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The impact of the COVID-19 pandemic on the lifestyle of students of the State University of Applied Sciences in Nowy Sącz

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Abstract

Introduction

A properly balanced diet and physical activity guarantee health and good psychophysical condition. The timing of the pandemic is associated with numerous limitations affecting food preferences and physical activity.

Aim

The study aimed was to determine the impact of pandemic isolation on student activity and dietary habits during COVID-19 isolation.

Material and methods

The study group consisted of students (n = 526) of the State University of Applied Sciences in Nowy Sacz. The research was an online survey (Google Forms). The questions included in the questionnaire concerning dietary habits and physical activity. Based on the data provided by the students, the body mass index (BMI) was calculated before and during the pandemic.

Results

Young women (n = 388) living in rural areas dominated among the respondents. A significantly higher mean BMI value was observed in men compared to women ($p < 0.05$). However, no significant changes in the value of BMI were observed before and during the pandemic, both in women and men. On the other hand, its higher average value was observed for men and women living in the city compared to those living in the countryside. The impact of the pandemic on the reduction of physical activity was observed by all respondents, especially those living in the city. Women noted a greater impact of the pandemic on eating behavior, compared to men.

Conclusions

The COVID-19 pandemic changed the dietary habits and physical activity of students at the State University of Applied Sciences in Nowy Sacz

Keywords: dietary habits; students; COVID-19; body mass index

Wpływ pandemii COVID-19 na styl życia studentów PWSZ w Nowym Sączu **Streszczenie**

Wprowadzenie

Właściwie zbilansowana dieta oraz aktywność fizyczna gwarantują zachowanie zdrowia oraz dobrej kondycji psychofizycznej. Czas pandemii związany jest z licznymi ograniczeniami mającymi wpływ na preferencje żywieniowe oraz aktywność fizyczną.

Cel

Celem badań było określenie wpływu izolacji związanej z pandemią na aktywność studentów oraz zachowania żywieniowe w czasie izolacji związanej z COVID-19.

Material i metody

Badaną grupę stanowili studenci (n=526) Państwowej Wyższej Szkoły Zawodowej w Nowym Sączu. Narzędziem badawczym był autorski kwestionariusz ankiety on-line (Google Forms). Pytania zawarte w kwestionariuszu ankiety dotyczyły zagadnień związanych z zachowaniami żywieniowymi oraz aktywnością fizyczną. Na podstawie podanych przez studentów danych obliczono wskaźnik masy ciała (BMI) przed i w trakcie trwania pandemii.

Wyniki

Wśród ankietowanych, dominowały młode kobiety (n=388) zamieszkujące tereny wiejskie. Obserwowano istotnie większą średnią wartość wskaźnika BMI u mężczyzn, w porównaniu do kobiet ($p < 0.05$). Nie obserwowano istotnych zmian w wartości wskaźnika BMI przed i w trakcie trwania pandemii, zarówno u kobiet jak i u mężczyzn. Obserwowano natomiast większą średnią jego wartość dla kobiet i mężczyzn mieszkających w mieście, w porównaniu do mieszkających na wsi. Wpływ pandemii na zmniejszenie aktywności fizycznej obserwowali wszyscy respondenci, a w szczególności mieszkający w mieście. Kobiety obserwowały u siebie większy wpływ pandemii na zachowania żywieniowe, w porównaniu do mężczyzn.

Wnioski

Pandemia COVID-19 wpłynęła na zmianę zachowań żywieniowych oraz aktywność fizyczną studentów PWSZ w Nowym Sączu.

Słowa kluczowe: zachowania żywieniowe; studenci; pandemia COVID-19; wskaźnik masy ciała

Introduction

COVID-19 has changed the way people live around the world, including their eating habits and exercise. The pandemic contributed to the implementation of many new solutions to protect public health (World Health Organization, 2020). Some of the actions taken in this regard, including the introduced restrictions or lockdown caused a feeling of social isolation and loneliness for many people (Touyz et al., 2020). Despite the necessity to introduce them, they had a huge impact on the everyday life of every human being. Fear of restriction of access to selected food, as well as the availability and prices of food during the initial period of the pandemic, may also have influenced the eating behavior of many people. Food, in addition to satisfying physiological needs, also has another meaning - it provides a sense of security, is an expression of care, but also of control. It also often becomes a 'medicine' for emotions. Termorshuizen et al. (2020) additionally indicate that the intensification of anxiety symptoms may contribute to the intensification of eating disorders. This is especially worrying for people with pre-existing nutritional problems. It turns out that in combination with long-term stress, they can cause many negative consequences, including an unhealthy relationship with food (Cooper et al. 2020, Fernández-Aranda et al. 2020, Wang et al. 2020). Stressful situations threaten our well-being, which is why man, using the methods available to him, tries to minimize the feeling of tension. Often times, an increased need for food becomes a way of coping with stress. Eating behaviors conditioned by negative emotions cease to be only a response to the feeling of hunger, and often become a response to everyday stress and negative emotions. Consuming food in the face of increasing emotional tension may become a habit (Kozłowska et al. 2017). The recent experiences of the COVID-19 pandemic have been causing stress for most people. It was manifested most often by irritability or a depressed mood. Social isolation, in addition to the emotional sphere, also had a great influence on eating habits (Zborowski and Mikulec, 2021). This situation was certainly particularly difficult for people who had previously struggled with eating problems and disorders. Obese people indicated higher amounts of food consumed and snacking between meals. Many people were more likely to eat salty snacks and meat, and less often to choose vegetables, fruits, and legumes. There was also a noticeable increase in the consumption of highly processed foods (Mitchell et al. 2021).

Study aim

The aim of the study was to determine the impact of social isolation introduced in connection with the COVID-19 pandemic on the eating behavior and physical activity of students at the State University of Applied Sciences in Nowy Sacz.

Material and methods

The research tool was a questionnaire. The survey was conducted online via the Google Forms online survey platform. The research was conducted in the period from May 10 to July 10, 2021, on a representative group of 526 first- and second-degree students, both full-time and part-time studies at the State University of Applied Sciences in Nowy Sacz.

The questions included in the questionnaire concerned issues related to eating behavior, the regularity of meals consumed, the frequency of consumption of specific groups of products, and physical activity. The first part of the questionnaire was a record concerning, inter alia, socio-demographic data of the surveyed students. It included questions about age, sex, place of residence, body weight, height (data needed to calculate the body mass index BMI). All the questions in the part of the questionnaire on the nutritional behavior of students were structured in such a way that the respondents could only indicate the suggested variants of answers. The values of the Body Mass Index (BMI) are presented in the form of basic

statistics, separately for each sex. Tukey's test ($p < 0.05$) was used to determine the significance of differences for BMI.

Results

The majority of respondents were young (average age 23.35 ± 5.36) women ($n = 388$), full-time first-cycle students living in rural areas (Table 1).

Table 1. Demographic characteristics of the study participants

Parameter	Women [number of people]	Men [number of people]
Gender	388	138
Degree of study [number of people]		
1st degree	303	112
2nd degree	85	26
Form of studies [number of people]		
Stationary	313	103
Non-stationary	75	35
Place of residence [number of people]		
City	121	48
Countryside	267	90
Age [years]	$23.35 \pm 5.36^*$ (21-23**; 19-56***)	23.93 ± 5.08 (21-24; 19-47)

Explanatory notes:

*mean \pm SD; ** lower and upper quartile (Q1 i Q3); *** minimum and maximum

A significantly higher mean value of the BMI index was observed in men compared to women ($p < 0.05$). However, no significant changes in the value of BMI were observed before and during the pandemic, both in women and in men, which was on average 21.99 ± 3.59 and 25.08 ± 5.13 , respectively (Fig. 1). A higher mean value was observed for women living in the city (22.35 ± 3.97) compared to those living in the countryside (21.84 ± 3.40 , respectively), and a significantly higher value for men (26.44 ± 6.42) living in the city compared to those living in rural areas (24.36 ± 4.14) (fig. 1

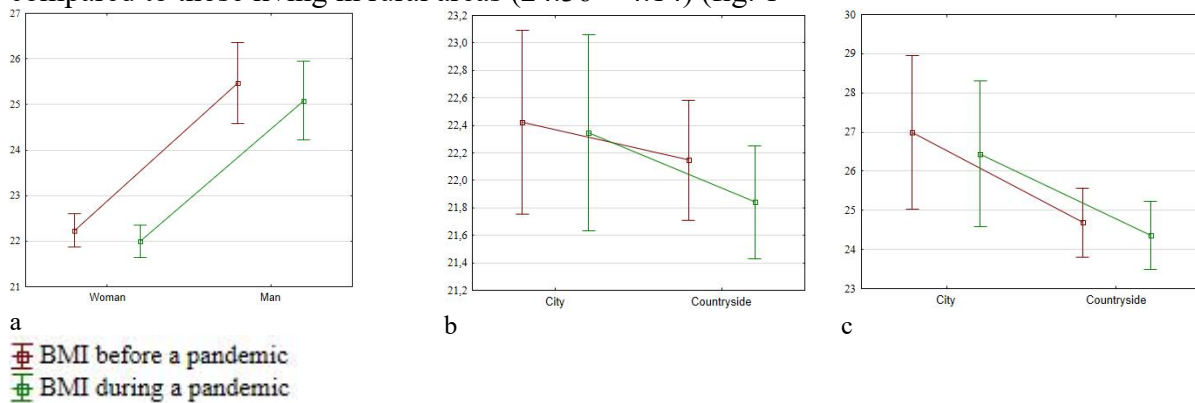


Figure 1. BMI before and during the pandemic by a) gender b) women and place of residence c) men and place of residence

The impact of the pandemic on the reduction of physical activity was observed by all respondents, in particular women (47%) and men living in the city (48%) (Fig. 2).

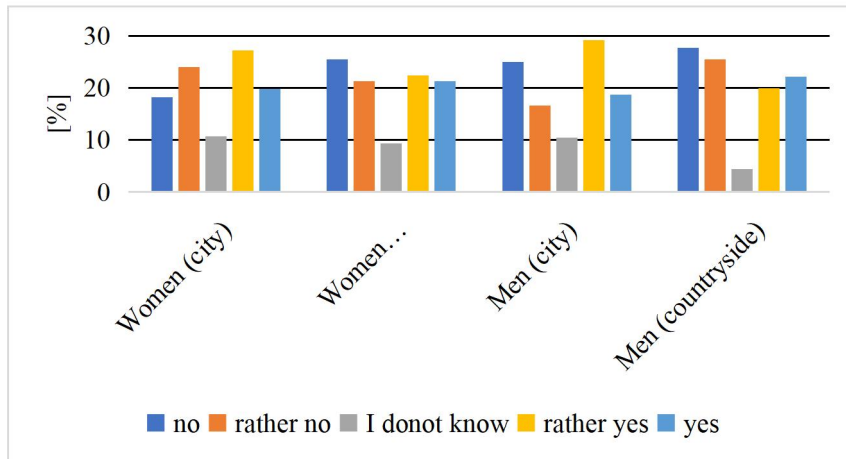


Figure 2. Pandemic impact on decreased physical activity

Women (52% living in the city and 42% living in the countryside) saw a greater impact of the pandemic on eating behavior compared to men (38 and 34%, respectively) (Fig. 3).

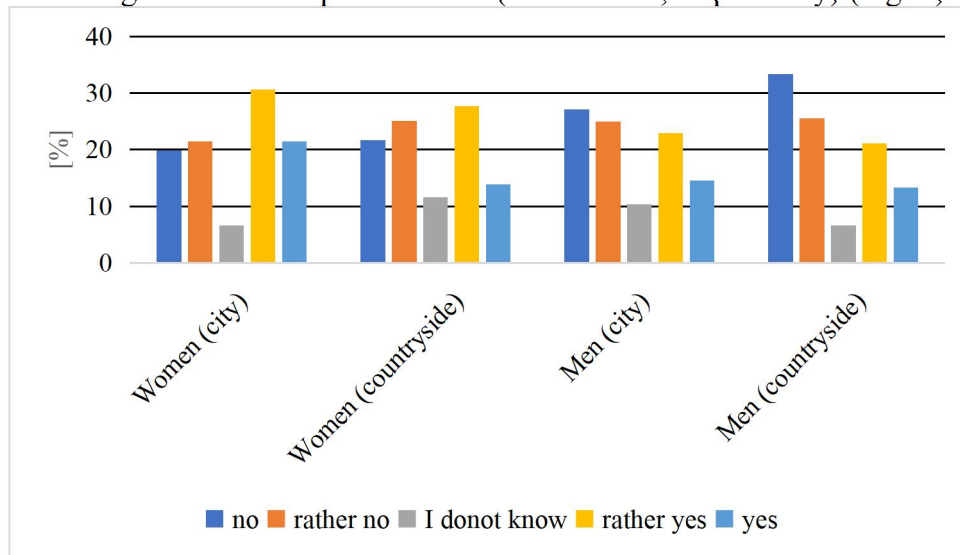


Figure 3. The impact of a pandemic on eating behavior

Women living in the countryside showed an increase in the number of meals eaten from 4 to 5. At the beginning of the pandemic, 50% of them reported consuming 4 and 14% five meals a day. During the pandemic, 37% reported eating 4 and 26% five meals. Similar changes were reported by women living in the city, respectively 39 and 19% at the beginning of the pandemic and 41 and 28% during the pandemic. In all men, during the pandemic, there was an increase in the number of people eating 5 and 2 meals (Fig. 4). Among men living in the city and women living in rural areas during the pandemic, none of the people reported eating one meal a day, while at the beginning of the pandemic, there were 2% and 1% of people consuming 1 meal a day, respectively (Fig. 4).

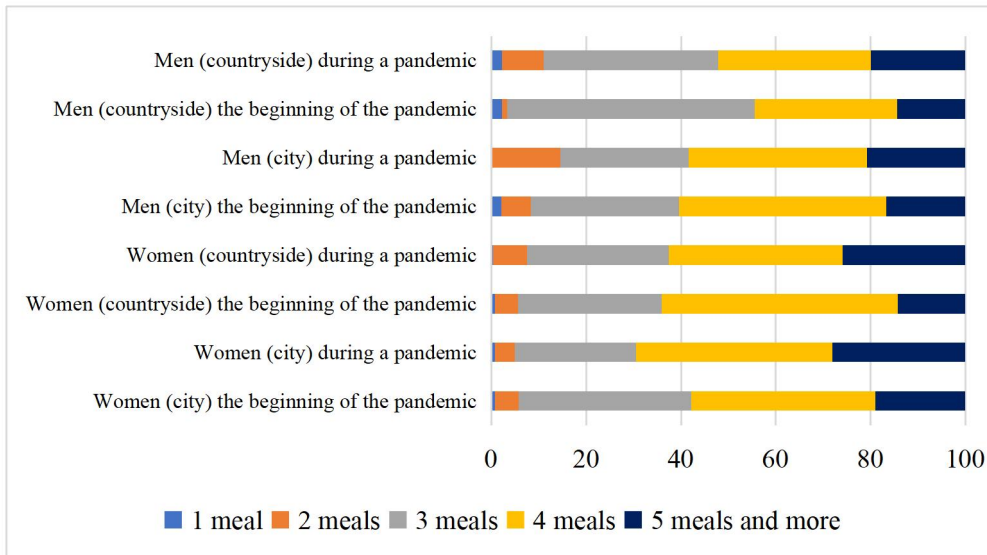


Figure 4. Number of meals eaten before and during a pandemic

The impact of the pandemic on the regularity of meals was observed by women living in the countryside (by 5 pp. more compared to women living in the city). In men, there was practically no effect of the pandemic on the regularity of eating meals (Fig. 5).

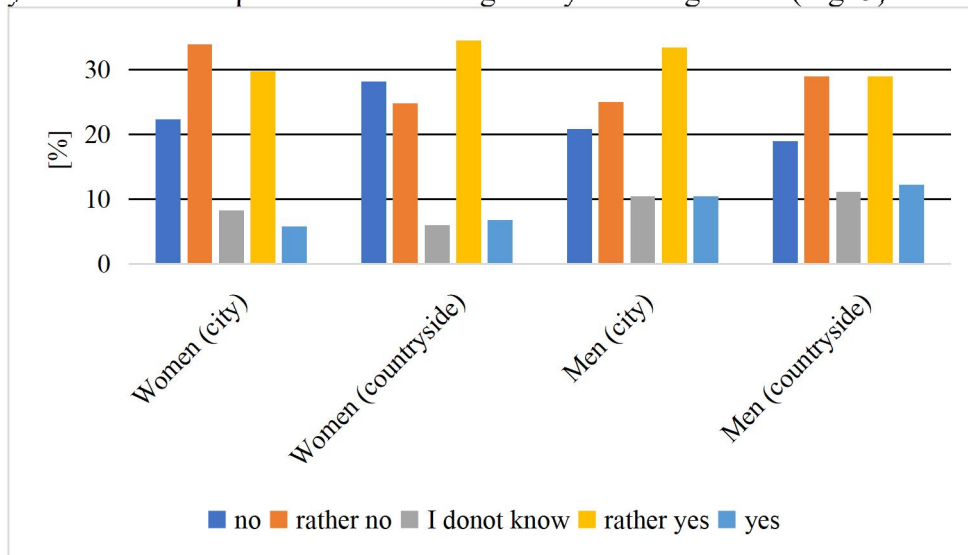


Figure 5. Eating patterns during a pandemic

The impact of the pandemic on snacking between meals and the increased frequency of snack consumption were observed in women, regardless of where they live, and in men living in the city (Fig. 6-7).

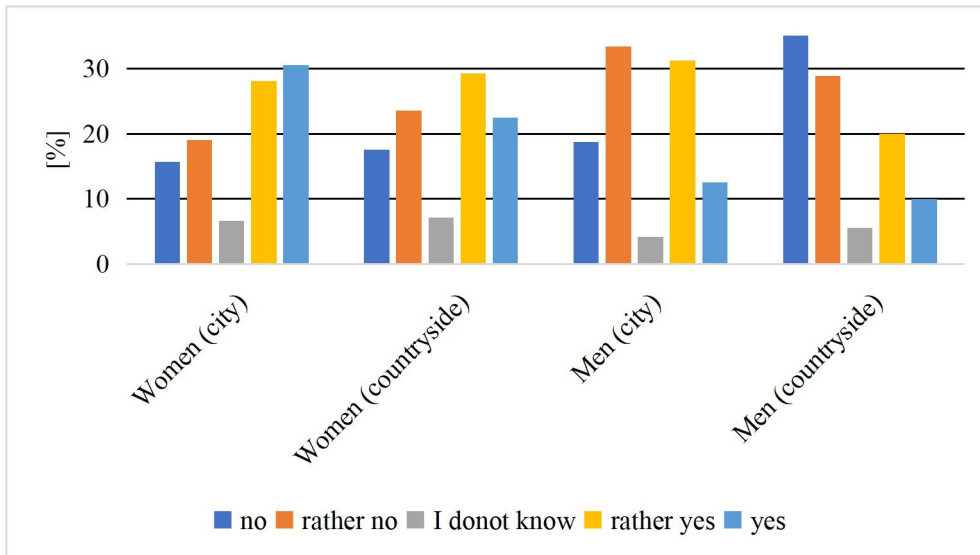


Figure 6. Grazing during a pandemic

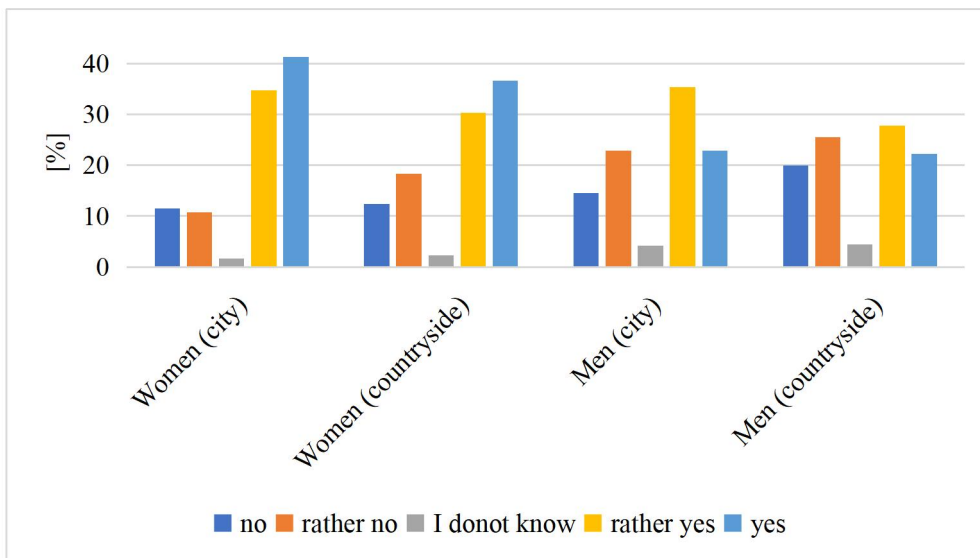


Figure 7. Snacking during a pandemic

Discussion

The COVID-19 pandemic, announced in March 2020, had a huge impact on the functioning of society. As a result of the introduction of numerous sanitary restrictions in our country, social mobility has been limited, as well as professional duties and learning was conducted remotely. The production of nutritional products is conditioned by many factors, including social, cultural, and economic factors, which affect humans in various ways. The elements influencing behavior and food choices may be place of residence, level of wealth or level of education. Additionally, gender, and especially young women 'perception of their own body, can also influence behavior and food choices. As indicated by Kułak-Bejda et al. (2017) in a study conducted in a group of 409 women regarding the perception of their own body, almost 55% stated that gender is important in the assessment of appearance, and only every second respondent liked their appearance, although they believed that they were not ideal. The human body is an essential element in contemporary culture. It is one of the determinants of success and popularity in social media. In addition, the image created in social media, not only of women, promotes slim, athletic people with a sculpted body (Andrzejewski 2018, Lubelska, 2009, Ziębakowska-Cecot, 2016). Young people dominated in the study group, mainly

women (first-cycle students of full-time studies), therefore it can be concluded that the lack of change in the average BMI value was largely due to the demographic structure of the observed group. An interesting relationship that can be noticed is that people living in the countryside, both women and men, had lower average BMI values already before the pandemic period, and this trend continued for over a year until the survey was conducted. The obtained results differ from those obtained by Sidor and Rzymiski (2020), who examined the eating choices and habits made by Poles during the lockdown. They observed that almost 30% of respondents experienced a weight gain of 3 kg on average, and over 18% of a weight loss of 2.9 kg on average. Weight gain was more common among older and overweight people, while weight loss was seen in underweight people.

One of the effects of the lockdown was the restriction of access to sports infrastructure, which turned out to be particularly acute for city dwellers. It should be remembered that physical activity supports the general condition of the body and the efficiency of the respiratory system, which may be important not only in the case of classic infections, but also in the context of the course of the coronavirus infection. The significant impact of physical activity on health was also emphasized during the pandemic by the World Health Organization (WHO), which increased the recommended weekly dose of moderate exercise for adults from 150 to 300 minutes a week (www.ncez.pl). The research conducted by Kantar for the MultiSport Index 2021 on physical activity of people over 18 years of age shows that currently as many as 43% of adult Poles do not fulfill these recommendations (<https://www.benefitsystems.pl>). During the pandemic, a significant decrease in the general level of physical activity of the Polish society was observed, and during the first, spring lockdown, as many as 43% of active Polish residents admitted that they had reduced the number of training sessions. Most often it was related to the closure of sports infrastructure, which was confirmed by the conducted research (<https://www.benefitsystems.pl>). For people living in rural areas, the time of social isolation has certainly turned out to be less severe. Living in a city, especially in large estates, has limitations, such as fewer places to walk or run. In addition, temporary restrictions not only applied to the closure of gyms, fitness clubs and sports facilities, but also the prohibition of going to parks or forests, which was an additional obstacle for city dwellers.

Proper nutrition is one of the most important determinants influencing human development and maintaining good health. The concept of proper nutrition includes, among others correct habits, eating habits, appropriate composition and number of meals ensuring the body's total energy needs and the necessary nutrients needed for optimal development and health. The way we eat can shape our quality of life. Improper habits in this area can cause the development of many diseases, incl. cancer, heart, as well as atherosclerosis, diabetes, overweight and obesity. The so-called proper eating habits can be shaped by many factors, including sex. Rasińska (2012), in a study conducted among final-year students at several universities in Poznań, observed inconsistent attitudes regarding the diet. Men do not try to follow the principles of rational - healthy eating. Women, on the other hand, are more aware of the impact of diet on human health and overall functioning. They also attach more importance to improving their figure and health, while men pay more attention to well-being and having a good time. More women, as a result of dissatisfaction with their appearance, take up physical activity more often. She also observed significant gender differences in the perception of her own health. Men were characterized by a lower overall rate of health behaviors compared to women (Rasińska, 2012). Sidor and Rzymiski (2020) observed higher food consumption in 43.5% of respondents, and in 51.8% more frequent snacking between meals. In the studies of Simone et al. (2021), conducted at the University of Minnesota on eating disorders in the young adult population during the COVID-19 epidemic, about 8% of respondents experienced extremely unhealthy, 53% slightly less extreme but unhealthy behavior related to weight control, and 14 % binge eating. Additionally, Simone et al. (2021)

emphasized that the COVID-19 pandemic contributed to the exacerbation of the development of inappropriate eating behavior. They indicated 6 key ones (in order of frequency): thoughtless eating and snacking; increased food intake; generalized decrease in appetite; chewing on stress; reduction in food consumption and the reappearance (or marked worsening) of symptoms of eating disorders in people who have already suffered from them. People who reported a problem with mindless eating and snacking admitted that the reasons for these unhealthy behaviors were studying or working remotely, boredom, and changing the schedule of the day due to the lockdown. Mitchell et al. (2021) in studies on adherence to healthy eating habits during the COVID-19 pandemic in the US population trying to lose weight, observed that during the pandemic the consumption of vegetables and fruit decreased, and the consumption of red meat and its products increased. There was also a noticeable increase in the consumption of highly processed foods. Ordóñez-Araque et al. (2021) investigating the impact of the pandemic on the eating habits and physical activity of adults aged 18 to 65 in Ecuador also observed a decrease in activity, but men, compared to women, showed greater physical activity both before and during the pandemic. On the other hand, women were characterized by more correct eating habits than men, which is partially consistent with the results of our own research. The results obtained are partially different from those presented above, where the duration of the pandemic in most cases, especially in women, contributed to the improvement of eating behavior, especially in terms of the number and regularity of meals consumed. The only unfavorable phenomenon was the greater frequency of snacking between meals, especially salty and sweet snacks, but it did not increase the body weight of the observed group. Among the factors most frequently mentioned by students as influencing eating behavior during a pandemic, the following factors were indicated: lower frequency of traveling, studying and working remotely, stress, and limited contact with family and loved ones. According to data presented by WHO (<https://www.who.int/news/>), eating disorders kill over 10,000 people every year. people worldwide. That is why it is so important to try to understand the correlation between the current situation and unsafe eating behavior.

Conclusion

The COVID-19 pandemic changed the eating behavior and physical activity of students of the State University of Applied Sciences in Nowy Sącz. People living in rural areas suffered less from the negative effects of social isolation. All respondents, especially those living in the city, observed a decline in physical activity during the pandemic. The pandemic resulted in an increase in the number of meals consumed and a greater frequency of snacking among women.

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