

Article

Impact of the COVID-19 Pandemic on Travel Behavior and Travel Mode Preferences: The Example of Bosnia and Herzegovina

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Abstract: This study aims to analyze the perception of travel, especially in the context of the pandemic, when the measures are alleviated, as well as the citizens' intentions and preferences for travel methods during the COVID-19 pandemic. The purpose of the study is to investigate the impact of the COVID-19 pandemic on travel behavior and travel mode preferences in the example of the residents of Bosnia and Herzegovina. Five research questions were defined. A quantitative research approach was applied in this study. The data were collected through a questionnaire (online survey) distributed to respondents via e-mail and the social network Facebook. The convenience sample included 265 respondents. In the study, a descriptive and quantitative comparative analysis was conducted. The results show that the COVID-19 pandemic has influenced a change in travel behavior. The primary purpose of travel during and before the pandemic was social activities. The most significant change in the primary purpose of travel during and before the pandemic is reflected in a decrease in social activities and an increase in recreational sports activities. In contrast, other activities remained proportionally the same before and during the COVID-19 pandemic. The average distance traveled for primary outdoor trips before the pandemic is greater than that for primary outdoor trips during the COVID-19 pandemic. The results of this study could be useful in traffic planning and making various policies during various pandemics based on people's travel needs. In particular, government bodies could use such knowledge to plan partial and smarter lockdowns. Tourism and transport companies could use this information to better plan their services and operations.

Keywords: COVID-19; tourist behavior; travel mode preferences; Bosnia and Herzegovina



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1. Introduction

The literature review has pointed out that human interaction and mobility contribute to the spread of infectious diseases, especially during pandemics [1–6]. Thus, travel is generally limited during a pandemic [7,8]. To control the spread of the virus, the governments of different countries have imposed and recommended preventive measures and different controls depending on the local administration and socioeconomic conditions. Such strategies included closing schools, remote or online classes, closing shops and restaurants, working from home, restrictions on public gatherings, social events, and meetings, locking down countries or cities, closing international borders and airports, imposing curfews, imposing social distancing, the suspension of public transportation and taxi operations, as well as travel restrictions [6].

In the period before the pandemic, tourism represented the fastest-growing economic branch in the world. The world economy and the tourism sector face a series of restrictions and challenges in the general business environment due to the global health crisis. The COVID-19 pandemic has caused a global crisis, which has affected the economy and society, especially the service industry, which includes tourism. Declaring the outbreak of the COVID-19 pandemic at the beginning of 2020 left its mark on the economy of countries

all over the world. The pandemic has slowed down the growth of world tourism. The COVID-19 pandemic at the beginning of 2020 shocked the global community and surprised the scientific and professional public, but answers in tourism and related studies were found very quickly [9]. Studies published early in the pandemic explained that working from home, reducing consumption, and limiting travel and socializing have been effective measures for mitigating the spread of the virus [6,10]. These measures for mitigating the spread of the virus affected people's travel behavior [11].

Tourism is an activity that is sensitive to health and safety changes [12,13]. The presence of risk affects travel plans and travel behavior [14]. A fear has developed among tourists due to the long incubation period and the ease of disease transmission among people [15]. Perceived risk as well as fear of infection significantly influence tourist behavior, especially in transit, and the impact is different based on the infected area and people's demographic characteristics [16,17]. During the pandemic, people were afraid of traveling and avoided traveling to destinations where they perceive a high or medium risk [18]. However, people have different travel needs during the pandemic, and such trips vary from daily grocery shopping trips to work travel. The characteristics of such trips can differ for different categories of employment. Also, different countries impose different measures and levels of travel restrictions, and such measures can affect the general public's travel behavior. In addition, people's understanding, perceptions, and attitudes may also influence travel decisions and travel mode choices during a pandemic [6].

Predicting and understanding travel behavior is key to planning transportation, creating policies during the pandemic based on people's travel needs, and, ultimately, making decisions. Because the COVID-19 pandemic is a global health crisis compared to previous pandemics, findings from previous research studies may not be directly applicable. Therefore, this study aims to investigate the effects of the COVID-19 pandemic on people's travel behavior. Factors influencing changes in travel behavior during and before the pandemic are examined. This research focuses on primary travel, i.e., trips out of necessity for various reasons. This study builds on the study "Exploring the impacts of COVID-19 on travel behavior and mode preferences", published at the beginning of the pandemic in 2020, which explored the purpose of travel, as well as the choice of the travel mode, distance traveled, and frequency of travel during and before the COVID-19 pandemic. This research was conducted when measures were being alleviated both in the world and in Bosnia and Herzegovina so that the data could be compared with those at the beginning of the pandemic. It is essential to conduct a similar survey two years after the start of the pandemic, because numerous measures and restrictions have changed. This study will fill a gap in the existing literature and bring final results that can be useful in traffic planning but also policy making during future pandemics based on human needs. Also, the governments of various countries can smartly plan partial closures based on these results. Data were collected through a questionnaire distributed via e-mail and the social network platform Facebook. In addition to the abstract and introduction, the paper consists of a literature review, materials and methods, results, a discussion, a conclusion, and, finally, references.

2. Literature Review

The tourism industry is evaluated in terms of its ability to attract tourists and as a platform for economic growth and sustainable development. The period since the beginning of the COVID-19 pandemic has affected all human activities, but none of them have been affected in the same way as tourism. Tourism is undoubtedly one of the sectors that has suffered the most dramatic impact, caused mainly by the lack of human mobility, although this was necessary for protection against COVID-19 [19]. The tourism context at the beginning of the pandemic was very delicate, but tourism has always shown remarkable adaptability and resilience in times of crisis. With alleviating measures in mid-2022, tourism began to recover very quickly, as demonstrated by previous studies that analyzed the impact of crises on tourism [16,17,20–24].

The same tourist destination is perceived differently in conditions of an economic crisis [25] or a health crisis [26], and it is an entirely different perception in the case of a terrorist crisis [27]. Some studies examined travelers' risk perception during health crises [16,21,28] (SARS, H1N1, Ebola) before this crisis. However, it is not yet known how COVID-19 [29], a pandemic that defeats all previous tourism crises, influenced the perception of risk of travelers as well as the behavior of travelers during a certain period of time [30,31].

The emergence of the COVID-19 pandemic has affected tourists' perceptions of travel [32] and will change the way people travel for another long period of time, especially in terms of the intensity, pace, and spontaneity of travel [31]. Previous studies have highlighted that travel behavior during a pandemic could be significantly different from normal everyday life. Many factors (demographic as well as attitudinal) can influence such changes in behavior and travel patterns [6].

In order to control and prevent the spread of the virus, countries implemented different measures and degrees of restrictions during the pandemics. Such measures and restrictions can greatly affect economic conditions, social interactions, and people's lifestyles. Travel and outdoor activities can be significantly affected by these restrictions [33,34]. Perceived risk and fear of infection can also influence travel behavior and the choice of travel mode. A review of previous studies showed that air travel could accelerate and amplify the spread of respiratory viruses, e.g., influenza, SARS, MERS, and coronavirus [35]. Ref. [36] explained in their study that international travel restrictions alone could not control disease outbreaks but could delay the spread or flatten the curve. Ref. [37] indicated that travel restrictions are less effective when the epidemic is widespread. Additionally, mobility restrictions may not be effective when considering the overall size of the outbreak [38]. Previous research has shown that people tend to delay and cancel travel and flights in order not to get infected with the virus. Such behavior is conditioned by demographic characteristics (mainly race and age) and the perceived risk of infection [22,23]. Accordingly, several works of research have reported that, during the H1N1 epidemic, older travelers were more willing to postpone their trip compared to younger travelers (aged 18–35) [21,22].

A study conducted in the United States of America analyzed the factors that caused citizens to avoid domestic travel due to confirmed cases of the Ebola virus [16]. The study states that vulnerability, perceived risk, self-efficacy, and subjective knowledge cause citizens to avoid domestic travel. Gender and age, as demographic characteristics, also significantly impact travel avoidance. Many studies have shown that, during the pandemic, not only has domestic travel behavior changed, but the trips that must be taken have too, such as going to work. Some people worked from home, some went to work occasionally, and some did not work at all [6,10,11,39]. From the above, the first research question was defined: Has the COVID-19 pandemic influenced a change in behavior when traveling to work? [6,10,11,16,39].

Perceived risk is also a key consideration when choosing a tourist destination [40]. Therefore, the perception of risk and the feeling of safety during travel significantly influence the avoidance of destinations rather than the probability of traveling there [41]. A study [39] showed that, during the crisis caused by the COVID-19 pandemic, behavior changed in Huzhou in four aspects: travel demand, the purpose of the trips undertaken, modes of travel, and convenience of travel. Most of the population, except for those who work in basic jobs such as the police and doctors, minimized their travels. Travel for the purposes of shopping and the number of trips for other purposes are reduced, such as commuting or leisure. Based on the results of previous studies [6,39] indicating that the primary purpose of travel, the distance traveled, and the number of primary outdoor trips changed during pandemics, the second and third research questions were defined. The second research question is: What is the primary purpose of travel before and during the COVID-19 pandemic, and is there a change in the primary purpose of travel? [6,39]. Students, lower-income classes, and employees in tourism, catering, informal enterprises, and transport-related sectors were more vulnerable to the interruption of their education

and career, economic losses, poor physical conditions, poor health, negative emotions, and reduced well-being. Travel restrictions reduced existing social inequalities related to transportation between people who live in rural areas and urban areas in Huzhou. On the other side, vulnerable groups are likely to face more restrictions than others, considering their choice of travel, due to their financial situation and physical condition, which can potentially result in negative effects on them as well as their physical and mental health [39].

Like any other pandemic, COVID-19 has caused significant changes in all countries, continents, regions, urban and rural communities, families, and individuals' thinking and lifestyles [42]. The study "Exploring the relationship between the COVID-19 pandemic and changes in travel behaviour: A qualitative study" analyzed the differences in the behavior of individuals when traveling during and after the COVID-19 pandemic, using Huzhou as an example. The results of the study showed that, initially, the demand for travel was reduced. Participation in activities also decreased. The degree and duration of such influences varied from person to person. Students, groups with lower incomes, groups living in small communities with insufficient green areas, and those working in tourism, hospitality, informal jobs, and transport-related sectors were more vulnerable than others [39]. Globally, a major drop in mobility has been observed due to the fear of COVID-19 and government orders to mitigate the spread. In cities that were hit the hardest, mobility was reduced by up to 90% [43]. In the US, population mobility was reduced by 7.87% due to official stay-at-home orders. An increase in the local infection rate from 0% to 0.0003% reduced mobility by 2.31% [6]. The third research question is: What distance is traveled for primary outdoor trips before and during the COVID-19 pandemic? What is the number of primary outdoor weekly outdoor trips before and during the COVID-19 pandemic? What is the influence of socio-demographic factors on the distance traveled and the number of trips for the primary purpose before and during the COVID-19 pandemic? Is there a significant correlation between socio-demographic factors and the number of trips for the primary purpose before and during the COVID-19 pandemic? [6,17,42–44]. Research by [44] showed that, during the second week of March 2020, the average kilometers traveled and the number of trips per weekday decreased by about 60%. This study, which was conducted in Switzerland, further stated that women traveled less compared to men.

Ref. [45] investigated SARS and influenza risk perception in Asian and European countries. The results showed that most respondents, as high as 75%, will avoid public transport. A study conducted before and after the MERS outbreak in Seoul, South Korea examined people's travel behavior [17]. The authors came to the conclusion that fear influences tourist behavior and that the frequency of travel was significantly reduced after the MERS outbreak in Seoul in 2015. The results also show that the number of people over 65 years of age is a variable that significantly affected the reduction in travel frequency during MERS. In a survey conducted at the beginning of the COVID-19 pandemic in Hong Kong, 40% of respondents answered that they avoid public transportation [46]. Research has also shown that people avoid domestic overland travel due to the perceived risk of contracting viruses. Ref. [20], who conducted research at the beginning of the swine flu outbreak, concluded that older people are more associated with avoiding large gatherings and public transport. Ref. [47] concluded that 22% of respondents, citizens of Portugal or England, intended to use public transportation less, and 20% planned to postpone or cancel flights. The fourth research question is: What mode of transportation was used for primary outdoor trips before and during the COVID-19 pandemic, and is there a change in the mode? [6,17,20,45–48]. The study "COVID-19 and its long-term effects on activity participation and travel behaviour: A multiperspective view" discusses the possible long-term effects of COVID-19 on activity–travel behavior. Making use of concepts and theories from psychology, economics, geography, and sociology, the study came to the conclusion that there can be lasting effects expected, and, specifically, the peak demand among public transport users and car users may be lower than that if the pandemic never happened. The magnitude of such effects at the aggregate level in terms of the total travel time of all inhabitants of a state or country is likely limited. Such lasting effects imply that

additional infrastructure extensions for reducing congestion on roads and crowding in public transport might have a lower benefit–cost ratio than what would be the case without these impacts [48].

Ref. [49] concluded in a study conducted in Turkey that one of the most accepted preventive behaviors during COVID-19 is avoiding public transport. In his study, Ref. [11] concluded that, because of the pandemic, people would prefer to use a car rather than public transportation and reduce their travel. A study conducted in Budapest, Hungary showed that the use of cars is at 65% compared to the previous 43%, while the demand for public transport has decreased by about 80% [50]. The fifth research question follows from the above: Has the mode of transportation changed for primary outdoor trips during the COVID-19 pandemic for people who own cars, and has the mode of transportation changed for primary outdoor trips during the COVID-19 pandemic for people who do not own a car? [6,11,17,20,45–50].

All these previous studies emphasize that travel behavior during a pandemic may be significantly different compared to normal everyday life. Many demographic and attitudinal factors can influence such changes in behavior and travel patterns. Gathering insights from these studies, an online data collection questionnaire was designed and distributed to explore critical differences in travel before and during the COVID-19 pandemic. The study is mostly based on and built on the research [6] published in 2020. Building on the previous study, this study aims to analyze the perception of travel, especially in the context of the pandemic when the measures are relaxed, as well as citizens' intentions and preferences for travel methods during the COVID-19 pandemic. Special attention is paid to the mode of transportation. This study analyzes whether the mode of transportation for primary outdoor travel has changed during the COVID-19 pandemic for people who own cars and whether the mode of transportation for primary outdoor travel has changed during the COVID-19 pandemic for people who do not own a car.

3. Materials and Methods

A quantitative research approach was applied in this article. The data were collected through a questionnaire (online survey) distributed to respondents via e-mail and the social network Facebook. Previous studies have also used social media and e-mails to distribute questionnaires [6,34,42,46,51]. The study used email and social networks such as Reddit, Facebook, ResearchGate, and LinkedIn [6]. The final questionnaire in the study [51] was sent to respondents via email and social media such as Facebook, Instagram, Telegram, and WhatsApp. The research [34] relied on surveys that were distributed via e-mail, social media, and professional networks. The questionnaire in the study [42] was also distributed through social media channels and via email. In accordance with the mentioned previous studies and the measures and restrictions due to the pandemic at the time, it seemed appropriate to distribute the questionnaire via the social network Facebook and e-mail. The questionnaire was taken from similar research [6] and adapted to this research. Data were collected through an online questionnaire. The questionnaire was created using Google Forms in the Bosnian language since the respondents are residents of Bosnia and Herzegovina. The research lasted a month and a half, during the period of the alleviation of restrictions and measures adopted due to the COVID-19 pandemic in the world, but also in Bosnia and Herzegovina, from 2 March to 17 May 2022. The convenience sample included 265 respondents. Respondents from the sample were randomly selected. Regarding the demographic data of the sample of respondents: most of the respondents are men (35.5%) and women (64.5%); most of the respondents (54.7%) are between 18 and 30 years old, while 31.7% of respondents are between 31 and 50 years old, and 13.6% of respondents are over 50 years old; only one respondent has primary school education, 34.0% of respondents have secondary school education, 49.8% of respondents have college or university education, and 15.8% of respondents have post-graduate education; most respondents (48.7%) are employed, 38.5% of respondents are students, and the same number of respondents (6.4%) are retired or "other"; most respondents have incomes

between BAM 500 and BAM 1500 (34.3%), 6.0% have monthly incomes below BAM 500, 32.8% of respondents have monthly incomes between BAM 1500 and BAM 2500, and 26.8% of respondents have a monthly income of more than BAM 2500; most respondents live in a household with three to four members (59.6%); a motorcycle is owned by 6.4% of respondents, while a car is owned by 70.6% of respondents; most respondents are single (55.1%), 37.0% of respondents are married, 2.6% of respondents are widowed, 3.4% of respondents are divorced, and 1.9% of respondents did not want to answer the question about marital status.

In the study, a descriptive and quantitative comparative analysis was conducted. Nonparametric tests were mainly used in this study for inferential statistical analyses unless otherwise stated.

The purpose of the article is to investigate the impact of the COVID-19 pandemic on travel behavior and travel mode preferences among the residents of Bosnia and Herzegovina.

4. Results

Table 1 shows changes in respondents' behavior when traveling to work due to COVID-19.

Table 1. Change in travel behavior due to COVID-19.

	Frequency	Percent
I never go to the office/college and work/study at home	7	2.6
I go to the office/college/workplace less often (less than three times a week)	53	20.0
Nothing has changed	136	51.3
I go to the office/college a few days a week, and the rest of the time, I work/study from home	60	22.6
I lost my job/I am not studying anymore	4	1.5
I go to work by invitation only	5	1.9
Total	265	100.0

Source: Research results, 2022.

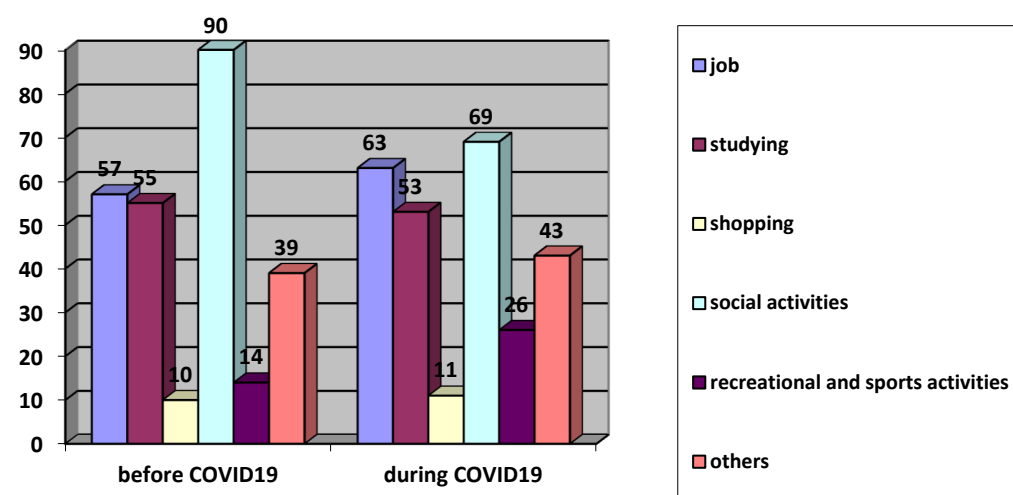
A total of 136 (51.3%) respondents state that nothing has changed, 60 (22.6%) state that they go to the office/college several days a week and that, the rest of the time, they work/study from home, 53 (20.0%) state that they go to the office/college/workplace less often, 7 (2.6%) state that they never go to the office/college and work/study at home, 5 (1.9%) state that they go to work by invitation, and 4 (1.5%) state that they are left unemployed or do not study anymore. Of course, it should be noted that traveling to work and college cannot be considered tourism.

Table 2 shows the primary purposes of travel before and during the COVID-19 pandemic, where it is evident that, before the COVID-19 pandemic, most of the respondents, namely, 90 (34.0%), stated social activities as the primary purpose of travel, 57 (21.5%) stated work, 55 (20.8%) stated studying, 39 (14.7%) stated "other", 14 (5.3%) stated recreational sports activities, and 10 stated (3.8%) shopping. During the pandemic, it is evident that, still, the largest number of respondents, namely, 69 (26.0%), stated social activities as the primary purpose of travel, 63 (23.8%) stated work, 53 (20.0%) stated studying, 43 (16.2%) stated "other", 26 (9.8%) stated recreational sports activities, and 11 (4.2%) stated shopping. Figure 1 shows the results in order to present the changes before and during the pandemic more clearly.

Table 2. Primary purposes of travel before and during the COVID-19 pandemic.

	Before COVID-19		During COVID-19	
	Frequency	Percent	Frequency	Percent
Job	57	21.5	63	23.8
Studying	55	20.8	53	20.0
Shopping	10	3.8	11	4.2
Social activities	90	34.0	69	26.0
Recreational sports activities	14	5.3	26	9.8
Other	39	14.7	43	16.2
Total	265	100.0	265	100.0

Source: Research results, 2022.

**Figure 1.** Primary purpose of travel before and during the COVID-19 pandemic.

The most significant change in the primary purpose of travel before and during the COVID-19 pandemic is reflected in a decrease in social activities (from 34.0% to 26.0%) and an increase in recreational sports activities (from 5.3% to 9.8%), while other activities remained proportionally the same before and during the COVID-19 pandemic.

Table 3 shows that the primary purposes of travel before the COVID-19 pandemic for women were social activities and study, namely, 61 (35.7%) and 44 (25.7%), respectively, while for men, these were work (30) (31.9%) and social activities (29) (30.9%). On the other hand, the primary purposes of travel during the COVID-19 pandemic for women were study (47) (27.5%) and social activities (42) (24.6%), and for men, these were work (31) (33.0%) and social activities (27) (28.7%). There was a noticeable decrease in the social activities of women before and during the COVID-19 pandemic (from 35.7% to 24.6%).

Table 4 shows that the primary purposes of travel before the COVID-19 pandemic for respondents aged 18–30 were studying (37.9%) and social activities (37.2%); for respondents aged 31–50, these were work (39.3%) and social activities (30.9%); and for respondents over the age of 50, these were work (38.9%) and social activities (27.8%). On the other hand, the primary purposes of travel during the COVID-19 pandemic for respondents aged 18–30 were study (35.9%) and social activities (30.3%); for respondents aged 31–50, it was work (46.4%), and for respondents aged over 50, these were work (33.3%), “other” (25.0%), and social activities (22.2%). There is a noticeable decrease in social activities among respondents aged 31–50 before and during the COVID-19 pandemic (from 30.9% to 20.2%).

Table 3. Primary purpose of travel before and during the COVID-19 pandemic, by gender. Group statistics—Gender.

		Gender		Total
		Male	Female	
Primary purpose of travel before the COVID-19 pandemic	Job	30	27	57
	Studying	11	44	55
	Shopping	2	8	10
	Social activities	29	61	90
	Recreational sports activities	7	7	14
	Other	15	24	39
Total		94	171	265
Primary purpose of travel during the COVID-19 pandemic	Job	31	32	63
	Studying	6	47	53
	Shopping	2	9	11
	Social activities	27	42	69
	Recreational sports activities	11	15	26
	Other	17	26	43
Total		94	171	265

Source: Research results, 2022.

Table 4. Primary purpose of travel before and during the COVID-19 pandemic by respondents' age.

		Group Statistics—Age			Total
		18–30	31–50	50 and Older	
Primary purpose of travel before the COVID-19 pandemic	Job	10	33	14	57
	Studying	55	0	0	55
	Shopping	3	3	4	10
	Social activities	54	26	10	90
	Recreational sports activities	6	6	2	14
	Other	17	16	6	39
Total		145	84	36	265
Primary purpose of travel during the COVID-19 pandemic	Job	12	39	12	63
	Studying	52	1	0	53
	Shopping	3	4	4	11
	Social activities	44	17	8	69
	Recreational sports activities	12	11	3	26
	Other	22	12	9	43
Total		145	84	36	265

Source: Research results, 2022.

Table 5 shows that the primary purposes of travel before the COVID-19 pandemic for respondents who have a car were social activities (31.0%) and work (27.3%), and for respondents who do not own a car, these were social activities (41.0%) and studying (29.5%). On the other hand, the primary purposes of travel during the COVID-19 pandemic for respondents who own a car were work (29.4%) and social activities (25.7%), and for respondents who do not own a car, these were study (28.2%), social activities (26.9%), and “other” (25.6%).

Table 5. Primary purpose of travel before and during the COVID-19 pandemic by car ownership.

Group Statistics—Car Ownership				
		Do You Own a Car?		Total
		YES	NO	
Primary purpose of travel before the COVID-19 pandemic	Job	51	6	57
	Studying	32	23	55
	Shopping	6	4	10
	Social activities	58	32	90
	Recreational sports activities	12	2	14
	Other	28	11	39
Total		187	78	265
Primary purpose of travel during the COVID-19 pandemic	Job	55	8	63
	Studying	31	22	53
	Shopping	8	3	11
	Social activities	48	21	69
	Recreational sports activities	22	4	26
	Other	23	20	43
Total		187	78	265

Source: Research results, 2022.

Table 6 shows that the primary purposes of travel before the COVID-19 pandemic for respondents who own a motorcycle were work (29.4%) and study (29.4%), and for respondents who do not own a motorcycle, it was primarily social activities (35.1%). On the other hand, the primary purposes of travel during the COVID-19 pandemic for respondents who own a motorcycle were work (29.4%), study (23.5%), and social activities (23.5%), and for respondents who do not own a motorcycle, these were social activities (26.2%), work (23.4%), and studies (19.8%). A post hoc McNemar test in Table 7 was applied to determine possible individual changes in the primary purpose of travel before and during the COVID-19 pandemic, which showed that, comparing work and study, the primary purpose of travel did not statistically significantly ($p > 0.05$) change: out of 48 respondents who primarily went to work, only 1 (2.1%) started studying during COVID-19, while out of 42 respondents who primarily studied before COVID-19, only 1 (2.4%) started traveling primarily for work.

Also, in Table 8, when comparing work and social activities, the primary purpose of travel did not change statistically significantly ($p > 0.05$): out of 50 respondents who primarily went to work, only 3 (6.0%) during the COVID-19 period primarily started traveling for social activities, while out of 61 respondents who primarily traveled for social activities before COVID-19, 9 of them (14.7%) started primarily traveling for work.

Table 6. Primary purpose of travel before and during the COVID-19 pandemic, by motorcycle ownership.

Group Statistics—Motorcycle Ownership				
		Do You Own a Motorcycle?		Total
		YES	NO	
Primary purpose of travel before the COVID-19 pandemic	Job	5	52	57
	Studying	5	50	55
	Shopping	0	10	10
	Social activities	3	87	90
	Recreational sports activities	1	13	14
	Other	3	36	39
	Total	17	248	265
Primary purpose of travel during the COVID-19 pandemic	Job	5	58	63
	Studying	4	49	53
	Shopping	0	11	11
	Social activities	4	65	69
	Recreational sports activities	1	25	26
	Other	3	40	43
	Total	17	248	265

Source: Research results, 2022.

Table 7. Primary purpose of travel before and during the COVID-19 pandemic (McNemar test)—Comparing job and studying.

		Primary Purpose of Travel during the COVID-19 Pandemic		Total	<i>p</i>
		Job	Studying		
Primary purpose of travel before the COVID-19 pandemic	Job	47	1	48	1.000
	Studying	1	41	42	
Total		48	42	90	

Source: Research results, 2022.

Table 8. Primary purpose of travel before and during the COVID-19 pandemic (McNemar test)—Comparing job and social activities.

		Primary Purpose of Travel during the COVID-19 Pandemic		Total	<i>p</i>
		Job	Social Activities		
Primary purpose of travel before the COVID-19 pandemic	Job	47	3	50	0.146
	Social activities	9	52	61	
Total		56	55	111	

Source: Research results, 2022.

Comparing work and shopping, recreation, sports, or “other” in Table 9, the primary purpose of the trip did not change statistically significantly ($p > 0.05$): out of 53 respondents who primarily went to work, 6 of them (12.0%) started traveling primarily because of shopping, recreation, sports, or “other”, while out of 53 respondents who, before COVID-19,

primarily traveled for shopping, recreation, sports, or “other”, 5 of them (9.4%) started traveling primarily for work.

Table 9. Primary purpose of travel before and during the COVID-19 pandemic (McNemar test)—Comparing job and shopping, recreation, sports, “other”.

		Primary Purpose of Travel during the COVID-19 Pandemic		Total	<i>p</i>
		Job	Shopping, Recreation, Sports, “Other”		
Primary purpose of travel before the COVID-19 pandemic	Job	47	6	53	1.000
	Shopping, recreation, sports, “other”	5	48	53	
Total		52	54	106	

Source: Research results, 2022.

Also, comparing studying and social activities in Table 10, the primary purpose of the trip did not change statistically significantly ($p > 0.05$): out of 50 respondents who primarily traveled for study, 9 (18.0%) started traveling primarily for social activities during the COVID-19 period, while out of 57 respondents who primarily traveled for social activities before COVID-19, 7 of them (12.3%) started traveling primarily for studying.

Table 10. Primary purpose of travel before and during the COVID-19 pandemic (McNemar test)—comparing studying and social activities.

		Primary Purpose of Travel during the COVID-19 Pandemic		Total	<i>p</i>
		Studying	Social Activities		
Primary purpose of travel before the COVID-19 pandemic	Studying	41	9	50	0.804
	Social activities	7	48	57	
Total		52	54	107	

Source: Research results, 2022.

In Table 11, comparing studying and shopping, recreation, sports, or “other” together, the primary purpose of travel did not change statistically significantly ($p > 0.05$): out of 45 respondents who primarily traveled for studying, 4 of them (8.9%) started traveling primarily because of shopping, recreation, sports, or “other”, while out of 57 respondents who, before COVID-19, primarily traveled for shopping, recreation, sports, or “other”, 4 of them (7.7%) started traveling primarily for studying.

Table 11. Primary purpose of travel before and during the COVID-19 pandemic (McNemar test)—Comparing studying and shopping, recreation, sports, “other”.

		Primary Purpose of Travel during the COVID-19 Pandemic		Total	<i>p</i>
		Studying	Shopping, Recreation, Sports, “Other”		
Primary purpose of travel before the COVID-19 pandemic	Studying	41	4	45	1.000
	Shopping, recreation, sports, “other”	4	48	52	
Total		45	52	97	

Source: Research results, 2022.

On the other hand, in Table 12, comparing social activities and shopping, recreation, sports, or “other”, there is a statistically significant change in the primary purpose of travel ($p < 0.01$).

Table 12. Primary purpose of travel before and during the COVID-19 pandemic (McNemar test)—Comparing social activities and shopping, recreation, sports, “other”.

		Primary Purpose of Travel during the COVID-19 Pandemic		Total	<i>p</i>
		Social Activities	Shopping, Recreation, Sports, “Other”		
Primary purpose of travel before the COVID-19 pandemic	Social activities	21	52	73	0.003
	Shopping, recreation, sports, “other”	47	5	52	
Total		68	57	125	

Source: Research results, 2022.

Of the 73 respondents who primarily traveled for social activities, as many as 52 (71.2%) primarily started traveling during COVID-19 for shopping, recreation, sports, or other reasons, while of the 52 respondents who primarily traveled before COVID-19 for shopping, recreation, sports, or “other” 47 of them (90.3%) started traveling primarily for social activities.

Since the Kolmogorov–Smirnov test of the normality of distribution (Table 13) for the variables “Distance traveled for primary outdoor trips before the COVID-19 pandemic” and “Distance traveled for primary outdoor trips during the COVID-19 pandemic” (at the significance level of 0.01) deviates from the normal distribution, the nonparametric Wilcoxon rank-test was used to test the difference in arithmetic means.

Table 13. Testing for normality of distribution for the variables “Distance traveled for primary outdoor trips before the COVID-19 pandemic” and “Distance traveled for primary outdoor trips during the COVID-19 pandemic”.

	Tests of Normality					
	Kolmogorov–Smirnov ^a			Shapiro–Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Distance traveled for primary outdoor trips before the COVID-19 pandemic	0.160	265	0.000	0.879	265	0.000
Distance traveled for primary outdoor trips during the COVID-19 pandemic	0.161	265	0.000	0.901	265	0.000

Source: Research results, 2022.

Table 14 shows that the average distance traveled for primary outdoor trips before the COVID-19 pandemic ($M = 4.11$, $s = 2.20$) is greater than that for primary outdoor trips during the COVID-19 pandemic ($M = 3.61$, $s = 2.05$). The Wilcoxon rank-test is 1457,000, showing that the obtained difference is statistically significant at the 0.01 level ($z = -5.912$, $p < 0.01$).

Since the Kolmogorov–Smirnov distribution normality test in Table 15, for the variables that describe the number of primary outdoor trips per week before and during the COVID-19 pandemic (at the significance level of 0.01) deviates from the normal distribution, the nonparametric Wilcoxon rank-test was used to test the difference in arithmetic means.

Table 16 shows that the average number of primary outdoor trips per week before the COVID-19 pandemic ($M = 2.46$, $s = 0.896$) is higher than the average number of primary outdoor trips per week during the COVID-19 pandemic ($M = 2.23$, $s = 0.815$). The Wilcoxon

rank-test is 2,016,500 and shows that the obtained difference is statistically significant at the 0.01 level ($z = -4.191, p < 0.01$).

Table 14. Descriptive statistics and Wilcoxon signed-rank test.

	N	Mean	Std. Deviation
Distance traveled for primary outdoor trips before the COVID-19 pandemic	265	4.10	2.20
Distance traveled for primary outdoor trips during the COVID-19 pandemic	265	3.60	2.05
Total N		265	
Test Statistic		1457.000	
Standard Error		377.807	
Standardized Test Statistic		−5.912	
Asymptotic Sig. (two-sided test)		0.000	

Source: Research results, 2022.

Table 15. Testing for the normality of *distribution* for the variables “Number of primary outdoor trips per week before the COVID-19 pandemic” and “Number of primary outdoor trips per week during the COVID-19 pandemic”.

	Tests of Normality					
	Kolmogorov–Smirnov ^a			Shapiro–Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Number of primary outdoor trips per week before the COVID-19 pandemic	0.369	265	0.000	0.739	265	0.000
Number of primary outdoor trips per week during the COVID-19 pandemic	0.303	265	0.000	0.845	265	0.000

^a. Lilliefors Significance Correction; Source: Research results, 2022.

Table 16. Descriptive statistics and Wilcoxon signed-rank test for the number of primary outdoor trips per week before and during COVID-19.

	N	Mean	Std. Deviation
Number of primary outdoor trips per week before the COVID-19 pandemic	265	2.46	0.896
Number of primary outdoor trips per week during the COVID-19 pandemic	265	2.23	0.815
Total N		265	
Test Statistic		2016.500	
Standard Error		342.395	
Standardized Test Statistic		−4.191	
Asymptotic Sig. (two-sided test)		0.000	

Source: Research results, 2022.

The Table 17 shows descriptive statistics and the Mann–Whitney test for the variables related to the distance traveled for primary outdoor trips before and during the COVID-19 pandemic with respect to the sex of the respondents. Female respondents show a higher rank ($M = 141.56$) in the distance traveled for primary outdoor trips before the COVID-19 pandemic than male respondents ($M = 117.43$). The value of the Mann–Whitney test is 6,573,500, which shows that the obtained difference is statistically significant at the 0.05 level ($z = -2.488, p < 0.05$). Although female respondents show a higher rank ($M = 139.28$) in the distance covered for primary outdoor trips during the COVID-19 pandemic compared to male respondents ($M = 121.57$), and the value of the Mann–Whitney test is 6,963,000, the difference obtained is not statistically significant ($z = -1.821, p > 0.05$).

Table 17. Descriptive statistics and the Mann–Whitney test: distance traveled, by gender.

		Ranks		
	Gender	N	Mean Rank	Sum of Ranks
Distance traveled for primary outdoor trips before the COVID-19 pandemic	Male	94	117.43	11,038.50
	Female	171	141.56	24,206.50
	Total	265		
Distance traveled for primary outdoor trips during the COVID-19 pandemic	Male	94	121.57	11,428.00
	Female	171	139.28	23,817.00
	Total	265		
		Distance traveled for primary outdoor trips before the COVID-19 pandemic	Distance traveled for primary outdoor trips during the COVID-19 pandemic	
Mann–Whitney U		6573.500	6963.000	
Wilcoxon W		11,038.500	11,428.000	
Z		−2.488	−1.821	
Asymp. Sig. (two-tailed)		0.013	0.069	

Grouping Variable: Gender; Source: Research results, 2022.

The Table 18 shows descriptive statistics and the Mann–Whitney test for the variables “Number of primary outdoor trips per week before the COVID-19 pandemic” and “Number of primary outdoor trips per week during the COVID-19 pandemic” with regard to the sex of the respondents. Although male respondents show a higher rank ($M = 138.73$) in terms of the number of primary outdoor trips per week before the COVID-19 pandemic compared to female respondents ($M = 129.85$), and the value of the Mann–Whitney test is 7498.000, the obtained difference is not statistically significant ($z = -1.049$, $p > 0.05$). Also, male respondents show a higher rank ($M = 135.62$) in terms of the number of primary outdoor trips per week during the COVID-19 pandemic compared to female respondents ($M = 131.56$), and the value of the Mann–Whitney test is 7791.000; the obtained difference is not statistically significant ($z = -0.453$, $p > 0.05$).

Table 18. Descriptive statistics and Mann–Whitney test: number of outdoor trips, by gender.

		Ranks		
	Gender	N	Mean Rank	Sum of Ranks
Number of primary outdoor trips per week before the COVID-19 pandemic	Male	94	138.73	13,041.00
	Female	171	129.85	22,204.00
	Total	265		
Number of primary outdoor trips per week during the COVID-19 pandemic	Male	94	135.62	12,748.00
	Female	171	131.56	22,497.00
	Total	265		
		Number of primary outdoor trips per week before the COVID-19 pandemic	Number of primary outdoor trips per week during the COVID-19 pandemic	
Mann–Whitney U		7498.000	7791.000	
Wilcoxon W		22,204.000	22,497.000	
Z		−1.049	−0.453	
Asymp. Sig. (two-tailed)		0.294	0.651	

Grouping Variable: Gender; Source: Research results, 2022.

Table 19 shows that the primary purposes of travel before the COVID-19 pandemic for respondents with high school degrees or some university and undergraduate degrees were social activities, and for respondents with graduate education, it was work.

Table 19. Primary purpose of travel before the COVID-19 pandemic, by level of education.

		Group Statistics—Level of Education				χ^2	<i>p</i>
		Primary School	High School	Some College or Undergraduate	Graduate	Total	
Primary purpose of travel before the COVID-19 pandemic	Job	0	21	21	15	57	56.219
	Studying	0	11	41	3	55	
	Shopping	1	3	5	1	10	
	Social activities	0	37	43	10	90	
	Recreational sports activities	0	4	4	6	14	
	Other	0	14	18	7	39	
Total		1	90	132	42	265	0.000

Source: Research results, 2022.

Table 20 shows that the primary purpose of travel during COVID-19 is the same as that before COVID-19, i.e., for respondents with graduate education, it is work, and for respondents with high school degrees or some university and undergraduate degrees, it is social activities.

Table 20. Primary purpose of travel during the COVID-19 pandemic, by level of education.

		Group Statistics—Level of Education				χ^2	<i>p</i>
		Primary School	High School	Some College or Undergraduate	Graduate	Total	
Primary purpose of travel during the COVID-19 pandemic	Job	0	22	26	15	63	54.142
	Studying	0	9	41	3	53	
	Shopping	1	3	6	1	11	
	Social activities	0	29	31	9	69	
	Recreational sports activities	0	9	8	9	26	
	Other	0	18	20	5	43	
Total		1	90	132	42	265	0.000

Source: Research results, 2022.

Tables 21 and 22 show that the primary purpose of travel both before and during COVID-19 for respondents whose monthly income is less than BAM 500 is studying, while for respondents earning between BAM 500 and BAM 2500, it is work, study, and social activities, equally.

Regarding the primary purposes of travel both before and during COVID-19 for respondents with a monthly income of over BAM 2500, in addition to work and social activities, the importance of recreational activities increased during COVID-19 compared to the period before COVID-19 (from 8.5% to 22.5%).

The primary purposes of travel before COVID-19 for respondents living in a household with one to two members are social activities (Table 23), and during COVID-19, these are social activities, work, and “other” (Table 24). The primary purposes of travel both before and during COVID-19 for respondents living in a household with three to four members are social activities, work, and study.

The primary purpose of travel both before and during COVID-19 for respondents living in a household with five or more members is to study.

Table 21. Primary purpose of travel before the COVID-19 pandemic, by monthly household income (BAM).

		Group Statistics—Monthly Household Income (BAM)				Total	χ^2	p
		BAM 500 and under	BAM 500–1500	BAM 1500–2500	BAM 2500 and More			
Primary purpose of travel before the COVID-19 pandemic	Job	1	15	17	24	57	41.991	0.000
	Studying	10	22	17	6	55		
	Shopping	0	6	0	4	10		
	Social activities	2	29	37	22	90		
	Recreational sports activities	0	3	5	6	14		
	Other	3	16	11	9	39		
Total		16	91	87	71	265		

Source: Research results, 2022.

Table 22. Primary purpose of travel during the COVID-19 pandemic, by monthly household income (BAM).

		Group Statistics—Monthly Household Income (BAM)				Total	χ^2	p
		BAM 500 and under	BAM 500–1500	BAM 1500–2500	BAM 2500 and More			
Primary purpose of travel during the COVID-19 pandemic	Job	0	21	24	18	63	44.966	0.000
	Studying	8	21	15	9	53		
	Shopping	0	7	0	4	11		
	Social activities	3	22	28	16	69		
	Recreational sports activities	0	3	7	16	26		
	Other	5	17	13	8	43		
Total		16	91	87	71	265		

Source: Research results, 2022.

Table 23. Primary purpose of travel before the COVID-19 pandemic, by number of household members.

		Group statistics—Number of Household Members				χ^2	p
		1–2	3–4	5 and More	Total		
Primary purpose of travel before the COVID-19 pandemic	Job	17	38	2	57	41.118	0.000
	Studying	4	38	13	55		
	Shopping	4	5	1	10		
	Social activities	38	48	4	90		
	Recreational sports activities	8	4	2	14		
	Other	13	25	1	39		
Total		84	158	23	265		

Source: Research results, 2022.

The Tables 25 and 26 show that the largest percentage (77.0%) of respondents who own a car also use it as a means of transportation, and there is no difference in the use of a car in the period before and during COVID-19; only 25.6% of respondents who do not own a car use it as a means of transportation, and there is no difference in the use of cars between the period before and during COVID-19. The χ^2 -test shows a statistically significant difference in the mode of transportation for primary outdoor travel with regard to owning or not owning a car ($p < 0.01$), but there is no significant impact of COVID-19.

Table 24. Primary purpose of travel during the COVID-19 pandemic, by number of household members.

		Group Statistics—Number of household Members				χ^2	<i>p</i>
		1–2	3–4	5 and More	Total		
Primary purpose of travel during the COVID-19 pandemic	Job	22	38	3	63	34.720	0.000
	Studying	5	36	12	53		
	Shopping	3	8	0	11		
	Social activities	23	45	1	69		
	Recreational sports activities	11	12	3	26		
	Other	20	19	4	43		
Total		84	158	23	265		

Source: Research results, 2022.

Table 25. Mode of transportation for primary outdoor trips before the COVID-19 pandemic, by car ownership.

		Group Statistics—Car Ownership			χ^2	<i>p</i>
		YES	NO	Total		
Mode of transportation for primary outdoor trips before the COVID-19 pandemic	Nothing/I did not travel	4	1	5	81.356	0.000
	Public transportation	30	26	56		
	Private car	142	18	160		
	Company car	2	4	6		
	Taxi	1	2	3		
	Motorcycle	0	3	3		
	Bike	0	7	7		
	Walking	8	17	25		
Total		187	78	265		

Source: Research results, 2022.

On the other hand, it is noticeable that the use of public transportation by respondents who own a car dropped during COVID-19, from 16.0% to 8.0%, while no change was recorded among respondents who do not own a car in the mode of transportation for primary outdoor travel.

Table 26. Mode of transportation for primary outdoor trips during the COVID-19 pandemic, by car ownership.

		Group Statistics—Car Ownership			χ^2	<i>p</i>
		YES	NO	Total		
N Mode of transportation for primary outdoor trips during the COVID-19 pandemic	Nothing/I did not travel	6	7	13	68.827	0.000
	Public transportation	15	22	37		
	Private car	144	20	164		
	Company car	5	3	8		
	Taxi	2	1	3		
	Motorcycle	1	0	1		
	Bike	2	9	11		
	Walking	12	16	28		
Total		187	78	265		

Source: Research results, 2022.

The Table 27 shows descriptive statistics and the Kruskal–Wallis test for the variables “Distance traveled for primary outdoor trips before the COVID-19 pandemic” and “Distance traveled for primary outdoor trips during the COVID-19 pandemic” with respect to employment. The highest rank ($M = 141.98$) of distance traveled for primary outdoor trips before the COVID-19 pandemic is shown among students, while the lowest rank is among pensioners ($M = 74.35$). The Kruskal–Wallis test value is 12.576, and the obtained difference is statistically significant ($p < 0.01$). Also, students ($M = 138.65$) and employees ($M = 138.34$) show the highest ranks of distance traveled for primary outdoor trips during the COVID-19 pandemic, while pensioners ($M = 73.38$) show the lowest ranks. The Kruskal–Wallis test value is 12.396, and the obtained difference is statistically significant ($p < 0.01$).

Table 27. Descriptive statistics and the Kruskal–Wallis test: distance traveled, by employment.

Ranks		
	Employment	N
Distance traveled for primary outdoor trips before the COVID-19 pandemic	Student	102
	Employed	129
	Pensioner	17
	Other	17
	Total	265
Distance traveled for primary outdoor trips during the COVID-19 pandemic	Student	102
	Employed	129
	Pensioner	17
	Other	17
	Total	265
	Distance traveled for primary outdoor trips before the COVID-19 pandemic	Distance traveled for primary outdoor trips during the COVID-19 pandemic
Kruskal–Wallis H	12.576	12.396
df	3	3
Asymp. Sig.	0.006	0.006

Kruskal–Wallis Test, Grouping Variable: Employment. Source: Research results, 2022.

The Table 28 shows descriptive statistics and the Kruskal–Wallis test for the variables “Number of primary outdoor trips per week before the COVID-19 pandemic” and “Number of primary outdoor trips per week during the COVID-19 pandemic” with respect to employment. The highest rank ($M = 140.24$) in terms of the number of primary outdoor trips per week before the COVID-19 pandemic is shown by respondents in the occupation category “Other”, while the lowest rank is shown by pensioners ($M = 128.76$). The Kruskal–Wallis test value is 0.286, and this difference is not statistically significant ($p > 0.05$). Also, the highest rank ($M = 146.85$) in terms of the number of primary outdoor trips per week during the COVID-19 pandemic is shown by respondents in the occupation category “Other”, while the lowest rank is shown by pensioners ($M = 120.47$). The Kruskal–Wallis test value is 2.288, and this difference is not statistically significant ($p > 0.05$).

Table 28. Descriptive statistics and the Kruskal–Wallis test: number of primary outdoor trips per week, by employment.

		Ranks	
	Employment	N	Mean Rank
Number of primary outdoor trips per week before the COVID-19 pandemic	Student	102	133.25
	Employed	129	132.41
	Pensioner	17	128.76
	Other	17	140.24
	Total	265	
Number of primary outdoor trips per week during the COVID-19 pandemic	Student	102	127.56
	Employed	129	137.12
	Pensioner	17	120.47
	Other	17	146.85
	Total	265	
	Number of primary outdoor trips per week before the COVID-19 pandemic	Number of primary outdoor trips per week during the COVID-19 pandemic	
Kruskal–Wallis H	0.286	2.288	
df	3	3	
Asymp. Sig.	0.963	0.515	

Kruskal–Wallis Test, Grouping Variable: Employment. Source: Research results, 2022.

Table 29 shows the descriptive statistics and Mann–Whitney test for the variables “Distance traveled for primary outdoor trips before the COVID-19 pandemic” and “Distance traveled for primary outdoor trips during the COVID-19 pandemic” with respect to car ownership. Respondents who own a car show a higher rank ($M = 140.57$) in the distance traveled for primary outdoor trips before the COVID-19 pandemic compared to respondents who do not have a car ($M = 114.85$). The value of the Mann–Whitney test is 5877.500, which shows that the obtained difference is statistically significant at the 0.05 level ($z = -2.526$, $p < 0.05$). Also, respondents who own a car show a higher rank ($M = 141.84$) in the distance traveled for primary outdoor trips during the COVID-19 pandemic than respondents who do not have a car ($M = 111.81$). The value of the Mann–Whitney test is 5640.500, which shows that the obtained difference is statistically significant at the 0.01 level ($z = -2.941$, $p < 0.01$).

Table 30 shows the descriptive statistics and Mann–Whitney test for the variables “Number of primary outdoor trips per week before the COVID-19 pandemic” and “Number of primary outdoor trips per week during the COVID-19 pandemic” with respect to car ownership. Respondents who do not have a car show a higher rank ($M = 134.63$) regarding the number of primary outdoor trips before the COVID-19 pandemic than those who have a car ($M = 132.32$). The value of the Mann–Whitney test is 7166.000, which shows that the obtained difference is not statistically significant ($z = -0.260$, $p > 0.05$). On the other hand, respondents who own a car show a higher rank ($M = 138.14$) for the number of primary outdoor trips during the COVID-19 pandemic compared to respondents who do not have a car ($M = 120.67$). The value of the Mann–Whitney test is 6331.000, which shows that the obtained difference is not statistically significant ($z = -1.858$, $p > 0.05$).

Table 29. Descriptive statistics and the Kruskal–Wallis test: distance traveled, by car ownership.

Ranks				
	Do You Own a Car?	N	Mean Rank	Sum of Ranks
Distance traveled for primary outdoor trips before the COVID-19 pandemic	YES	187	140.57	26,286.50
	NO	78	114.85	8958.50
	Total	265		
Distance traveled for primary outdoor trips during the COVID-19 pandemic	YES	187	141.84	26,523.50
	NO	78	111.81	8721.50
	Total	265		
	Distance traveled for primary outdoor trips before the COVID-19 pandemic	Distance traveled for primary outdoor trips during the COVID-19 pandemic		
Mann–Whitney U	5877.500	5640.500		
Wilcoxon W	8958.500	8721.500		
Z	−2.526	−2.941		
Asymp. Sig. (two-tailed)	0.012	0.003		

Grouping Variable: Do you own a car? Source: Research results, 2022.

Table 30. Descriptive statistics and Mann–Whitney test: number of outdoor trips, by car ownership.

Ranks				
	Do You Own a Car?	N	Mean Rank	Sum of Ranks
Number of primary outdoor trips per week before the COVID-19 pandemic	YES	187	132.32	24,744.00
	NO	78	134.63	10,501.00
	Total	265		
Number of primary outdoor trips per week during the COVID-19 pandemic	YES	187	138.14	25,833.00
	NO	78	120.67	9412.00
	Total	265		
	Number of primary outdoor trips per week before the COVID-19 pandemic	Number of primary outdoor trips per week during the COVID-19 pandemic		
Mann–Whitney U	7166.000	6331.000		
Wilcoxon W	24,744.000	9412.000		
Z	−0.260	−1.858		
Asymp. Sig. (2-tailed)	0.795	0.063		

Grouping Variable: Do you own a car? Source: Research results, 2022.

Table 31 shows the descriptive statistics and Mann–Whitney test for the variables “Distance traveled for primary outdoor trips before the COVID-19 pandemic” and “Distance traveled for primary outdoor trips during the COVID-19 pandemic” with respect to motorcycle ownership. Respondents who do not own a motorcycle show a higher rank ($M = 133.35$) in the distance traveled for primary outdoor trips before the COVID-19 pandemic than respondents who own a motorcycle ($M = 127.94$). The value of the Mann–Whitney test is 2022.000, which shows that the obtained difference is not statistically significant ($z = -0.285$, $p > 0.05$). Also, respondents who do not own a motorcycle show a higher rank ($M = 133.25$) in the distance traveled for primary outdoor trips during the COVID-19 pandemic compared to respondents who own a motorcycle ($M = 129.32$). The value of the Mann–Whitney test is 2045.500, which shows that the obtained difference is not statistically significant ($z = -0.207$, $p > 0.05$).

Table 31. Descriptive statistics and Mann–Whitney test: distance traveled, by motorcycle ownership.

Ranks				
	Do You Own a Motorcycle?	N	Mean Rank	Sum of Ranks
Distance traveled for primary outdoor trips before the COVID-19 pandemic	YES	17	127.94	2175.00
	NO	248	133.35	33,070.00
	Total	265		
Distance traveled for primary outdoor trips during the COVID-19 pandemic	YES	17	129.32	2198.50
	NO	248	133.25	33,046.50
	Total	265		
	Distance traveled for primary outdoor trips before the COVID-19 pandemic		Distance traveled for primary outdoor trips during the COVID-19 pandemic	
Mann–Whitney U	2022.000		2045.500	
Wilcoxon W	2175.000		2198.500	
Z	−0.285		−0.207	
Asymp. Sig. (two-tailed)	0.775		0.836	

Grouping Variable: Do you own a motorcycle? Source: Research results, 2022.

Table 32 shows the descriptive statistics and Mann–Whitney test for the variables “Number of primary outdoor trips per week before the COVID-19 pandemic” and “Number of primary outdoor trips per week during the COVID-19 pandemic” with respect to motorcycle ownership. Respondents who own a motorcycle show a higher rank ($M = 138.47$) regarding the number of primary outdoor trips before the COVID-19 pandemic than respondents who do not own a motorcycle ($M = 132.63$). The value of the Mann–Whitney test is 2015.000, which shows that the obtained difference is not statistically significant ($z = -0.353$, $p > 0.05$). Also, respondents who own a motorcycle show a higher rank ($M = 140.26$) regarding the number of primary outdoor trips during the COVID-19 pandemic than respondents who do not own a motorcycle ($M = 132.50$). The value of the Mann–Whitney test is 1984.500, which shows that the obtained difference is not statistically significant ($z = -0.444$, $p > 0.05$).

Table 32. Descriptive statistics and Mann–Whitney test: number of outdoor trips, by motorcycle ownership.

Ranks				
	Do You Own a Motorcycle?	N	Mean Rank	Sum of Ranks
Number of primary outdoor trips per week before the COVID-19 pandemic	YES	17	138.47	2354.00
	NO	248	132.63	32,891.00
	Total	265		
Number of primary outdoor trips per week during the COVID-19 pandemic	YES	17	140.26	2384.50
	NO	248	132.50	32,860.50
	Total	265		
	Number of primary outdoor trips per week before the COVID-19 pandemic		Number of primary outdoor trips per week during the COVID-19 pandemic	
Mann–Whitney U	2015.000		1984.500	
Wilcoxon W	32,891.000		32,860.500	
Z	−0.353		−0.444	
Asymp. Sig. (two-tailed)	0.724		0.657	

Grouping Variable: Do you own a motorcycle? Source: Research results, 2022.

Table 33 shows the statistical significance of the influence of socio-demographic factors (gender, employment, and car ownership) on the distance traveled per week before the COVID-19 pandemic, while during the COVID-19 pandemic, it shows statistical significance for the following socio-demographic factors: employment and car ownership. In the case of age and owning a motorcycle, no statistical significance of the influence on the weekly distance traveled was established.

Table 34 confirms that the group statistics of the influence of socio-demographic factors on the number of primary outdoor trips per week before and during the COVID-19 pandemic did not show statistical significance.

From Table 35, it can be concluded that, before COVID-19, there was only a statistically significant relationship between age and monthly household income, as well as between age and the number of people in the household.

Table 36 shows that, during COVID-19, there was a statistically significant relationship between age and monthly household income, age, and the number of people in the household. Then, a statistically significant relationship was established between monthly household income (BAM) and distance traveled for primary outdoor trips during COVID-19, as well as the number of primary outdoor trips per week during COVID-19. A statistically significant association was also found between the distance traveled for primary outdoor trips during COVID-19 and the number of primary outdoor trips per week during COVID-19.

Table 33. Group statistics of the influence of socio-demographic factors on the distance traveled per week before and during the COVID-19 pandemic.

Group Statistics					
Distance Traveled per Week before the COVID-19 Pandemic Group		Mean Rank	Mann–Whitney ^a Wilcoxon-Rank ^b	z	p
Gender	Male	117.43	6573.500 ^a	−2.488	0.013
	Female	141.56			
Employment	Student	141.98	12.576 ^b		0.006
	Employed	135.68			
	Pensioner	74.35			
	Other	117.44			
Car ownership	YES	140.57	5877.500 ^a	−2.526	0.012
	NO	114.85			
Motorcycle ownership	YES	127.94	2022.000 ^a	−0.285	0.775
	NO	133.35			
Group Statistics					
Distance traveled per week during the COVID-19 pandemic group		Mean Rank	Mann–Whitney ^a Wilcoxon-rank ^b	z	p
Gender	Male	121.57	6963.000 ^a	−1.821	0.069
	Female	139.28			
Employment	Student	138.65	12.396 ^b		0.006
	Employed	138.34			
	Pensioner	73.38			
	Other	118.18			
Car ownership	YES	141.84	5640.500 ^a	−2.941	0.003
	NO	111.81			
Motorcycle ownership	YES	129.32	2045.500 ^a	−0.207	0.836
	NO	133.25			

^a Mann–Whitney; ^b Wilcoxon–Rank Source: Research results, 2022.

Table 34. Group statistics of the influence of socio-demographic factors on the number of primary outdoor trips per week before and during the COVID-19 pandemic.

Group Statistics					
Number of Primary Outdoor Trips per Week before the COVID-19 Pandemic Group		Mean Rank	Mann–Whitney ^a Wilcoxon-Rank ^b	z	p
Gender	Male	138.73	7498.000 ^a	−1.049	0.294
	Female	129.85			
Employment	Student	133.25	0.286 ^b		0.963
	Employed	132.41			
	Pensioner	128.76			
	Other	140.24			
Car ownership	YES	132.32	7166.000 ^a	−0.260	0.795
	NO	134.63			
Motorcycle ownership	YES	138.47	2015.000 ^a	−0.353	0.724
	NO	132.63			
Group statistics					
Number of primary outdoor trips per week during the COVID-19 pandemic group		Mean Rank	Mann–Whitney ^a Wilcoxon-rank ^b	z	p
Gender	Male	135.62	7791.000 ^a	−0.453	0.651
	Female	131.56			
Employment	Student	127.56	2.288 ^b		0.515
	Employed	137.12			
	Pensioner	120.47			
	Other	146.85			
Car ownership	YES	141.84	6331.000 ^a	−1.858	0.063
	NO	111.81			
Motorcycle ownership	YES	140.26	1984.500 ^a	−0.444	0.657
	NO	132.50			

^a Mann–Whitney; ^b Wilcoxon-Rank Source: Research results, 2022.

Table 35. Correlation analysis before COVID-19.

Spearman's Correlations—Before COVID-19						
	Age		Monthly Household Income (BAM)	Number of Household Members	Distance Traveled for Primary Outdoor Trips before the COVID-19 Pandemic	Number of Primary Outdoor Trips per Week before COVID-19
Age	Correlation Coefficient	1.000	0.173 **	−0.284 **	−0.062	−0.011
	Sig. (two-tailed)		0.005	0.000	0.311	0.859
	N	265	265	265	265	265
Monthly household income (BAM)	Correlation Coefficient		1.000	0.004	0.091	0.127 *
	Sig. (two-tailed)			0.949	0.138	0.039
	N		265	265	265	265
Number of household members	Correlation Coefficient			1.000	0.016	0.048
	Sig. (two-tailed)				0.798	0.432
	N			265	265	265
Distance traveled for primary outdoor trips before the COVID-19 pandemic	Correlation Coefficient				1.000	0.110
	Sig. (two-tailed)					0.073
	N				265	265
Number of primary outdoor trips per week before the COVID-19 pandemic	Correlation Coefficient					1.000
	Sig. (two-tailed)					
	N					265

** Correlation is significant at the 0.01 level (two-tailed). * Correlation is significant at the 0.05 level (two-tailed). Source: Research results, 2022.

Table 36. Correlation analysis during COVID-19.

Spearman's Correlations—During COVID-19						
	Age		Monthly Household Income (BAM)	Number of Household Members	Distance Traveled for Primary Outdoor Trips during the COVID-19 Pandemic	Number of Primary Outdoor Trips per Week during COVID-19
Age	Correlation Coefficient	1.000	0.173 **	−0.284 **	−0.080	0.022
	Sig. (two-tailed)		0.005	0.000	0.194	0.725
	N	265	265	265	265	265
Monthly household income (BAM)	Correlation Coefficient		1.000	0.004	0.188 **	0.185 **
	Sig. (two-tailed)			0.949	0.002	0.002
	N		265	265	265	265
Number of household members	Correlation Coefficient			1.000	−0.015	0.040
	Sig. (two-tailed)				0.812	0.518
	N			265	265	265
Distance traveled for primary outdoor trips during the COVID-19 pandemic	Correlation Coefficient				1.000	0.182 **
	Sig. (two-tailed)					0.003
	N				265	265
Number of primary outdoor trips per week during the COVID-19 pandemic	Correlation Coefficient					1.000
	Sig. (two-tailed)					
	N					265

** Correlation is significant at the 0.01 level (two-tailed). Source: Research results, 2022.

From the correlation Table 37, it can be seen that, before COVID-19, only the relationship between monthly household income and the number of primary outdoor trips ($r = 0.127$, $p < 0.05$) was statistically significant, while during COVID-19, there was a statistically significant relationship between monthly household income and distance traveled ($r = 0.188$, $p < 0.01$), as well as the number of primary outdoor trips ($r = 0.185$, $p < 0.01$).

Table 37. Correlation of distance traveled and number of primary outdoor trips before and during the COVID-19 pandemic.

Spearman's Correlation Coefficient				
Before COVID-19				
	Distance Traveled		Number of Primary Trips	
	r	p	r	p
Age	−0.062	0.311	−0.011	0.859
Monthly household income (BAM)	0.091	0.138	0.127 *	0.039
Number of household members	0.016	0.798	0.048	0.432
During COVID-19				
	Distance traveled		Number of primary trips	
	r	p	r	p
Age	−0.080	0.194	0.022	0.725
Monthly household income (BAM)	0.188 **	0.002	0.185 **	0.002
Number of household members	−0.015	0.812	0.040	0.518

** Correlation is significant at the 0.01 level (two-tailed). * Correlation is significant at the 0.05 level (two-tailed). Source: Research results, 2022.

From Table 38 it can be concluded that there were no significant changes in the mode of transportation before and during COVID-19. Most of the respondents used a private car as a means of transportation; before COVID-19, it was 160 (60.4%), and during COVID-19, it was 164 (61.9%).

Table 38. Mode of transportation for primary outdoor trips before and during COVID-19.

	Before COVID-19		During COVID-19	
	Observed N	Percent	Observed N	Percent
Nothing/I did not travel	5	1.8	13	4.9
Public transportation	56	21.1	37	13.9
Private car	160	60.4	164	61.9
Company car	6	2.3	8	3.0
Taxi	3	1.1	3	1.1
Motorcycle	3	1.1	1	0.4
Bike	7	2.6	11	4.2
Walking	25	9.4	28	10.6
Total	265	100.0	265	100.0

Source: Research results, 2022.

A post hoc McNemar test was applied in Table 39 to determine possible individual changes in the mode of transportation for primary outdoor trips before and during COVID-19, which showed that the primary mode of transportation changed statistically significantly ($p < 0.001$) from using public transportation to using a private car: out of 50 respondents who used public transportation before COVID-19, 15 (30%) started using a private car during COVID-19, while out of 147 respondents who used a private car before COVID-19, only 1 (0.7%) started using public transportation during COVID-19.

Table 39. Mode of transportation for primary outdoor trips before and during the COVID-19 pandemic (public transportation and private car).

McNemar Test					
		Mode of Transportation for Primary Outdoor Trips during the COVID-19 Pandemic		Total	<i>p</i>
		Public Transportation	Private Car		
Mode of transportation for primary outdoor trips before the COVID-19 pandemic	Public transportation	35	15	50	0.001
	Private car	1	146	147	
Total		36	161	197	

Source: Research results, 2022.

On the other hand, Table 40 shows that the primary mode of transportation did not change statistically significantly ($p > 0.05$) from using a private car to walking: out of 150 respondents who used a private car before COVID-19, 5 (3.0%) started using one during COVID-19, while out of 22 respondents who used to walk before COVID-19, only 1 (4.5%) started using a private car during COVID-19.

Also, from Table 41 it can be concluded that the primary mode of transportation did not change statistically significantly ($p > 0.05$) from using public transportation to walking: out of 36 respondents who used public transportation before COVID-19, only 1 (2.8%) started using it during COVID-19, while of the 21 respondents who used walking before COVID-19, none started using public transportation during COVID-19.

Table 40. Mode of transportation for primary outdoor trips before and during the COVID-19 pandemic (private car and walking).

		McNemar Test			
		Mode of Transportation for Primary Outdoor Trips during the COVID-19 Pandemic		Total	<i>p</i>
		Private Car	Walking		
Mode of transportation for primary outdoor trips before the COVID-19 pandemic	Private car	145	5	150	0.219
	Walking	1	21	22	
Total		36	146	26	172

Source: Research results, 2022.

Table 41. Mode of transportation for primary outdoor trips before and during the COVID-19 pandemic (public transportation and walking).

		McNemar Test			
		Mode of Transportation for Primary Outdoor Trips during the COVID-19 Pandemic		Total	<i>p</i>
		Public Transportation	Walking		
Mode of transportation for primary outdoor trips before the COVID-19 pandemic	Public transportation	35	1	36	1.000
	Walking	0	21	21	
Total		35	22	57	

Source: Research results, 2022.

5. Discussion

The results provided answers to the research questions:

- Has the COVID-19 pandemic affected the change in behavior related to traveling to-work?
- Most respondents (51.3%) state that nothing has changed, while the rest (48.7%) state that the COVID-19 pandemic has influenced a change in behavior when traveling to work. Given that it is slightly less than 50% of the respondents, it can be concluded that the pandemic influenced behavior changes, which agrees with studies by [6,39].
- What is the primary purpose of travel before and during the COVID-19 pandemic, and is there a change in the primary purpose of travel?

The primary purpose of travel before and during the COVID-19 pandemic is social activities. The most significant change is reflected in a decrease in social activities (from 34.0% to 26.0%) and an increase in recreational sports activities (from 5.3% to 9.8%), while other activities remained proportionally the same before and during the COVID-19 pandemic. There is also a noticeable decrease in the social activities of women before and during the COVID-19 pandemic (from 35.7% to 24.6%), as well as a decrease in the social activities of respondents aged 31–50 before and during the COVID-19 pandemic (from 30.9% to 20.2%). Comparing social activities with shopping, recreation, sports, or “other” shows a statistically significant change in the primary purpose of travel ($p < 0.01$). Of the 73 respondents who primarily traveled for social activities, as many as 52 (71.2%) of them primarily started traveling during COVID-19 for shopping, recreation, sports, or other reasons, while of the 52 respondents who, before COVID-19, primarily traveled for shopping, recreation, sports, or “other”, 47 (90.3%) started traveling primarily for social activities. It can be concluded that there are changes in the purpose of travel before and during the COVID-19 pandemic. Ref. [39] states that most of the travel is carried out for the purposes of shopping, and the number of trips made for other reasons, such as commuting

or leisure, is significantly reduced, which was confirmed by this study. Ref. [6] explained, in their study, that the purpose of travel, the mode of transportation, the frequency of travel for primary purposes, and the distance traveled differed significantly during and before the COVID-19 pandemic. Furthermore, during the pandemic, the most common trips are shopping, which is in agreement with this research, given the fact that the results of this study showed that a number of respondents who primarily traveled for shopping, recreation, sports, or “other” before COVID-19, as many as 90.3%, started traveling primarily for social activities.

What distance is traveled for primary outdoor trips before and during the COVID-19 pandemic? What is the number of primary weekly outdoor trips before and during the COVID-19 pandemic? What is the influence of socio-demographic factors on the distance traveled and the number of trips for the primary purpose before and during the COVID-19 pandemic? Is there a significant correlation between socio-demographic factors and the number of trips for the primary purpose before and during the COVID-19 pandemic?

The average distance traveled for primary outdoor trips before the COVID-19 pandemic is greater than that for primary outdoor trips during the COVID-19 pandemic, and the resulting difference is statistically significant. The results are in agreement with previous studies that showed that subjects significantly reduced their traveled distance during COVID-19 [6,44]. In a study conducted in Switzerland, [44] reported that the mean daily travel distance varied between 0 km and 10 km while travel bans were in force, i.e., between 15 March and 30 April 2020. In this study, the average number of primary outdoor trips per week before the COVID-19 pandemic is higher than the average number during the pandemic, and the obtained difference is statistically significant at the 0.01 level ($z = -4.191$, $p < 0.01$).

As for the influence of socio-demographic factors on the distance traveled, the research results show that female respondents show a higher rank ($M = 141.56$) in the distance traveled for primary outdoor trips before the pandemic compared to male respondents ($M = 117.43$). The value of the Mann–Whitney test shows that the obtained difference is statistically significant. Also, the χ^2 -test indicates a statistically significant difference in the mode of transportation for primary outdoor trips with regard to owning or not owning a car ($p < 0.01$), but there is no significant impact of COVID-19. This finding is consistent with the study by [6], who concluded that, prior to the COVID-19 pandemic, people who did not own cars traveled significantly less distance for the primary purpose of travel than those who owned a car. But during the COVID-19 pandemic, car ownership did not significantly affect the distance traveled for the primary purpose of travel. The distance traveled for primary outdoor trips before and during the COVID-19 pandemic with regard to employment shows that the highest rank ($M = 141.98$) of the distance traveled for primary outdoor trips before the COVID-19 pandemic is demonstrated by students, while the lowest rank is shown by pensioners ($M = 74.35$), and the obtained difference is statistically significant. Also, students ($M = 138.65$) and employed persons ($M = 138.34$) show the highest ranks in the distance traveled for primary outdoor trips during the COVID-19 pandemic, while the lowest ranks are shown by pensioners ($M = 73.38$), and the difference obtained is statistically significant. The results related to the number of primary outdoor trips per week before and during the COVID-19 pandemic with regard to employment show that the highest rank ($M = 140.24$) in terms of the number of primary outdoor trips per week before the COVID-19 pandemic is shown by respondents in the occupation category “Other”, while the lowest rank is shown by pensioners ($M = 128.76$). Also, the highest rank ($M = 146.85$) in terms of the number of primary outdoor trips per week during the COVID-19 pandemic is shown by respondents in the occupation category “Other”, while the lowest rank is shown by pensioners ($M = 120.47$). However, the mentioned differences are not statistically significant. These findings are consistent with the results of several previous studies that mentioned that older travelers (in this case, pensioners) travel less compared to younger ones (students, employed persons, etc.) [21,22]. Respondents who own a car show a higher rank ($M = 140.57$) in the distance traveled for

primary outdoor trips before the COVID-19 pandemic than respondents who do not own a car ($M = 114.85$). Also, respondents who own a car show a higher rank ($M = 141.84$) in the distance traveled for primary outdoor trips during the COVID-19 pandemic than respondents who do not own a car ($M = 111.81$). The obtained differences are statistically significant. Respondents who do not own a car show a higher rank ($M = 134.63$) regarding the number of primary outdoor trips before the COVID-19 pandemic than respondents who own a car ($M = 132.32$). On the other hand, respondents who own a car show a higher rank ($M = 138.14$) for the number of primary outdoor trips during the COVID-19 pandemic compared to respondents who do not own a car ($M = 120.67$). The obtained differences are not statistically significant. Respondents who do not own a motorcycle show a higher rank ($M = 133.35$) in the distance traveled for primary outdoor trips before the COVID-19 pandemic than respondents who own a motorcycle ($M = 127.94$). The situation was the same during the COVID-19 pandemic; however, the obtained differences are not statistically significant. Respondents who own a motorcycle show a higher rank ($M = 138.47$) regarding the number of primary outdoor trips before the COVID-19 pandemic than respondents who do not own a motorcycle ($M = 132.63$). Also, respondents who own a motorcycle show a higher rank ($M = 140.26$) regarding the number of primary outdoor trips during the COVID-19 pandemic than respondents who do not own a motorcycle ($M = 132.50$). The obtained differences are not statistically significant.

The results show the statistical significance of the influence of socio-demographic factors (gender, employment, and car ownership) on the distance traveled per week before the COVID-19 pandemic, while during the COVID-19 pandemic, they show statistical significance for the following socio-demographic factors: employment and car ownership, while in the case of age and owning a motorcycle, no statistical significance of the influence on the weekly distance traveled was established. Previous studies have found that male respondents traveled significantly longer distances for primary travel purposes during COVID-19 [6,44], which is inconsistent with this research. The study results show that the group statistics of the influence of socio-demographic factors on the number of primary outdoor trips per week before and during the COVID-19 pandemic did not show statistical significance.

From the obtained results, it can be concluded that there was only a statistically significant relationship between age and monthly household income, as well as between age and the number of people in the household before COVID-19. The results show a statistically significant relationship between age and monthly household income, age, and the number of people in the household during COVID-19. A statistically significant association was also found between monthly household income (BAM), the distance traveled for primary outdoor trips during COVID-19, and the number of primary outdoor trips per week during COVID-19. A statistically significant association was also found between the distance traveled for primary outdoor trips during COVID-19 and the number of primary outdoor trips per week during COVID-19. The correlation table shows that, before COVID-19, the only statistically significant relationship exists between monthly household income and the number of primary outdoor trips ($r = 0.127$, $p < 0.05$), while during COVID-19, there was a statistically significant relationship between monthly household income and distance traveled ($r = 0.188$, $p < 0.01$), as well as the number of primary trips outdoors ($r = 0.185$, $p < 0.01$). Ref. [6] state that the correlation between the number of people in the household and trips made for the primary purpose during COVID-19 was not significant. Furthermore, weak correlations were observed between age, education, and the number of trips for the primary purpose before COVID-19. However, they were not significant during COVID-19. All other correlations in the study were very weak. The results of the study are not in agreement with this research. Gender, car ownership, work status, travel distance, and the primary purpose of travel have been shown to be significant predictors of the choice of the mode of transportation during the COVID-19 pandemic [6], which is in agreement with this research.

- What mode of transportation was used for primary outdoor trips before and during the COVID-19 pandemic, and is there a change in the mode?
- There were no significant changes in the mode of transportation before and during COVID-19. The largest number of respondents used a private car as a means of transportation, namely, 160 (60.4%) before COVID-19 and 164 (61.9%) during COVID-19.
- Has the mode of transportation changed for primary outdoor trips during the COVID-19 pandemic for people who own a car, and has the mode of transportation changed for primary outdoor trips during the COVID-19 pandemic for people who do not own a car?

The results showed that the primary mode of transportation changed statistically significantly ($p < 0.001$) from the use of public transportation to the use of a private car: of the 50 respondents who used public transportation before COVID-19, 15 (30%) started using a private car during COVID-19, while out of 147 respondents who used a private car before COVID-19, only 1 (0.7%) started using public transportation during COVID-19. These results agree with previous studies showing that people avoid public transportation during a pandemic [17,39,45–48]. On the other hand, the primary mode of transportation did not change statistically significantly ($p > 0.05$) from using a private car to walking: out of 150 respondents who used a private car before COVID-19, 5 (3.0%) started walking during COVID-19, while out of 22 respondents who used to walk before COVID-19, only 1 (4.5%) started using a private car during COVID-19. Also, the primary mode of transportation did not change statistically significantly ($p > 0.05$) from using public transportation to walking: out of 36 respondents who used public transportation before COVID-19, only 1 (2.8%) started walking during COVID-19, while of the 21 respondents who walked before COVID-19, none started using public transportation during COVID-19. These results are inconsistent with a study that showed that, during COVID-19, walking (as a primary mode of transportation) increased by 7% compared to pre-COVID periods [6].

A national survey was conducted in the US to investigate public opinion on community-based influenza mitigation measures. In the study, 89% of survey participants believe that the use of public transport (trains and buses) should be limited [52]. Also, 85% of them stated that they would not allow their children to use public transportation and perform activities outside the home, such as social gatherings and public events while schools are closed. Ref. [53] conducted a qualitative study using interviews and focus groups aimed at health personnel. Several survey participants indicated they used public transportation less, and more people were willing to travel to work by private car. Ref. [6] state in the study that there has been a significant shift from public transportation to private transportation and non-motorized modes of operation. The mentioned research is in agreement with this research because the study showed that the primary mode of transportation changed statistically significantly from the use of public transportation to the use of a private car.

6. Conclusions

The results show that the COVID-19 pandemic has influenced a change in behavior when traveling to work. The primary purpose of travel before and during the COVID-19 pandemic is social activities. The most significant change in the primary purpose of travel before and during the COVID-19 pandemic is reflected in a decrease in social activities and an increase in recreational sports activities, while other activities remained proportionally the same before and during the COVID-19 pandemic. The average distance traveled for primary outdoor trips before the COVID-19 pandemic is greater than that for primary outdoor trips during the COVID-19 pandemic. The distance traveled for primary outdoor trips before and during the COVID-19 pandemic with regard to employment as a socio-demographic factor shows that the highest rank ($M = 141.98$) of the distance traveled for primary outdoor trips before the COVID-19 pandemic is demonstrated by students, while pensioners show the lowest rank. Also, the highest ranks of distance covered for primary outdoor trips during the COVID-19 pandemic are demonstrated by students and employees, while pensioners show the lowest rank. Respondents who own a car show

a higher rank ($M = 140.57$) in the distance traveled for primary outdoor trips before the COVID-19 pandemic compared to respondents who do not have a car. Also, respondents who own a car show a higher rank of distance traveled for primary outdoor trips during the COVID-19 pandemic compared to respondents who do not have a car.

The results show the statistical significance of the influence of socio-demographic factors (gender, employment, and car ownership) on the distance traveled per week before the COVID-19 pandemic, while during the COVID-19 pandemic, it shows statistical significance for the following socio-demographic factors: employment and car ownership, while in the case of age and owning a motorcycle, no statistical significance of the influence on the weekly distance traveled was established. Most of the respondents used a private car as a means of transportation. The results showed that the primary mode of transportation changed statistically significantly from the use of public transportation to the use of a private car.

There were several limitations with this study. First, data were collected in Bosnia and Herzegovina, and at the time of the survey, it had certain levels of restrictions and percentages of the infected population. These percentages do not have to match the percentages in other countries at the time. Second, people who had access to the Internet, that is, e-mail or the social network Facebook, answered this questionnaire. Thus, generalizing the results for the average population in Bosnia and Herzegovina may not be practical. Also, the reported behavior likely may not truly represent their actual travel behavior, especially before the pandemic. For the above reasons, the recommendation for future research is to increase the size of the sample and its diversity. Also, it is recommended that this and similar research be conducted in several countries so that the results can be compared and the findings can be generalized. The findings of this study could have implications for traffic planning post-COVID but also (and especially) during possible future pandemic situations.

The results of this study could be useful in traffic planning and making various policies during various pandemics based on people's travel needs. In particular, government bodies could use such knowledge to plan partial and smarter lockdowns. Tourism and transport companies could use this information to better plan their services and operations.

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