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# Changes in eating pattern and behavior of healthcare workers in a public hospital in light of the COVID-19 pandemic

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## ABSTRACT

### OBJECTIVE

Identify changes in the eating pattern and behavior of health professionals faced with the COVID-19 pandemic.

### METHODS

This is a field study, quantitative, descriptive, and exploratory, with a sample composed of 23 health professionals from different categories working in the Intensive Care and Emergency sector. The collection instrument consisted of an electronic questionnaire with objective questions, structured in four parts: Personal Information, Eating Habits and Food Frequency Questionnaire, Life Habits, Self-Assessment and Body Image.

### RESULTS

In total, 8.7% of the participants did not change their diet after the pandemic began, 13% reported increased consumption of homemade meals and natural foods, 39.1% increased the number of meals eaten outside the home, and 52.2% increased their consumption of ready meals, *fast food*, and *delivery*. The following groups stand out: reduced consumption of salad and cooked vegetables, legumes and oilseeds; maintenance in the consumption of meat and eggs, sweets, and tubers; and increased consumption of dairy products, fried foods, and sausages. In the Physical Activity category, the majority of participants (43.5%) claim to have stopped or reduced their practice. In the Alcohol Consumption category, 52.2% reported maintaining their habits, and 39.1% claimed to have increased or started alcohol consumption. In addition, 52.2% perceived weight gain and 56.5% presented worsening eating habits during the pandemic.

### CONCLUSIONS

The dietary profile and lifestyle habits being established are an important risk factor for the development of obesity, heart disease, diabetes, and high blood pressure, all of which are related to complications from COVID-19.

### DESCRIPTORS

Eating habits, Eating behavior, COVID-19, Pandemic, Health professional.

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## INTRODUCTION

Coronavirus is classified as a virus of the Coronaviridae family, known for causing respiratory infections. Several types of coronavirus have been described over the years, with SARS-CoV2 being responsible for the disease COVID-19. This disease has a wide clinical spectrum, ranging from asymptomatic, to mildly symptomatic (cough, respiratory difficulty, fever, among other symptoms), and severe symptomatic patients (requires specialized care, including respirators, depending on lung involvement)[1,2].

In early 2020, the World Health Organization (WHO) considered COVID-19 a public health emergency and later classified it as a pandemic[3]. In the middle of the same year, Brazil already stood out as the epicenter in South America and the country with the second highest number of cases and deaths worldwide[4].

The transmission of the new coronavirus occurs between humans, through air contaminated by droplets from coughing or sneezing, and through physical contact with contaminated objects, surfaces, and people[5]. Among the non-pharmacological measures to control the disease, hand hygiene, use of masks in public environments, and social distancing are highlighted[6].

In addition to changes in the way of life in the population, due to the high transmissibility of the virus, there has been intensification of work in the health area arising from the overload in care facilities. This scenario of longing and concern has been proving to be "sickening" for the general population, and especially health professionals, as they are additionally more vulnerable to contamination[3,7]. A study conducted in China showed that approximately 40% of health professionals were in some type of psychological distress[4].

Physiologically, situations of chronic stress are related to hormonal alterations (cortisol, dopamine, leptin, and insulin), which can trigger the desire for more palatable foods. In addition, it is important to emphasize that in addition to the physiological issue, food also has a behavioral character[8]. Eating behavior, by definition, is every action that is included in the act of eating, from the choice and way of preparing food, cultural and contextual influences, timing and motivation for meals, and emotions and memories involved[9].

Hospital workers, prior to the pandemic, were already exposed to a professional routine that favored risky eating behaviors, as they deal with high-stress activities, physical and emotional suffering of patients and families, and long working hours, among others[10]. With the current situation in the world, the risk has intensified. During the pandemic, a considerable increase in the consumption of ultra-processed and energy-dense foods was observed in the United States, in addition to an increase in sedentary lifestyles due to social restrictions[11].

Risky eating behaviors can result in weight change, eating disorders, chronic non-communicable diseases (such as *type 2 diabetes mellitus* and systemic arterial hypertension), and health problems, and may even influence the individual's ability to work[10,11].

Based on the above, the current study aimed to identify changes in the eating pattern and behavior of health workers faced with the COVID-19 Pandemic with regard to food choices, type of food preparation, lifestyle habits, and self-image.

## METHODS

This is a quantitative, descriptive, and exploratory field study (report CEP 5,013,209), carried out in a Public Hospital in the city of São Paulo, in the scenario of the practice of residency (Hospital Municipal Dr. Carmino Caricchio - HMCC), in the Adult Intensive Care and Emergency sector.

The sample consisted of 23 health professionals from different categories (doctors, nurses, nursing technicians, nutritionists, psychologists, physiotherapists, occupational therapists, pharmacists, speech therapists, social workers) working in the sectors of interest. The exclusion criteria were professionals who were disconnected from their activities during the course of data collection or who had not worked in a hospital environment prior to the pandemic.

The collection was carried out in the second half of 2021, after approval from: i) the CEP (Research Ethics Committee), ii) the coordination responsible for the HMCC ICU, iii) Coordinator of the Multiprofessional Residency Commission and Professional Area in Health SMS /SP, and iv) HMCC Nutrition Coordinator.

The participating professionals received a Free and Informed Consent Term (ICF), developed in accordance with resolution 466 of December 12, 2012, ensuring confidentiality of their data, in addition to the possibility of withdrawing at any time. Data collection was performed via the *Google Forms*© digital platform by accessing the *link* sent by the researcher to the participant's email.

The data collection instrument consisted of an electronic questionnaire with objective questions, structured in four parts, namely: Personal Information, Eating Habits and Food Frequency Questionnaire, Life Habits, Self-Assessment and Body Image.

The first part (Personal Information) was composed of questions on age, gender, profession, time of work, workload, and family arrangement. The second part (Eating Habits and Food Frequency Questionnaire) consisted of an objective question related to the characteristics of the meals (homemade, *delivery* etc.) and by a food frequency questionnaire in which the participants answered "reduction/maintenance/increase" regarding 9 Food Groups: Cooked Vegetables and Salads, Fruits, Legumes, Oilseeds and Olive Oils, Dairy Products, Meat and Eggs, Fried Foods and Solid Fats, Sweets, Sausages, Tubers, Roots, and Cereals. It is important to note that all groups were defined and exemplified for better understanding by the participant.

In the third part (Life Habits) two aspects were evaluated: Physical Activity and Alcohol Consumption. The fourth and final part (Self-Assessment and Body Image) was formed by two objective questions; weight change (reduction, maintenance, increase) and assessment, in general (improvement/worsening/no changes), of the diet in the current context.

The information obtained was tabulated and grouped according to the nature of the data and stored in Microsoft Excel software for analysis. The variables and results obtained were discussed through comparisons with available scientific literature.

## RESULTS

The sample consisted of 23 participants, mostly female professionals (78.3%), in contrast to 21.7% males. The age group varied between 23 and 42 years, with the predominant professional category being Nursing Technician (26.1%), followed by: Physiotherapist (21.7%), Nurse (17.4%), Nutritionist (17.4%), Pharmacist (4.3%), Doctor (4.3%), Psychologist (4.3%), and Occupational Therapist (4.3%). The average time of hospital work was 2.6 years and weekly workload between 36-72 hours, with the majority (60.86%) of respondents reporting a workload greater than or equal to 60 hours a week.

Regarding the family arrangement, 69.6% live with family members, 21.7% alone, and 8.7% with friends. With respect to food, 8.7% did not change their diet after the pandemic began, 13% reported increased consumption of homemade meals and natural foods, 39.1% increased the number of meals eaten outside the home (including meals from the cafeteria at work), and 52.2% increased their consumption of ready meals, fast food, and delivery.

Table 1 presents the results obtained in the Weekly Food Frequency Questionnaire: the food groups in question, the

average (in days) weekly consumption, and the percentage of participants who reported an increase, maintenance, or reduction in the intake of these foods in a post-pandemic context.

**Figure 1.** Weekly food frequency questionnaire.

| Food Groups | Increase (%) | Maintenance (%) | Reduction (%) |
|---|---|---|---|
| Group 1 - Cooked Vegetables and Salads | 26.09 | 30.43 | 43.48 |
| Group 2 - Fruits | 21.74 | 39.13 | 39.13 |
| Group 3 - Legumes | 8.7 | 34.78 | 56.52 |
| Group 4 - Oilseeds and Olive Oils | 4.35 | 39.13 | 56.52 |
| Group 5 - Dairy | 52.17 | 34.78 | 13.04 |
| Group 6 - Meat and Eggs | 30.43 | 65.22 | 4.35 |
| Group 7 - Fried foods and Fats | 60.87 | 26.09 | 13.04 |
| Group 8 - Sausages | 52.17 | 30.43 | 17.39 |
| Group 9 - Sweets | 52.17 | 56.52 | 0 |
| Group 10 - Tubers, roots and cereals | 30.43 | 65.22 | 4.35 |

Source: prepared by the author.

In short, the reduction in consumption stands out in the groups: salad and cooked vegetables, legumes, and oilseeds; maintenance of consumption in the groups: meat and eggs, sweets, and tubers; and increased consumption in the groups: dairy products, fried foods, and sausages. The Fruits group was the only one in which the maintenance and reduction in consumption showed the same percentage, with increased consumption being the least highlighted option.

The next section of the questionnaire is composed of Life Habits, being Physical Activity and Alcohol Consumption, in the post-pandemic context. In the Physical Activity category, 43.5% of the participants claimed to have stopped or reduced the practice, 30.4% started or increased it, and 26.1% maintained their habits from prior to the pandemic. In the Alcohol Consumption category, 52.2% of the participants maintained their habits, 39.1% claimed to have increased or started consumption, and 8.7% reduced consumption.

In line with the results presented above, the majority of participants perceived weight gain (52.2%), as well as worsened eating habits during the pandemic (56.5%): 21.7% lost weight, 21.7% maintained their weight, and 4.3% did not know how to respond; 21.7% maintained their eating habits during the pandemic and 21.7% improved their eating habits.

## DISCUSSION

Prior to the pandemic, the hospital environment and work routine were already the object of study in scientific research due to the degree of stress and risks that health professionals face in their daily lives, which can directly interfere with the health status of these workers. Recent research in the pandemic scenario shows intensification of symptoms of physical and mental exhaustion as a result of the anxiety generated by the pain of loss of close people, in addition to the fear of the possibility of self-contamination and dissemination to family members[12,13,14].

The interviewed group was composed of emergency and intensive health care professionals, in a hospital not referred for the treatment of COVID-19, but who worked in the direct care of critically ill patients who sometimes arrived with the suspicion of or were diagnosed with COVID-19 and were awaiting transfer. The fact that the majority (60.86%) of the interviewees have a workload equal to or greater than 60 hours per week, which represents a high exposure time, and that only 21.7% of the participants reported living alone, confirms the idea that in case of contamination of the professional, other people in the family would be exposed and at risk of direct contamination.

Changes in eating habits have been observed around the world in the pandemic period, especially with regard to food quality. The reason for these changes is multifactorial, highlighting; 1. storage of larger amounts of food, so that there are fewer trips to the supermarket, opting for processed foods with a long shelf life (rich in salt, sugar, and trans fats) over fresh foods, 2. decrease in leisure options, due to quarantine and social isolation, with free time spent focusing on food consumption and in inactive ways (greater screen time), 3. response to the heightened stress scenario, modifying behaviors such as increased consumption of alcohol and foods with higher caloric density[15].

The changes in eating habits and behavior can be clearly visualized by observing that the majority of the research participants increased their consumption of ready meals, *fast food*, and *delivery*, and stopped exercising, and a considerable part, although not the majority, reported increased alcohol consumption. The set of these factors may explain why 52.2% of the sample perceived weight gain[10].

The increase in meals away from home may be due to the long working hours of the participants, corroborating the results obtained in the weekly food frequency questionnaire. The increase in the consumption of ready meals, *fast food*, and *delivery* also reinforces the food groups that showed the greatest increase in this pandemic period, which were dairy products, fried foods, and sausages, contained in foods such as hamburgers, sandwiches, pizzas, hot dogs, portions of fried foods such as French fries, party snacks, and buckets of breaded chicken[14,15].

Maintenance of the meat and eggs group can be explained by the separate category created for sausages that includes processed meats, which is a growing consumption group. This information is in agreement with the decrease in the legumes, salad and boiled vegetables, oilseeds and olive oil groups, in addition to the low percentage of participants who claimed to have increased their consumption of homemade meals and natural foods. This is an indication that these workers may be reducing their consumption of the habitual menu of rice and beans, meat, and salad seasoned with olive oil, in exchange for snacks and processed foods.

The groups of tubers, roots, and cereals also showed maintenance of consumption. The hypothesis for this result is the fact that these foods are already part of a food group that is the base of human food, and can be consumed in larger portions. The proposition is that foods such as rice and oats have been reduced on the menu (both by reducing consumption of food prepared at home, and by increasing the price of some of these foods such as rice), followed by an increase in the consumption of breads and pasta, contained in meals most commonly offered in *delivery* services[16].

The Sweets group showed maintenance of consumption, in disagreement with the increase in ready meals, *fast food*, and *delivery*. However, it is noteworthy that sugary drinks such as coffee with added sugar and energy drinks were included in this group, which in a hospital environment, proves to be a food of high intake among health professionals, probably due to the properties of caffeine (stimulation of the central nervous system, with an effect on physical and cognitive performance)[17,18].

Despite the Fruits group having presented the same percentages for maintenance and reduced consumption, the increase in consumption was the least highlighted option, in line with what was presented above: a tendency to a decline in the intake of *in natura* foods[15].

Finally, it is possible to observe that the current pandemic has been modifying the way health professionals eat. These diet profiles and lifestyle habits being established, for the most part, are an important risk factor for the development of heart disease, diabetes, and arterial hypertension, in addition to obesity itself, which is worrying, as these comorbidities are related to

more serious complications from COVID-19. This represents an important approach in current and future research[14,19].

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