knowledge level of the prisoners were found to be incorrect or limited. It was suggested that nutrition and health related trainings were to be organized at regular intervals to increase the awareness and to improve food habits of the individuals.

Key words: Prison, adult prisoners, level of nutrition knowledge, nutrition knowledge

INTRODUCTION

Over 175,000 individuals are imprisoned in penal institutions in Turkey, as per 2015 official figures declared by the Ministry of Justice and General Directorate of Prisons and Detention Houses. Prisons provide a unique opportunity for reaching out to individuals who are partially or totally deprived of important aspects of health promotion, health education and disease prevention [1]. Prisoners tend to have poorer health status in comparison to the general public due to common prison issues, like bullying, mobbing, and boredom. Prisons can make a major contribution in improving the health of some of the most disadvantaged and excluded individuals in society [2].

The socio-economic development of a society depends largely on the involvement of human beings who are physically, mentally and spiritually equipped and the highest productivity can only be achieved by individuals consuming a balanced, healthy diet and leading an active life. A healthy, adequate and balanced diet is not only essential for vital activities of the individual, but also a basic condition for the development of society [3]. Worldwide incidence of diseases related to insufficient and unbalanced nutrition have increased alarmingly in recent years.

Among the diet-related chronic diseases, the most important ones include cardiovascular diseases, certain cancers (esophagus, stomach, colon, breast, lung, prostate), diabetes, obesity, hypertension and osteoporosis [4, 5]. It was reported in 2001 that 60% of all deaths worldwide were resulted due to chronic diseases. Currently, 46% of the whole population is reported to be suffering from chronic diseases and this proportion is expected to rise by 57% by the year 2020.

In developing countries, 79% of all deaths have been traced to chronic diseases; majority of which are reported to affect middle-aged males [4]. On evaluating the current situation from the perspective of public health, the fact that nutrition related health problems can be prevented by proper public education should be highlighted. Unhealthy, inadequate and unbalanced nutrition problems can be prevented with the right intervention strategies [6].

Research conducted in order to determine nutritional knowledge level of individuals in Turkey and also in other countries indicate an inadequacy in nutritional knowledge levels in general and highlight on the necessity of providing nutrition training [7, 8, 9, 10]. Training requirements—can be classified into two categories namely, perceived and non-perceived requirements [11]. Houle, in his studies reported that a requirement can only be perceived by an individual who feels for the need himself or by someone who monitors the requirement. Perceived requirements and urgent requirements are those that force an individual to take steps towards fulfilling these requirements. Non-perceived or analysed requirements are those which are unable to be identified by an individual, but can only be determined by a trainer or educator [12, 13]. Prisoners who fall into these categories need assistance to cope with and control the effects of imprisonment. They also need support in better preparation for a life after discharge [1].

General well being and protection from diseases is not only important for normal citizens but also significant for individuals who are incarcerated behind prison walls. Protection and improvement of health and well being is mandatory for individuals convicted and incarcerated behind prison walls of a country. Prison authorities should regularly assess the health needs of their populations, and ensure that health promotion and prevention programmes are provided to prisoners to meet their exact needs [14]. Ministry of Justice and General Directorate of Prisons and Detentions clearly defines duties for the protection and development of health in the national legislation [15].

Presently, there is less research work conducted and few datas regarding nutrition and health related knowledge level among prisoners or convicts. In this context, this research work conducted in Amasya E type Closed Prison is of considerable significance from the perspective of contributing to knowledge in this area. The objective of this research was to investigate the status of nutrition knowlege of the prisoners and convicts in Amasya E Type Closed Prisons, and to also determine those things that they require in order to adequately understand this topic in their Penal institution.

METHODOLOGY

Study design and populations

In principle, this descriptive study was conducted using the research model as a screening instrument. The research approach was directed at using the screening instrument, to portray a situation of the past as well as a situation in the present day [16].

Research population is comprised of 600 prisoners and convicts present in Amasya E Type Closed Penal Institution. In order to determine the sample size, a chart with indicative sample

sizes which was theoretically calculated for various sample populations was utilized. Based on this chart, the representative sample size was indicated for a total population of 600 prisoners with a 95% confidence level, and a 5% deviation for 204 individuals [17]. Therefore, the study was conducted on 200 prisoners selected by random sampling method. Data were collected using a questionnaire, in the course of a face to face interview between the researcher and the participants. Written permissions from the management of the Penal Institution and verbal approvals from the participants were obtained prior to the study. All participants were provided with full information regarding the scope and content of the project. In addition, participants were given explanations on the strict compliance to the "Privacy and Protection of Privacy" policy.

Data Collection Tool

Based upon literature review, a questionnaire prepared by the researchers, was used for collection of datas [18, 19, 20, 21]. The prepared draft scale/questionnaire, was submitted to the experts for their opinion regarding validity of the scale in terms of its features and content (adult education, health education, nutrition and dietetics food, public health, measurement and evaluation in the language areas) [17]. In accordance to the opinion of experts, some of the items of the scale were re-written in terms of comprehensibility, clarity, compliance with the language rules. The rectified draft scale was used for the pre-study conducted on 31 prisoners and convicts, not included among the experimental sample, in order to test the comprehensibility and validity of the scale.

The validity of the concept of the questionnaire were further evaluated by experts (validity of appearance) [17]. Based on the results of this assessment and recommendations of the experts, a few items were further removed and included to obtain the final form of the questionnaire to be used for the main study. The first part of the questionnaire comprises of questions regarding socio-demographic information of the participants. The second part contained 31 questions related to nutrition information of the prisoners. The survey of the prisoners included in the experimental sample group was conducted between April 2014 and March 2015 by means of face-to-face interview held between the researcher and the participants.

Statistical analysis

Statistical analysis of the datas were performed using SPSS for Windows (Statistical Package for Social Sciences for Windows) soft ware package (version 13,0). Independent sample t test; one-way analysis of variance (ANOVA) statistical tests were used to analyse the datas.

RESULTS

On analysing the socio-demographic information of the participants provided in Table 1, consisting of males only (100%), 24,5% were found to be aged between 41-50 years and 48,5% were self-employed. Approximately 81% of the participants had been in the prison for a period of 5 years or less.

Table 1. Demographic Information of Prisoners

Variant	Group	f	%
Gender	Male	204	100,0
Age	25 or less	46	22,5
	26-30	48	23,5
	31-40	49	24,0
	41-50	50	24,5
	50 or over	11	5,4
Occupation	Public Servant	6	2,9
	Worker	59	28,9
	Self Employed	99	48,5
	Retired	17	8,3
	Not Working	20	9,8
Duration in the Prison	1 year or less	84	41,2
	2-5 years	82	40,2
	6-10 years	30	14,7
	10 years or over	4	2,0
Any training taken in the prison	Yes	48	23,5
	No	154	75,5
On which subject the training was taken?	About Health	7	14,6
	Out Of Health	41	85,4
Education Status	Illiterate	4	2,0
	Literate	3	1,5
	Primary School	97	47,5
	Secondary School	63	30,9
	High School	25	12,3
	University	12	5,9

Regarding training undertaken in the prison, 75,5% stated that they have not undertaken any kind of training during their stay and for those who have had trainings, 85,4 % of the training provided were in non-health related fields. Regarding the level of education among the participants, approximately 47,5% were primary school graduates, 30,9% were secondary school, 12,3% were high school and only 5,9 % were university graduates.

On enquiring about the participants' nutrition related trainings during their stay in prison, 73% (f=146) stated that they did not take any nutrition related trainings, 13% stated they took, and 14% of the participants stated that they had taken such trainings only partially. The fact that most of the prisoners and convicts were not subjected to any kind of nutrition related trainings indicate an inadequacy in the field of nutrition trainings in Turkey, even presently.

Table 2 demonstrates the various sources of nutrition related information, as stated by the participants in the questionnaire. Out of the participants who answered the questions (n=75), half of the participants stated that they obtained nutrition related information from the mass media such as, newspaper, TV and internet (50%).

Table 2. Sources of Nutrition Information for Prisoners

Sources	Frequency (f)	Percent (%)
School	20	26
Television	17	23
Books	8	11
Teachers	10	13
Newspapers/magazines	14	19
Internet	6	8

Participants were asked some general questions on nutrition. For the question "Do you find your nutrition knowledge sufficient?" only 45,23% responded in positive. Approximately 25%

stated that their nutrition knowledge was insufficient and 24% were not sure of their response. The participants were also asked, “what was the best way for proper nutrition”? Out of the 200 respondents, 57,3% chose the correct answer, “consuming adequately from every food group”, 16,1% chose the reply “drinking milk at night” and 14,6% replied “by consuming our favourite foods”.

Table 3. Participants’ Knowledge About Food Sources of Some Nutrients

Nutrients	Sources	Frequency (f)	Percent (%)
Vitamin A n=198	Liver	76	38.89
	Orange	44	22.10
	Potato	36	18.09
	Cauliflower	42	21.10
Vitamin C n=198	Bread	22	11.11
	Honey	35	17.68
	Orange	103	52.02
	Meat	38	19.19
Iodine n=199	Iodized salt	95	47.74
	Beef sandwich	28	14.07
	Milk-cheese	54	27.14
	Orange	22	11.05

Table 3 shows participants’ knowledge about food sources of some nutrients. According to the table, the correct response to the question “which food contains maximum amount of vitamin A” was chosen as “Liver” by 38,89% of the participants followed by “Orange” provided by 22,10% , “Cauliflower” by 21,10% and “Potato” chosen by 18,09% of the participants. Regarding best food sources of vitamin C, correct response which is “Orange” was chosen by maximum number of participants (52,02%), followed by meat (19,19%), honey (17,68%) and bread (11,11%). On asking the participants, “which is the richest food source of iodine”? Correct answer (iodized salt) was given by 47,74%, followed by milk-cheese (27,14%), beef sandwich (27,14%) and orange by 11,05% of the participants.

During the interview, the participants were also asked questions relating to nutrients and other factors with health. For the question “which of the nutrients are most effective in maintaining health of teeth and bones”? Less than half of the prisoners (43,72%) participating in the study responded correctly by choosing “calcium, phosphorus-vitamin D”, followed by “vitamin K-iron-vitamin A,” which was chosen by 24,62% of the participants (Table 4). The other question is in regards to the effect of sunlight on health, and it was phrased as, “why is it beneficial to obtain sunlight” ? Little more than half of the participants (52,25%) responded correctly by choosing the answer, “for the development of bones” followed by “improvement of eye vision” (19,10%), “for putting on weight” (15,07%) and “for warmth” (13,57%), (Table 4).

Table 4. Participants’ Knowledge Regarding Nutrients/Other factors in Relation to Health

Question	Responses	Frequency (f)	Percent (%)
Which of the nutrients are most effective in maintaining health of teeth and bones? n=199	VitK-Iron-VitA	49	24.62
	VitC-Phosphorus-Iodine	30	15.08
	Calcium-Phosphorus-VitD	87	43.72
	Magnesium-Zinc-VitA	33	16.58
Why is it beneficial to obtain sunlight? n=199	For improvement of eye vision	38	19.10
	For warmth	27	13.57
	For putting on weight	30	15.07
	For development of bones	104	52.26

In order to understand the food habits of the prisoners and convicts, the participants were asked about their consumption of hot beverages as tea and coffee. Out of the 204 participants, 199 stated that they consumed tea and coffee on a regular basis. However, the timings of consumption varied extensively. A large number (40,71%) of participants preferred to consume beverages after food, whereas, 17,59% took their beverages with food. On the other hand, approximately 24% of the participants stated that there was no particular time for consumption of beverages.

DISCUSSION

Most individuals possess incorrect or limited information about nutrient value of food items, healthy choice of foods and the relationship between commonly practised diets and various diseases [22]. An individual may develop improper eating habits due to lack of nutritional knowledge and find it difficult to change later. Therefore, it is important to gain adequate knowledge in this area, and not develop improper eating habits in the first place [23, 24]. In this study, approximately 76% of the participants stated that they have not received any nutrition related training, which indicates an inadequacy in the field of nutrition trainings in Turkey. Nutritional knowledge regarding issues such as nutrition and healthy living, role of balanced nutrition and diet in prevention of diseases, nutrition according to lifestyle, development of proper food habits, and minimizing loss of nutrients during food preparation can be provided by means of nutrition education and training [25]. Recently, the increasing trends in nutrition related diseases, stresses on the importance of adequate and balanced nutrition.

As shown in Table 2, 26% of the prisoners stated that they have received nutrition related knowledge mostly from their schools. The other two sources selected by the participants were television (23%) and newspapers/magazines (19%) respectively. In a study conducted by Radimer and Harvey (1995) in Australia, various sources of nutrition knowledge were determined for 803 adults. According to the results, the male participants chose television as the main source and female participants opted out for printed media such as newspapers or magazines [26]. However, in another study performed on nutritional knowledge in females by Konokman et al., it was determined that 30% of the participants obtained their information from radio and television [27]. Uğur et al., in their study, reported that as the education level of females increased; their tendency to read nutrition related articles in newspapers and magazines increased too. Besides, tendency to read nutrition related articles in newspapers and magazines was 31,2% more in working women. compared to the ones who did not work [28].

The questions regarding food sources of vitamin D (liver), and C (orange) were answered correctly (Table 3) by the participants inspite of the fact that approximately 75% of them stated that they have not had any kind nutritional training in the penal institution. On the other hand, 50% of the participants had acquired nutrition related information from newspapers, magazines and internet (Table 2). Therefore, parallel to other findings; in our study, mass media turned out to be the most effective tool in spreading nutrition knowledge among the prisoners. Vitamin A is a fat soluble vitamin available in animal sources that aids in vision, growth and reproduction [22]. Beta carotene, an antioxidant and provitamin form of vitamin A is widely found in yellow-orange vegetable. Çekal [23] performed a study on chefs and cooks to test their nutrition related knowledge. On making an enquiry about the plant based sources of vitamin D and C, the correct responses were provided by 50,7% for vitamin A (carrot) and 88,5% for vitamin C. The author suggested that vocational training given to the culinary staff was responsible for their knowledge. Even in our study, the most popular source, chosen by

the participants for acquiring nutrition related knowledge was school, representing a vocational source.

Similar results were obtained when the prisoners and convicts were asked about the most effective nutrient for healthy bones and teeth [22, 29]. The response “calcium-phosphorus-vitamin D” was provided correctly by 43,72% (Table 4). Rickets is one of the most commonly developed disease in calcium deficiency. In Cekal et al.’s study, 39,9 % of the participants were able to define the calcium deficiency disease as rickets correctly [23].

As per the results of this study, only 4,3% stated that they had sufficient knowledge related to nutrition. This indicates that the nutrition related training provided to prisoners are not adequate and stresses on the need for organizing such events. Studies performed in Turkey as well as in other countries in order to determine the nutritional knowledge level of individuals, indicate an inequality in this level among the general population. Kutlu et al. [7], performed a study to determine the nutritional level of 300 women selected randomly, residing in the suburbs and villages in Sereflikochisar county in Turkey. The results indicated an inadequate level of nutrition knowledge in 34,3% of the participants. In the study conducted by Hasipek and Orneci, on administrative married female staff in Ankara University faculty of agriculture, to test their knowledge on nutrition and practises regarding preparation and cooking of food, the authors reported that only 8,3% of the participants had insufficient nutrition knowledge [8].

Warber et al. [10] conducted a study to evaluate the nutrition knowledge of 250 randomly selected nurses, who are registered in a “Continuing Education Center” in England. The nurses were divided into groups based on their employment period, trainings undertaken on patient nutrition and type of institution (public or private), who provided the training. According to the results obtained, average nutrition knowledge score for all the groups were low in general (65,7±7,5 out of 100). However, difference in scores among the groups were not found to be statistically significant. According to the authors, the results indicated a necessity for nutrition related trainings to be organized for nurses. In the study performed by Calderon and Gorence [9], on randomly selected 207 customers shopping in the food section of two different shopping malls in two counties in California, a questionnaire was administered which comprised of questions regarding their nutrition knowledge and information regarding consumed food products. As per results obtained, 67,6% consumed food products that were poor in nutrient contents. Besides, 70% of the consumers could only answer 3 of the 9 nutrition related questions correctly. As per the authors, these results again suggested a necessity for nutrition related trainings to be given to consumers for better choice of food products.

The aim of nutrition training is to improve the eating habits of individuals by guiding them towards adequate and balanced nutrition. In addition, it must enable them to avoid the incorrect practises regarding food habits, prevent food products from being harmful to health and utilize the food sources in a more effective and economic manner [25]. Individuals must have sufficient knowledge of nutrition in order to practise healthy eating habits, choose the right foods and sustain their own lives in a healthy manner. Sufficient nutritional knowledge can only be obtained through nutrition education. Nutrition education programs are reported to have direct impact on nutrition information and dietary behaviors of an individual [30] and as the literacy level increases in a person, his nutrition knowledge level also increases parallelly [31].

CONCLUSION

Updating information on basic nutrition, nutritional patterns, food security, health through formal and informal basic education programs, its dissemination, application, monitoring, evaluation and improvement will be very useful in educating and providing vital information to individuals regarding balanced nutrition, and its significance in maintaining a healthy life. Apart from that, it will also be effective in preventing diseases and correcting faulty food habits of individuals at all ages. In order to change the attitude and habits that are deep seated, repetition of such trainings at certain intervals are recommended. For a group having low literacy level, such knowledge can be imparted through visual aids. Mass media tools like newspaper and magazines can be used to raise the awareness of the public, however, media must be reliable, dependable and instead of publishing popular news clippings, information based on scientific findings must be shared with the readers. At institutions like the prison or penitentiary, where the demographic profile of inhabitants may vary, nutrition and health surveillance may be conducted at regular intervals. Based on these requirements, specific trainings must be organized. Mass media tools like newspapers and magazines, visual tools such as, films and documentaries, and the posting of educational articles on social media are all effective means of reaching out to these individuals. Other programs may also be organized at these institutions in collaboration with the health and social ministries.

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