

Evaluation of nutritional habits and affecting factors of health care professionals during the Covid-19 pandemic stage: on-line survey study

Sağlık çalışanlarının Covid-19 pandemisi sürecinde beslenme alışkanlıkları ve etkileyen faktörlerin değerlendirilmesi: on-line anket çalışması

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Posted date: 11.12.2022

Acceptance date: 27.12.2022

Abstract

Purpose: Health workers have been greatly affected by the pandemic, both as a health worker and as a member of the society, and have gone out of their routine lifestyle and habits more than normal individuals. In the pandemic stage; intense, irregular and stressful work pace also disrupted the routine eating habits while increasing the need for nutrition. With this survey study, it is aimed to evaluate the nutritional habits, affecting factors and results of healthcare professionals during the Covid-19 pandemic stage.

Materials and methods: For our study a questionnaire of 49 questions was prepared. It was continued between 01/06/2020 and 01/01/2021. Questionnaires were prepared on Google forms and sent to healthcare professionals via e-mail. Multiple-choice questions were asked about personal information such as the number of meals, whether they gained weight during the pandemic stage, foods believed to protect from Covid-19, nutritional supplements used during the pandemic period, and the reason for using supplements. The questions in the second category are; it mostly includes questions about changes in dietary and lifestyle of health workers during the pandemic period. It includes questions such as: "My meal count has increased", "My water consumption has increased", "My night eating behavior has improved", "My sleep pattern has been disrupted", "I gained weight during the pandemic", "I smoke more", "I drink more tea and coffee", "I try to exercise". The answers were obtained with a 3-point Likert scale (agree, undecided, disagree).

Results: It was determined that health workers experienced weight gain during the pandemic stage. It was determined that the average weight and average BMI of health professionals showed a statistically significant increase ($p<0.01$). It was noticed that the participants had an increase in the number of meals during the pandemic stage ($p<0.001$). It was noticed that the vast majority of the participants took vitamin and mineral supplements.

Conclusion: We found that healthcare workers took additional mineral and vitamin supplements, increased the number of meals, and experienced weight gain during the pandemic. Because of this, health workers should be given healthy snacks with high nutritional value during the pandemic stage. By health managers and administrators; a management and organizational plan including a healthy nutrition program especially in extraordinary situations such as pandemics can be created, for health workers who are exposed to intense, irregular and stressful working conditions and who are in high risk groups.

Key words: Covid-19, pandemic process, nutritional habits, healthcare workers, vitamin mineral supplement.

Coskun I, Canakci E, Cebeci Z. Evaluation of nutritional habits and affecting factors of health care professionals during the Covid-19 pandemic stage: on-line survey study. Pam Med J 2023;16:121-128.

Öz

Amaç: Sağlık çalışanları, pandemiden hem bir sağlık çalışanı olarak hem de toplumun bir bireyi olarak fazlasıyla etkilenmiş, rutin yaşam şekli ve alışkanlıklarının dışına normal bireylere göre daha fazla çıkmıştır. Pandemi sürecinde yoğun, düzensiz, stresli çalışma temposu, beslenmeye olan ihtiyacı artırırken bir taraftan da rutin beslenme alışkanlıklarını bozmuştur. Bu anket çalışması ile sağlık çalışanlarının Covid-19 pandemisi sürecinde beslenme alışkanlıkları, etkileyen faktörlerin ve sonuçlarının değerlendirilmesi amaçlanmıştır.

Gereç ve yöntem: Çalışmamız için 49 soruluk anket hazırlanmıştır. 01/06/2020 tarihi ile 01/01/2021 tarihleri arasında sürdürülmüştür. Google formlar üzerinden anket soruları hazırlanmış ve mail yoluyla sağlık çalışanlarına gönderilmiştir. Katılımcıların öğün sayısı, pandemi sürecinde kilo alıp almadıkları, Covid-19'dan koruduğuna inanılan besinler, pandemi döneminde kullanılan besin takviyeleri ve takviye kullanma sebebi gibi kişisel bilgilere yönelik çoktan seçmeli sorular sorulmuştur. İkinci kategorideki sorular ise; daha çok sağlık çalışanlarının pandemi döneminde beslenme ve yaşam tarzındaki değişikliklerle ilgili soruları içermektedir. "Öğün sayım arttı", "su tüketimim arttı", "gece yeme davranışım gelişti", "uyku düzenim bozuldu", "pandemi sürecinde kilo aldım", "daha çok sigara içiyorum", "daha çok çay-kahve içiyorum", "egzersiz yapmaya çalışıyorum" gibi maddelerden oluşan sorular yer almaktadır. Cevaplar 3'lü likert skalası (katılıyorum, kararsızım, katılmıyorum) ile elde edilmiştir.

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Bulgular: Pandemi sürecinde sağlık çalışanlarının kilo artışı yaşadıkları tespit edildi. Sağlık çalışanlarının, ağırlık ortalamasının ve VKİ ortalamasının istatistiksel olarak anlamlı artış gösterdiği belirlendi ($p<0.01$). Katılımcıların pandemi sürecinde öğün sayısında artış olduğu tespit edildi ($p<0.001$). Katılımcıların çok büyük çoğunluğunun vitamin ve mineral takviyesi aldığı tespit edildi.

Sonuç: Sağlık çalışanlarının pandemi süresince ek mineral ve vitamin takviyesi aldıkları, öğün sayısını artırdıkları ve kilo artışı yaşadıklarını tespit ettik. Bu sebeple sağlık çalışanlarına pandemi sürecinde, besleyici değeri yüksek, sağlıklı ara öğünler verilmesi gerekmektedir. Sağlık yönetici ve idarecileri tarafından, özellikle pandemi gibi olağanüstü durumlarda yoğun, düzensiz ve stresli çalışma koşullarına maruz kalan ve yüksek risk grubunda ki sağlık çalışanları için sağlıklı beslenme programını içeren bir yönetim ve organizasyon planı oluşturulabilir.

Anahtar kelimeler: Covid-19, pandemik süreç, beslenme alışkanlıkları, sağlık çalışanları, vitamin mineral takviyesi.

Coskun I, Çanakçı E, Cebeci Z. Sağlık çalışanlarının Covid-19 pandemisi sürecinde beslenme alışkanlıkları ve etkileyen faktörlerin değerlendirilmesi: on-line anket çalışması. Pam Tıp Derg 2023;16:121-128.

Introduction

The Covid-19 pandemic has adversely affected the whole world and our country in many areas, especially health. The negative impacts of the pandemic on working life, social life and economy are still increasing. Health workers have been greatly affected by the pandemic, both as a health worker and as a member of the society, and have gone out of their routine lifestyle and habits more than normal individuals. While disrupting routine eating habits, intense, irregular and stressful work pace during the pandemic process increased the need for nutrition. The occupational group with high risk during the pandemic period is healthcare workers. Nutrition, on the other hand, is an important part of health and is effective in shaping our immune system. Having a strong immune system against Covid-19 infection can be considered an important protection mechanism. A balanced and healthy diet plays an effective role in boosting immunity. During the pandemic, the World Health Organization (WHO), the Turkish Dietetic Association and the Food and Agriculture Organization have published nutritional recommendations for Covid-19 [1-4]. In spite of all these warnings and suggestions about nutrition, people have gained different eating habits despite all the recommendations of social organizations due to many psychological factors such as isolation processes, difficulties, fear and stress in people's homes during the pandemic. So that, extremely negative dietary habits increase the incidence of chronic diseases such as obesity and diabetes, which have a high prevalence and adversely affect the quality of human life. In many studies, it has been shown that people's eating habits, eating behaviors and physical activity levels have changed during

the pandemic process. The pandemic stage has also directed healthcare workers to take nutritional supplements [5, 6].

With this survey study; it was aimed to evaluate the nutritional habits, influencing factors and results of healthcare professionals during the Covid-19 pandemic stage.

Materials and methods

Ethical approval was obtained from Ordu University Clinical Research Ethics Committee for our study. Questionnaires were prepared on Google forms and sent to healthcare professionals via e-mail. All healthcare professionals who voluntarily participated in the survey were included in our survey. Healthcare workers who did not want to participate in our study were excluded from the study. Our study was carried out between 01/06/2020 and 01/01/2021.

A questionnaire of 48 questions was prepared for our study. The questions in the first category; included personal information questions as gender, age (year), body weight (kg), height (cm), profession and time in the profession, education status, marital status, where and with whom she lives, having received nutrition education and being interested in nutrition, status of having a chronic disease, smoking use, regular physical activity status and frequency. Moreover, there are questions, as number of daily meals related to nutritional status, skipping meals, the most skipped meals/meals and the reason for skipping meals, the most preferred snacks, daily water, tea and coffee consumption (liter), place to eat during working hours and where the food is obtained from, mood effect of changes in diet. It consists of multiple-choice questions for personal information such as

passing Covid-19 and the thought that using nutritional supplements alleviates the course of Covid-19, foods believed to protect from Covid-19, nutritional supplements used during the pandemic period and the reason for using supplements. The questions in the second category are; it mostly includes questions about changes in alimentation and lifestyle of health workers during the pandemic period. It includes questions such as: “My meal count has increased”, “My water consumption has increased”, “My night eating behavior has improved”, “My sleep pattern has been disrupted”, “I gained weight during the pandemic”, “I smoke more”, “I drink more tea and coffee”, “I try to exercise”. The answers were obtained with a 3-point Likert scale (agree, undecided, disagree).

Statistical analysis

SPSS 22.0 program was used for statistical analysis. The descriptive statistical evaluation of the data is indicated with average, standard deviation, median, min-max, ratio and frequency values. The distribution of variables was checked with the Kolmogorov Smirnov test. ANOVA (Tukey test), Kruskal-Wallis (Mann-Whitney U test) were used in the analysis of quantitative data. Chi-square test was used in the analysis of qualitative data, and Fischer exact and McNemar tests were used when chi-square conditions were not met. A value of $p < 0.05$ was considered statistically significant.

Results

A total of 714 people participated in our survey. However, since 3 people answered “No” to the question “I voluntarily participate in this study and I accept the use of the information I have given in scientific studies”, the total number of participants was accepted as 711.

The weight and body mass index (BMI) of the participants before and during the pandemic are presented in Table 1.

As a result of the Paired t-test, it was noticed that the mean weight and mean BMI increased statistically significantly during the pandemic period ($p < 0.01$). Demographic characteristics of the participants are presented in Table 2.

The chronic disease states of the participants are presented in Table 3. 69.3% of the health workers who participated in the survey do not have any additional diseases.

The use of a vitamin preparation, supplement or immune system-supporting drug or product before and during the pandemic of the participants in the study is presented in Table 4.

The distribution of the answers given by the participants to the question of how often they used nutritional supplement products during the pandemic is presented in Table 5.

It is seen that all of the participants took nutritional supplements during the pandemic. In the study, the number of meals before and after the pandemic and the status of whether the participants had snacks or not are presented in Table 6.

According to the McNemar's test, in the survey participants increased the number of meals significantly during the pandemic ($p < 0.001$). According to McNemar's test, it was determined that there was no increase in the number of snacks during the pandemic, that is, there was no statistically significant change ($p = 0.646$).

Discussion

According to our survey results, it was determined that health workers gained weight and their body mass indexes increased. Similarly, it has been determined that health workers take nutritional supplements during the pandemic and there is an increase in the number of meals. The roles and responsibilities of healthcare professionals in the Covid-19 process have increased over time. In this

Table 1. Average weight and BMI of the participants before and during the pandemic

	Before the pandemic	During the pandemic	<i>p</i>
Weight (kg)	72.66±15.36	73.04±15.61	0.003**
Body Mass Index (BMI)	25.54±4.30	25.67±4.41	0.002**

Mean±SD Paired t-test**: <0.01

Table 2. Demographic characteristics of the participants in the study

		n	%
Gender	Man	275	38.7
	Woman	436	61.3
Age Groups	20-30	156	21.9
	31-40	198	27.8
	41-50	251	35.3
	51-60	101	14.2
	60+	5	0.7
Educational Status	Graduate	261	36.7
	High school	36	5.1
	University	414	58.2
Marital Status	Single	195	27.4
	Married	516	72.6
Do you have children?	Yes	490	68.9
	No	221	31.1
With how many people do you live at home?	2 people	149	21
	3 people	187	26.3
	4 people	209	29.4
	5 and more	86	12.1
	I am living alone	80	11.3

Table 3. Chronic disease status of the participants in the study

	No		Yes	
	n	%	n	%
I don't have any disease	218	30.7	493	69.3
Diabetes Mellitus	682	95.9	29	4.1
Chronic Obstructive Pulmonary Disease	708	99.6	3	0.4
Asthma	678	95.4	33	4.6
Hypertension	654	92	57	8
Coronary Artery Disease	699	98.3	12	1.7
Heart failure	708	99.6	3	0.4
Thyroid Diseases	655	92.1	56	7.9
Other	615	86.5	96	13.5

Table 4. The use of a vitamin preparation, supplement or immune system-supporting drug or product before and during the pandemic of the study participants

		n	%
Before the pandemic, were you taking a vitamin preparation, supplement or immune system-supporting drug or product?	Yes	153	21.5
	No	558	78.5
Have you used any vitamin preparations, supplements, drugs or products to support immune system during the pandemic?	Yes	316	44.4
	No	395	55.6
When did you start these products?	Unanswered	367	51.6
	Just at the beginning of the pandemic	209	29.4
	The first 15 days of the pandemic	79	11.1
	Second 15 days of the pandemic	33	4.6
	In the second month of the pandemic	18	2.5
	In the third month of the pandemic	5	0.7
Have you made your family use these products during the pandemic process?	Yes	297	41.8
	No	414	58.2

Table 5. Distribution of the answers given by the participants to the question of how often did you use nutritional supplements during the pandemic

	Unanswered		As far as I can think of		1-2 times a month		Every other day		Once a week		Every day	
	n	%	n	%	n	%	n	%	n	%	n	%
Vitamin C	443	62.3	61	8.6	8	1.1	54	7.6	32	4.5	113	15.9
Vitamin D	474	66.7	62	8.7	22	3.1	27	3.8	52	7.3	74	10.4
Vitamin E	617	86.8	43	6	6	0.8	10	1.4	10	1.4	25	3.5
Multivitamin complexes	534	75.1	57	8	3	0.4	29	4.1	22	3.1	66	9.3
Omega 3	589	82.8	49	6.9	10	1.4	15	2.1	15	2.1	33	4.6
Mineral content (selenium,zinc)	581	81.7	44	6.2	8	1.1	13	1.8	23	3.2	42	5.9
Herbal teas/products	561	78.9	41	5.8	12	1.7	23	3.2	19	2.7	55	7.7
Antioxidants	617	86.8	40	5.6	8	1.1	13	1.8	7	1	26	3.7
Probiotics	573	80.6	38	5.3	14	2.0	24	3.4	23	3.2	39	5.5
Beta glucans	601	84.5	43	6	8	1.1	13	1.8	14	2	32	4.5
Other	641	90.2	33	4.6	5	0.7	6	0.8	7	1	19	2.7

Table 6. The number of meals before and after the pandemic and whether they have snacks or not

		Before Pandemic		During Pandemic		<i>P</i>
		<i>n</i>	%	<i>n</i>	%	
How many meals do you eat?	1 meal	2	0.3	10	1.4	<0.001
	2 meals	192	27	274	38.5	
	3 meals	475	66.8	352	49.5	
	more than 3 meals	42	5.9	75	10.5	
Did you have a snack?	Yes	224	31.5	231	32.5	0.646
	No	487	68.5	480	67.5	

McNemar's test

process, negative effects have been seen on the physical, mental and social well-being of health professionals who are faced with an unprecedented workload. At the same time, this occupational group, which has a higher risk of exposure to the virus, felt under a serious mental stress because they put their families at risk [7].

It is known that healthcare workers are also affected by epidemic diseases such as Severe Acute Respiratory Syndrome (SARS), Middle East Respiratory Syndrome (MERS) and Ebola, which have been seen recently [8]. In the SARS and MERS epidemics between 2003 and 2015, it is stated that one-fourth of those infected were healthcare professionals [9]. One of the key strategies to promote healthy eating in communities is to advocate for healthy eating through health services [10]. In many countries, physicians provide advice on healthy eating in order to manage their patients' chronic diseases and other conditions in which malnutrition is an important risk factor [11].

It is stated that the mood or characteristic features of individuals affect their eating behaviors. Emotional eating is thought to help people cope with negative emotions. Difficulties identifying or perceiving emotions, on the other hand, can lead to binge eating episodes. Individuals who are experiencing intense emotions may try to distract themselves with food if they are unable to determine the meaning of their emotions [11]. Emotional eating is accepted as a psychological support in coping with negative emotions. However, difficulties in identifying or perceiving emotions can trigger binge eating attacks. Just as individuals experience their emotions intensely, if they have difficulty in determining what their emotions really mean, they try to distract their attention by

means of food, thinking that they cannot cope with this emotional state [11]. This situation turns into a situation where people take more energy and consume more fat, carbohydrates and protein [12]. In our survey study, we found that health workers ate more food, increased the number of meals and gained weight as a result, due to the stress and feelings of burnout they experienced during the pandemic. Similarly, in survey studies, it was determined that students studying in the health sciences department increased the number of meals and experienced weight gain during the pandemic stage [13-15]. Our results are consistent with the literature findings.

There is no WHO-approved treatment available to treat Covid-19. One of the general nutritional recommendations for the prevention of viral infections is to ensure adequate intake of nutrients or supplement them with nutritional supplements [16]. Vitamins (A, B₆, B₁₂, C, D, E and folate), trace elements (zinc, iron, selenium, magnesium and copper), omega-3 fatty acids, eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) are known to play a complementary role to strengthen the immune system [8]. Micronutrients are important for immunomodulation and their deficiency increases susceptibility to viral infections. It is known that, some vitamins, such as vitamins D, C, and E, play an important role in maintaining a healthy immune response [17]. Zinc, selenium etc. trace elements, such as, show antiviral activity by inhibiting virus replication in host cells. Some elements are involved in multiple immunomodulatory pathways by positively affecting the immune system with their antioxidant properties [18]. It has been reported that vitamin D supplementation may be considered in cases where exposure to sunlight, which is the main source of vitamin

D, is reduced due to quarantine conditions and vitamin D-rich foods (including vitamin D-fortified foods) cannot be consumed [19]. Ural et al. [20] found that individuals took nutritional supplements, multivitamins, B, C, D vitamins and mineral supplements during the pandemic in a survey study they conducted with young adults. The author concluded that the utilization of nutritional supplements and functional foods by young adults tends to increase compared to the past during the COVID-19 pandemic. Our study is a survey of healthcare workers in a specific population, and we found that participants were taking vitamin and mineral supplements. Even though the study of Ural et al. [20] was conducted in a more general population, our results are similar. There appears to be an increased intake of vitamin and mineral supplements in young adults, both in healthcare workers and in the general population. Our results are in agreement with the literature findings.

Consequently; We found that healthcare workers took additional mineral and vitamin supplements, increased the number of meals and experienced weight gain during the pandemic. For this reason, health workers should be given healthy snacks with high nutritional value during the pandemic stage. By health managers and administrators; a management and organizational plan including a healthy nutrition program especially in extraordinary situations such as pandemics can be created, for health workers who are exposed to intense, irregular and stressful working conditions and who are in high risk groups.

Conflict of interest: No conflict of interest was declared by the authors.

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Ethics committee approval: Permission was obtained from Ordu University Clinical Research Ethics Committee for the study (date: 28/05/2020; decision no: 2020-121).

Authors' contributions to the article

I.C. constructed the main idea and hypothesis of the study. I.C. developed the theory and edited the material and method section. I.C. and Z.C. collected the data. Z.C. made a statistical analysis of the data and evaluation of the data in the results section. Discussion section of the article was written by E.C. and I.C. In addition, all authors discussed the entire study and approved the final version.