

# Journal of Geography, Politics and Society 2025, 15(4), 58-69

https://doi.org/10.26881/jpgs.2025.4.07



# SILVER TOURISM DURING THE COVID-19 EPIDEMIC. THE EXAMPLE OF SENIORS **FROM KIELCE**

#### Iwona Kopacz-Wyrwał

Institute of Geography and Environmental Sciences, Faculty of Sciences and Natural Sciences, Jan Kochanowski University in Kielce, Uniwersytecka 7, 25-406 Kielce, Poland, ORCID: 0000-0002-9796-3959 e-mail: iwona.kopacz@ujk.edu.pl

Kopacz-Wyrwał I., 2025, Silver tourism during the COVID-19 epidemic. The example of seniors from Kielce, Journal of Geography, Politics and Society, 15(4), 58-69.

The aim of the article was to examine the specific nature of tourism activity among seniors in Kielce during the COVID-19 epidemic, i.e., from 20 March 2020 to 15 May 2022. The focus was primarily on the motivations, frequency, preferences, and limitations related to engaging in tourism by older adults when the epidemic state was in force in Poland. The article presents the results of a survey conducted in 2024 among seniors in Kielce – individuals aged over 55. The analysis showed that, despite initial concerns about the risk of contracting SARS-CoV-2, seniors were eager to participate in various forms of tourist activity, including using travel agency services. A significant variation in the motivations and preferences for these activities among seniors was also observed, depending on age, education, financial situation, and health condition.

## **Key words**

silver tourism, tourism activity, epidemic, COVID-19, senior.

Received: 30 April 2025 Published: 30 November 2025 Accepted: 08 July 2025

#### 1. Introduction

Over the past few decades, due to civilisational progress, cultural changes, and improved living conditions, the intensity of population ageing has significantly increased (Michalski, Stępień, 2021; Kiniorska et al., 2023). Today, more than one in five people in the European Union (21.6%) is 65 or older. According to Eurostat's demographic forecasts, the proportion of people aged 65 and over in Poland, which amounted to 17% in 2015, is expected to at least double by 2060, reaching 34.5% and becoming one of the highest in the entire European Union (Population Structure..., 2024).

At the same time, life expectancy is increasing while birth rates are declining, intensifying the rapid growth of the proportion of elderly people in the overall population, which is perceived as a social threat. The rise in the number of seniors entails increased spending on medical care, nursing and caregiving services, as well as on social benefits (Michalska-Dudek, Kokoszka-Lassota, 2020). Simultaneously, the labour force is also ageing at an accelerated pace (Szukalski, 2012).

The ageing of societies is thus increasingly impacting global aspects of life such as politics, economy, and culture (Bloom et al., 2011, Kłosowski, 2022). However, alongside the vision of the rising costs of these changes, attention is more and more

being directed toward a more positive approach to the consequences of population ageing (Michalska-Dudek, Kokoszka-Lassota, 2020). These processes are taking place in the world's most developed societies, and, along with bringing cultural changes, they contribute to greater participation of older people in various spheres of life. I. Patterson (2006) described ageing as one of the most significant and visible transformations of the 21st century, affecting all socio-economic sectors. These changes also influence the market of tourism services, where new trends are emerging on both the demand and supply sides, creating conditions for the functioning of tourism economy entities as well as for tourist reception areas (Kiryluk, 2008; Kociszewski, 2021). Within this context lies the concept of active ageing and the idea of the so-called silver economy, which encompasses all activities aimed at meeting the needs arising from ageing of the population. Among these needs, particular emphasis is often placed on health care, ensuring social integration, and organising seniors' time through education, entertainment, recreation, and tourism (Michalska-Dudek, Kokoszka-Lassota, 2020). It is therefore not surprising that travelling of the elderly (silver tourism) is playing an increasingly important role in the tourism sector. Thanks to advances in medicine, seniors are able to stay in good health for longer, while having significant amounts of free time and sufficient financial resources (Hung, Petrick, 2009; Balderas-Cejudo et al., 2016; Zawadka, 2019; Balińska, Wojcieszak-Zbierska, 2020). Unfortunately, silver tourism, despite its tremendous development potential, was severely impacted by the outbreak of the SARS-CoV-2 coronavirus pandemic, which caused major damage to the economy, restricted tourism activity, and posed numerous significant challenges to older people in their daily

Considering the above, the aim of this article is to examine the specifics of senior tourism activity in Kielce during the COVID-19 pandemic, i.e., from 20 March 2020 to 15 May 2022. Particular attention is given to the motivations, frequency, preferences, and limitations related to the participation of the elderly in tourism activities during the state of epidemic in Poland.

Kielce is a city with county rights located in southeastern Poland, with a population of 183,885 at the end of 2022. As the capital of the Świętokrzyskie voivodeship, it is an economic, scientific, and exhibition/trade fair centre. Its location between Cracow and Warsaw increases the development potential of the city; however, being situated between two strong growth poles that offer significantly better educational and career opportunities also results in a loss of human resources and, consequently, population ageing.

## 1.1. Consequences of the COVID-19 epidemic

COVID-19, an infectious disease caused by the SARS-CoV-2 virus, was first identified in Wuhan, China, at the end of December 2019 (Aqeel et al., 2020; Huang et al., 2020). In March 2020, the World Health Organization (WHO) declared a global pandemic, which, within the first quarter of that year alone, had spread to over 200 countries (Haryanto, 2020). In response to the rapid transmission of the virus, governments worldwide implemented a range of restrictions and public health measures. In Poland, a state of epidemic was officially declared on 20 March 2020 by regulation of the Minister of Health (Rozporządzenie..., 2020) at lasted until 15 May 2022.

The COVID-19 pandemic was a shock to all countries and economies worldwide, and the economic crisis it triggered is one of the most significant and unpredictable experiences in recent years (Chen et al., 2020; Zenker, Kock, 2020). It led to the escalation of phenomena on a global scale, incomparable to anything previously known in the history of the world economy. Suffice it to mention that in the second quarter of 2020 alone, the EU's GDP fell by 13.9% year on year, while unemployment rose by 2.7%. Meanwhile, the Polish economy lost 8.1% of its GDP, which was the largest decline since the reforms of Prime Minister Balcerowicz carried out in 1990–1991 (Podsumowanie lockdown-u..., 2021).

The sector that suffered the most from the measures and restrictions introduced during the epidemic was tourism (Madani et al., 2020; Sigala, 2020; Kaushal, Srivastava, 2021). Not only did everyday activities and basic social obligations change, but so did ways of spending and organising free time (Seyfi et al., 2020; Stępień et al., 2021; Druet, 2023; Michalski, 2023). Key factors that directly affected the functioning of the global tourism sector included restrictions on human movement for strictly defined purposes (business, health-related), the suspension of air travel, and the closing of national borders (Wells et al., 2020). As a result of the pandemic, global tourism traffic decreased by 74%, from 1.5 billion international trips in 2019 to 380 million in 2020 (UNWTO, 2021; Wiadomości Turystyczne, 2021). In Poland, the number of tourists also drastically declined: in 2020, less than 19 million tourists used tourist accommodation facilities, which was half as many as the year before (Gruszka, Manczak, 2021). The number of domestic tourists dropped by over 40%, and of international tourists by 70% (Turystyka..., 2021). These figures clearly show that the COVID-19 pandemic caused enormous damage to the market of tourism services (Mendoza, Reinoso, 2020). In the face of such drastic changes, silver tourism seems to present an opportunity for improving the situation of the tourism industry.

### 1.2. Silwer tourism

The topic of senior tourism activity — against the backdrop of a changing demographic structure — is gaining increasing importance. Tourism today is a global phenomenon: according to the data of the United Nations World Tourism Organization (UNWTO), in 2019 the number of participants in international tourism reached 1.5 billion (World Tourism Barometer, 2020). It should be noted, however, that this figure pertains only to international travel, without accounting for domestic trips, which are far more numerous on a global scale (Bigano et al., 2007). Moreover, tourism is no longer perceived as an incidental aspect of human life but rather as a permanent and significant global socio-economic component (Edensor, 2007).

As previously mentioned, over the past several years, the ageing of societies has increasingly influenced tourism on a global scale. It alters the structure of national budget expenditures, affects the models of production and consumption, and impacts social insurance systems (Śniadek, 2007). It also shapes social relations and leisure activities, making the elderly a socially significant group within the market of tourism services (Nimrod, 2008; Glover, Prideaux, 2009; Balderas-Cejudo et al., 2016). It is therefore not surprising that senior tourism (silver tourism) has become a research field that is increasingly reflected in the literature on the subject (Littrell et al., 2004; Patterson, 2006; Le Serre, Chevalier, 2012; Prayag, 2012; Kazeminia et al., 2013; Kim et al., 2015; Nikitina, 2016; Omelan et al., 2016; Zsarnoczky et al., 2016; Kurtulmuşoğluşiyok, 2017; Kurzeja, 2018; Warwas, Wieczorek, 2018; Głąbiński, 2020).

In this article, silver tourism is understood as tourism involving older adults, specifically those over the age of 55. The adoption of this age threshold stems from a temporal demarcation, as, according to many authors, specific age-related needs begin to emerge from this point onward, accompanied by changes in physical condition (Hossain et al., 2003; Walker, 2004; Alcaide-Casado, 2005).

Generally, defining who qualifies as a senior is not an easy task, as there are various perspectives on the issue present in the scientific literature (Śniadek, 2007; Grna, 2015). The most commonly accepted criterion for senior status is the retirement age, though this

approach appears somewhat inadequate since the age of retirement varies not only among countries but also by gender and profession (Sawińska, 2014). For the purposes of scholarly analysis, it is often assumed that a senior is someone who has reached the age of 55. M. C. Walker (2004) identifies four categories of senior age:

- pre-seniors (individuals aged 55–64, i.e., those in the pre-retirement phase or early retirees);
- retirees (aged 65-74);
- older retirees (aged 75–84);
- individuals over the age of 85.

In the broadly understood tourism sector, travelling seniors are generally over the age of 55, and most often still professionally active (Smith, Jenner, 1997). Moreover, considering that participation in tourism is often the result of earlier behaviours such as promoting a healthy lifestyle, a passion for travel, and the pursuit of personal interests, it seems justified to distinguish the group of pre-seniors and classify them as participants in silver tourism.

Research shows that the senior tourism market requires a distinct, specialised approach, as this group has specific needs and expectations (Oleśniewicz, Widawski, 2015; Januszewska, 2017; Markiewicz-Patkowska et al., 2018). Additionally, seniors are perceived as a heterogeneous group, encompassing individuals driven by a variety of motivations. Therefore, the tourism market oriented toward seniors demands a tailored approach, taking into account a range of factors such as age, education, marital status, family and financial situation, health, and prior lifestyle (Grzelak-Kostulska et al., 2011; Balińska, Wojcieszak-Zbierska, 2020). Thus, studying and understanding these interdependencies becomes particularly important.

# 2. Data sources and methods

The primary source material for this article consisted of data on the tourism activity of seniors, obtained through a survey conducted between July and September 2024. The sample was selected purposively - the questionnaires were addressed to individuals over the age of 55 residing in Kielce. Questionnaire interviews were conducted directly by interviewers at the respondents' places of residence. A total of 411 questionnaires were collected, of which 394 (with complete responses) were further analysed.

The survey questionnaire contained 11 questions along with demographics. Most of the questions (82%) were closed-ended, with the option to add a personal response; the remaining 18% were openended, requiring a short written reply and the

expression of personal opinions. The data obtained from the survey were quantitative in nature. In closed-ended questions nominal and ordinal scales were used, which allowed for the calculation of response frequencies (in percentage) for the purposes of this study. The questions referred broadly to the tourism activity of seniors and their travels during a specific period, namely from 20 March 2020 to 15 May 2022. This time frame was deliberately chosen, as it corresponded to the one of the COVID-19 epidemic state in Poland.

Additional source material included data available from the Local Data Bank (2022), published by Eurostat and the Central Statistical Office of Poland (GUS), such as: the population by age groups (over 55) and gender in Kielce in 2022; the population by economic age groups in 2022; the old-age dependency ratio in 2022; and forecasts regarding demographic structure and population ageing for the coming decades. Correlation and regression analysis were also applied to examine the relationships between age, education, financial situation, and health condition and the tourism activity of seniors in Kielce.

#### 3. Results and discussion

According to the data from the end of 2022, the population of Kielce was 183,885 people (98,332 women and 85,553 men), with 50,791 individuals classified as being of post-working age: 33,980 women and 16,811 men. This group represented over one-quarter of the city's total population (27.6%). Notably, there was a high degree of feminisation within this age group among Kielce residents - the number of men of post-working age was only about half that of women. This reflects the national trend of feminisation in ageing (Michalska-Dudek, Kokoszka-Lassota, 2020). According to the data from the GUS, in 2022 the number of post-working age individuals per 100 working-age individuals in Kielce was 49, and the old-age dependency ratio was 38.3 (GUS BDL, 2022).

However, when applying the lower age threshold of 55 years used in the study, seniors accounted for

as much as 36.1% of the city's population — 8.5% more (66,287 individuals: 39,414 women and 26,873 men) than those classified as being of post-working age. Further analysis of the size of specific age groups over 55 years by gender revealed a noticeable «postwar baby boom» generation, characterised by a lower number of individuals aged 55–59 compared to the three older age groups, and a numerical predominance of women over men, which increased with each subsequent age group (Tab. 1).

A detailed analysis showed that in 2022 in Kielce people aged 65-69 formed the largest proportion (21.0%) among seniors (over the age of 55), followed by those aged 70–74 (18.7%), pre-seniors aged 60–64 (18.4%), and those aged 55-59 (15.3%). The smallest group consisted of individuals over the age of 85 (7.3%). A similar trend was observed among senior women, with the following distribution: 20.7% (65-69 years), 19.3% (70-74 years), and 17.3% (60-64 years), although in this case, the smallest was the group of women aged 80-84 (8.3%). The situation among men was slightly different: the largest group was also formed of seniors aged 65-69 (21.6%), but the second largest group consisted of pre-seniors aged 60-64 (19.9%), followed by those aged 70-74 (18.0%), with the smallest group including individuals over 85 years old (5.6%).

As mentioned earlier, the basis for the analysis was a survey conducted among 394 individuals aged 55 and over, who were permanent residents of Kielce. Women predominated among the respondents, accounting for 59.2% of the surveyed population. The average age of respondents was 67 years. The largest share of participants were aged 65–74 (43.3%), followed by those aged 55–64 (39.6%), then 75-84 (11.8%), and finally those over 85 years of age (5.3%) (Tab. 2). Among the respondents, those in a civil union predominated (Tab. 2), making up 59.8% of the participants. The next largest group consisted of widowed individuals (27.3%), followed by divorced individuals (7.8%), while the smallest group was composed of single individuals (5.1%). In the surveyed sample, respondents with secondary education predominated (38.7%) followed by those

Tab. 1. Seniors by age group (over 55) and gender in Kielce in 2022

People		Age group								
		55-59	60-64	65-69	70-74	75-79	80-84	85 and more	Total	
	total	10141	12181	13948	12422	7848	4909	4838	66287	
Gender	men	4707	5355	5792	4834	3043	1636	1506	26873	
	women	5434	6826	8156	7588	4805	3273	3332	39414	

Source: own elaboration based on data from the GUS (2020).

Tab. 2. Respondents' sociodemographic characteristics

Age group								
Age group	55-64	65-74	75-84	85 and more	Total			
People	156	171	46	21	394			
%	39,6	43,3	11,8	5,3	100%			
Age group								
Marital status	Married	Widow/Widower	Divorced	Single	- Total			
People	236	107	31	20	394			
%	59,8	27,3	7,8	5,1	100%			
Age group								
Education	Primary	Secondary	Vocational	Higher	Total			
People	56	153	110	75	394			
%	14,3	38,7	27,9	19,1	100%			
Age group								
Occupational structure	Retiree	Retiree/ Working pensioner	Employed	Pensioner	Total			
People	246	59	50	39	394			
%	62,5	15,1	12,6	9,8	100%			

Source: Own elaboration based on survey.

with vocational education (27.9%). One-fifth of the respondents had higher education, while the remaining 14.3% had primary education (Tab. 2).

In terms of professional activity, the largest group was made up of retirees (62.5%) (Tab. 2). The next largest group consisted of retirees and pensioners earning side money (15.1%), followed by seniors who were still employed (12.6%), with the smallest group being pensioners (9.8%).

Participation in tourism and travelling are often linked to the financial situation of the participants. This subjective factor is especially important for trip planning. Therefore, respondents were asked to assess their financial situation (Fig. 1). The vast majority of seniors described it as good (61.6%). Nearly one-third of the respondents rated it as very good (15.5%) and

average (14.7%). Only a few individuals described their financial situation as bad (5.0%) or very bad (3.2%).

Given that the majority of seniors assess their financial situation very positively, it can be concluded that they possess sufficient financial resources to undertake tourist trips.

Information about the health status of the elderly is also important for research on senior tourism. 43.3% of the respondents rated their health as good, 28.9% as average, and 12.1% as very good. It is encouraging to note that only 15.7% of seniors rated their health as bad or very bad (Fig. 2). This is particularly significant because poor health is often mentioned as one of the main barriers hindering the development of senior tourism.

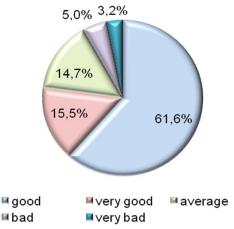


Fig. 1. Financial situation of respondents'. Source: Own elaboration based on survey.

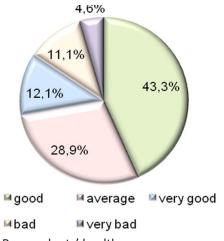


Fig. 2. Respondents' health. Source: Own elaboration based on survey.

Respondents were also asked about their preferred forms (max. 3) of active leisure during the COVID-19 epidemic in Poland, i.e., from 20 March 2020 to 15 May 2022 (Fig. 3). The analysis shows that the most popular activity during this period was walking in the immediate vicinity (51.3% of all responses). This response was most frequently provided by respondents with a secondary education and good health condition.

The second most popular activity was gardening (34.9%), while one in five respondents selected sightseeing trips (21.6%). A significant number of respondents also preferred leisure trips (17.6%), closely followed by cycling (17.5%). In this case, those with good or average health predominated. Seniors also increasingly listed Nordic walking

(14.6%) as a form of active leisure (this activity has become popular not only among older adults, but also among younger generations) along with playing with grandchildren (12.2%), mountain hiking (8.1%), skiing (7.8%), and swimming (6.9%). As before, these activities were primarily chosen by individuals with good, very good, or average health. Participation in pilgrimages was declared by 5.5% of respondents, while the least frequently chosen option was visiting museums and galleries (4.4%), which most likely corresponds to the fact that access to such venues was limited or impossible during the period in question. Seniors were also invited to list their own preferred forms of active leisure during the COVID-19 epidemic: 2.0% indicated fishing, while 1.3% of respondents mentioned outdoor gym workouts.

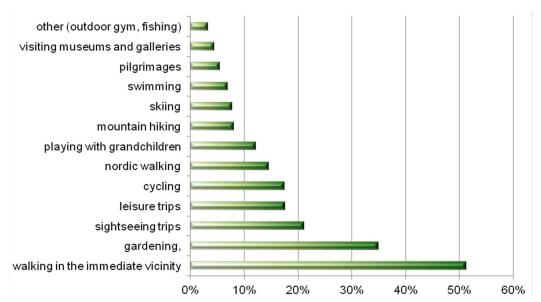


Fig. 3. Preferred forms of active leisure of Kielce seniors during the COVID-19 epidemic. Source: Own elaboration based on survey.

More than half of the seniors, when asked about their motives for engaging in tourism activities during the COVID-19 epidemic (max. 3), most often selected escaping from civilisation and returning to nature (54.3% of all responses), as well as the renewal of physical strength and improvement of health (47.2%), an understandable and natural indication during this particular time (Fig. 4). These responses were given by individuals across all age groups, most frequently by those with secondary or higher education and characterised by good or very good financial situation. In the third place, despite recommendations to stay at home and maintain social distancing, was the need to visit close family (42.8%), followed by relaxation and leisure (37.5%), and the renewal of mental and spiritual strength (29.9%). These latter responses were most often provided by individuals aged 65-74 (114 people) and 75-84 (28 people), which reflects

a broader trend of seeking to make up for the time lost in earlier phases of life, typically perceived as periods dominated by daily routines between home and workplace (Oleśniewicz, Widawski, 2015). The results obtained confirm that the surveyed seniors perceive this stage of their lives as an opportunity to accumulate new experiences and to fulfill the need for self-care. Therefore, the next most frequently selected responses were: pursuing personal passions (29.1%), dedicating time to own interests, and the need to experience something new (25.0%) – choices most often made by single individuals with secondary or higher education. This leads to the conclusion that older people are increasingly active, open, and curious about the world, they pursue their passions and hobbies not only individually but also collectively through clubs, associations, or universities of the third age (Landsberg et al., 2012; Oleśniewicz, Widawski,

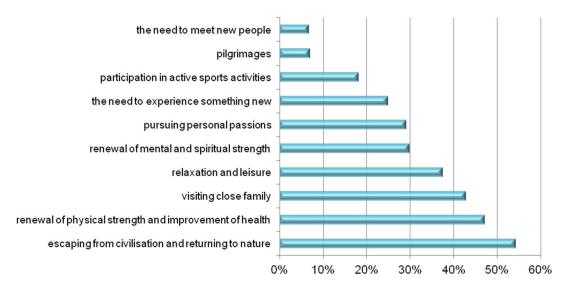


Fig. 4. Motives for undertaking tourist activity by Kielce seniors during the COVID-19 epidemic. Source: Own elaboration based on survey.

2015). Participation in sports activities was indicated by 18.2% of respondents, participation in pilgrimages by 7.1%, and slightly fewer (6.9%) pointed to the need to meet new people.

Taking the above into account, it is worth examining the specifics of older adults travelling during the period of the COVID-19 epidemic in Poland. Respondents were asked how many times, between 20 March 2020 and 15 May 2022, they travelled for a minimum of two days (with at least one overnight stay) outside their place of permanent residence. The results were quite surprising: it turned out that the vast majority of seniors (86.3%) undertook such trips during the epidemic (Fig. 5). These findings were consistent with the research conducted in April 2020 among Polish travellers, and showing that 79.8% of respondents planned a tourist trip despite being aware of the risks associated with the pandemic (more than 90% of the Poles..., 2020). Nearly half of the respondents travelled once (46.4%), 27.1% travelled two or three times, 7.7% travelled four to five times, and 5.1% of older individuals made more than five trips during the

analysed time span. Only 13.7% of those surveyed did not travel at all during the epidemic. An analysis of the responses showed that those who travelled four or more times were mainly pre-seniors (23 people) and younger seniors (41 people) in good health and financial condition.

More than half of the respondents travelled for leisure (31.2%) and health-related purposes (21.3%), while 16.2% indicated that the main reason for their trips was visiting relatives or friends (Fig. 6). Educational or sightseeing purposes accounted for 11.8% of the trips, and slightly fewer respondents (9.2%) stated that their travel was mainly work-related. Religious purposes were the primary motivation for 7.6% of the seniors.

When choosing trips of a typically touristic nature (leisure, health-related, or educational), seniors, quite understandably during the epidemic, most often stayed with family and friends (37.1%), which is not an option taken into account by the official GUS statistics (Fig. 7). Second were stays at agritourism farms (19.5%), closely followed by hotels, motels,

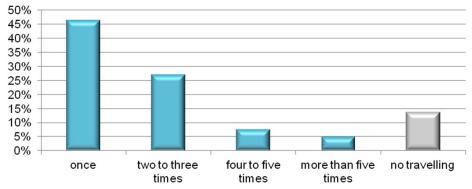


Fig. 5. Frequency of trips of Kielce seniors (min. 2 days with at least one overnight stay) outside their place of permanent residence during the COVID-19 epidemic.

Source: Own elaboration based on survey.

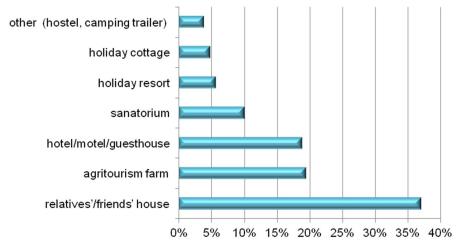


Fig. 6. The main purpose of Kielce seniors' trips during the COVID-19 epidemic. Source: Own elaboration based on survey.

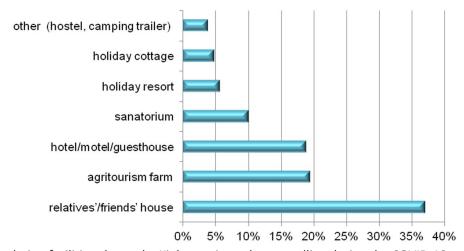


Fig. 7. Accommodation facilities chosen by Kielce seniors when travelling during the COVID-19 epidemic. Source: Own elaboration based on survey.

and guesthouses (18.9%). Accommodation in holiday resorts or sanatorium facilities was preferred by a total of 15.8% of respondents, while 4.8% opted for holiday cottages. Seniors also made use of hostels and camping trailers, although these responses were very rare (2.1% and 1.8%, respectively). This suggests that during their travels amid the COVID-19 epidemic, seniors primarily chose accommodations that allowed them to minimise contact with other people, something not always possible in hotels, resorts, or health facilities (due to the necessity to use shared spaces like canteens, corridors, elevators, medical treatment rooms, etc.). A similar trend was observed among residents of the United States, where a survey conducted by Destination Analysts in June 2020 indicated that 37.7% of respondents, when planning upcoming trips, intended to avoid popular and crowded tourist destinations (Update on American..., 2020).

Almost half of the seniors (48.6%) organised their trips independently during the COVID-19 epidemic (especially pre-seniors characterised by secondary

or higher education, good financial situation, and being in formal relationships), while 17.6% used the services of travel agencies (often last-minute offers). Only 8.3% participated in trips organised by their workplace, which were primarily business-related journeys. Research indicates that tourists were more willing to use travel agencies that presented details on hygiene and cleanliness of accommodation facilities, offering those that adhered to safety standards (such as screening tests for staff, mandatory use of personal protective equipment by employees) and paid particular attention to social distancing (COVID-19 travel..., 2020).

The most commonly chosen means of transport was the private car (64.5%), which, considering the restrictions on public transport during the discussed period, appears to have been the most favourable option. One-fifth of the respondents chose to travel by bus or train, whereas only 8.6% travelled by plane.

Further analysis of the factors limiting travelling of Kielce seniors showed that the vast majority of selected answers were directly related to the COVID-19 epidemic: 39.7% of respondents pointed to restrictions resulting from government regulations, while for a further 32.5%, fear of infection was the decisive factor (Fig. 8). Almost one-fifth of respondents indicated financial constraints, even though earlier, the vast majority (77.1%) had assessed their financial situation as good or very good. This may suggest that they would like to spend more on tourism than their existing budgets allow. In the literature on the subject, financial reasons are frequently cited as one of the major barriers to seniors' participation in tourism (Grzelak-Kostulska et al., 2011; Parzych, Gotowski, 2016). For 5.5% of respondents, health condition was the primary limiting factor for travelling, for 3.1% it was the lack of a travel companion, whereas 1.2% of the surveyed seniors did not perceive any barriers at all.

The spreading pandemic forced tourists to change their travel plans out of concern for their health and fear of complications during their trips. As research shows (Hajibaba et al., 2015), this is a normal reaction, as unexpected events (epidemics, terrorist attacks, natural disasters, etc.) lead to a drastic reduction in tourism demand. The perception of risk significantly influences travel decisions, often resulting in consumers postponing or cancelling their trips (Fischhoff et al., 2004; Wong, Yeh, 2009). Therefore, seniors were asked at the end of the survey how the COVID-19 epidemic had affected their

travel plans and decisions (Fig. 9). The vast majority (78.2%) unfortunately had to modify them: 37.3% cancelled a previously planned trip, 21.7% opted for a domestic trip instead of an international one, and 19.2% postponed or rescheduled their travel to a later date. Over one-fifth of respondents (21.8%) reported that the epidemic had no impact on their travel plans or decisions, either because they had not planned any trips or they were able to carry them out in the intended form and timeframe. A similar trend was observed in the study by J. Zawadka et al. (2021), where over 20% of city residents stated they did not intend to change their holiday plans due to the pandemic. In general, a tendency was noted that the more time passed since the declaration of the global pandemic, the fewer people reported an intention to change their travel plans. Research conducted in March 2020 in the United States and the United Kingdom revealed that 88% of travellers had changed their plans: over half of consumers voluntarily cancelled their trips, while 38% postponed their journeys or were forced to alter their travel arrangements due to the crisis triggered by the spread of the SARS-CoV-2 coronavirus (GlobalWebIndex, 2020); whereas research by Longwoods International on the attitude of American travellers, carried out in June 2020, indicated that 69% of respondents had changed their travel plans due to the pandemic (compared to 85% on 8 April) (COVID-19 travel..., 2020).

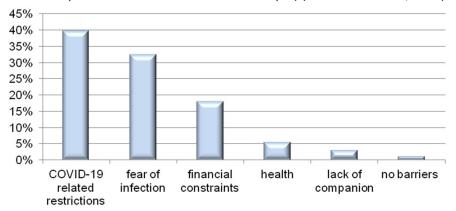


Fig. 8. Factors limiting travelling of Kielce seniors during the COVID-19 epidemic. Source: Own elaboration based on survey.

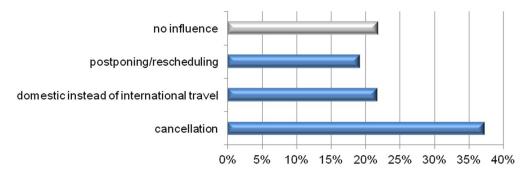


Fig. The impact of the COVID-19 epidemic on the tourist plans and decisions of Kielce seniors. Source: Own elaboration based on survey.

### 4. Summary

The restrictions introduced in Poland in response to the spread of the SARS-CoV-2 virus, particularly regarding movement and the use of accommodation and catering facilities, had a significant impact on tourism, including senior tourism. However, research showed that despite initial fears of infection, seniors were keen to engage in various forms of tourism, which aligns with global trends (Post-pandemic tourism..., 2021; Saha et al., 2024).

Motivated by the desire to escape civilisation, reconnect with nature, restore their physical strength, and improve their health, seniors also felt a strong need to visit close family and maintain relationships, despite the many difficulties and restrictions imposed during the epidemic. Although more than one-third of respondents stayed with friends or relatives during their travels (as accommodation facilities were operating on a limited basis or not at all), rest and health improvement remained the main purposes of such trips. Seniors preferred to organise their trips independently or took advantage of attractive last-minute offers.

The most frequently selected forms of active leisure among seniors from Kielce during the COVID-19 epidemic were walks around the local area, gardening, as well as sightseeing and leisure

### References

- A year in review, 2021, UNWTO, https://www.unwto.org/covid-19-and-tourism-2020 (accessed 14 February 2025).
- Alcaide Casado J.C., 2005, Donde esta el marketing para mayores? (Eng. Where is the marketing for seniors?), Marketing + Ventas / Marketing + Sales, 205, 46–57.
- Aqeel M., Shuja K., H., Abbas J., Rehna T., Ziapour A., 2020, The influence of illness perception, anxiety, and depression disorders on students mental health during COVID-19 outbreak in Pakistan: a web-based cross-sectional survey, *International Journal of Human Rights in Healthcare*, 15(1), 17–30. doi: 10.1108/IJHRH-10-2020-0095
- Balderas-Cejudo M.A., Rivera-Hernaez O., Patterson I., 2016, The strategic impact of country of origin on senior tourism demand: The need to balance global and local strategies, *Journal of Population Ageing*, 9 (4), 345–373. doi: 10.1007/ s12062-016-9146-2
- Balińska A., Wojcieszak-Zbierska M., 2020, Tourism activity of Polish seniors, Zeszyty Naukowe Małopolskiej Wyższej Szkoły Ekonomicznej w Tarnowie / The Małopolska School of Economics in Tarnów Research Papers Collection, 46(2), 107–118.doi: 10.25944/znmwse.2020.02.107118
- Bigano A., Hamilton J.M., Lau M., Tol R.S., Zhou Y., 2007, A global database of domestic and international tourist numbers at national and subnational level, *International Journal of Tourism Research*, 9(3), 147–174. doi: 10.1002/itr.602
- Bloom D.E., Canning D., Fink G., 2011, Implications of population ageing for economic growth, Oxford Review

trips. Therefore, a significant further increase in the participation of older people, particularly in the latter two forms of activity, can be expected after travel-related sanitary restrictions have been lifted.

The analysis of the responses also shows that those who most frequently engaged in silver tourism during the COVID-19 epidemic were pre-seniors in good or average health and financial condition, and being in formal relationships. Tourism is a very important element of their lifestyle as it enhances its quality, and they would like to devote more (both resources and time) to travel than they have been able to so far.

Older people constitute a heterogeneous and highly diverse group, and contemporary lifestyle trends influence not only their tourism-related behaviours, but also the ways they spend their leisure time in their place of residence. Recognising these changes may support the development of innovative solutions aimed at shaping the post-pandemic reality, including social and tourism policies. Seniors are a significant part of this new reality and, in the coming years, will become a very important growth segment for the tourism market, which is recovering after the COVID-19 epidemic. Therefore, it is important to stimulate the activity of businesses to provide services addressed and adapted to the changing needs of the elderly. This is why recognising the current behaviours and tourism expectations of the «silver heads» is so crucial.

- of Economic Policy, 26(4), 583-612. doi: 10.1093/oxrep/grq038
- Chen N., Zhou M., Dong X., Qu J., Gong F., Han Y., Yu T., 2020, Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan. China a descriptive study, *The Lancet*, 395(10223), 507–513. doi: 10.1016/S0140-6736(20)30211-7
- COVID-19 travel industry research, 2020, U.S. Travel Association, https://www.ustravel.org/toolkit/covid-19-travel-industry--research (accessed 17 February 2025).
- Druet P., 2023, Wpływ pandemii COVID-19 na turystykę w powiecie tatrzańskim (Polska) (Eng. The impact of the COVID-19 pandemic on tourism in the Tatra County (Poland), *Journal of Geography, Politics and Society,* 13(1), 55–65. doi: 10.26881/jpgs.2023.1.06
- Edensor T., 2007, Mundane motilities, performances and space of tourism, *Social &Cultural Geography*, 8(2), 199–215. doi: 10.1080/14649360701360089
- Fischhoff B., de Bruin W.B., Perrin W., Downs J., 2004, Travel risks in a time of terror: Judgments and choices, *Risk Analysis*, 24(5), 1301–1309. doi: 10.1111/j.0272-4332.2004.00527.x
- Głąbiński Z., 2020, The selected aspects of Polish seniors' tourism activity in view of qualitative Research, [in:] A. Smalec, G. Rosa (eds.), The impact of socio-economic transformations on management in organizations and regional development, Wydawnictwo Naukowe Uniwersytetu Szczecińskiego, Szczecin, 67–83.
- GlobalWebIndex (GWI) Coronavirus Research, Series 2: Travel and Commuting, 2020, Global Web Index, https://www.warc.com/content/paywall/article/warc-research/globalwebin-dex-coronavirus-research-series-two-travel-commuting/132138 (accessed 7 March 2025).

- Glover P., Prideaux B., 2009, Implication of population ageing for the development of tourism products and destinations, *Journal of Vacation Marketing*, 15,1, 25–37. doi:10.1177/1356766708098169
- Górna J., 2015, Preferencje i aktywność turystyczna Polaków w wieku 50+ (Eng. Preferences and tourist activity of Poles over the age 50 years), Prace Naukowe Akademii im. Jana Długosza w Częstochowie, Kultura Fizyczna / Research Papers of the Jan Dlugosz University in Czestochowa Physcial Culture, 14(1), 153–166. doi: 10.16926/kf.2015.14.11
- Gruszka I., Manczak I., 2021, Funkcjonowanie podmiotów turystycznych w dobie pandemii COVID-19 studium przypadku Dolnego Śląska i Małopolski (Eng. The functioning of tourism entities in Poland during the pandemic the case of Dolny Śląsk and Małopolska), *Studia Periegetica*, 36(4), 71–89. doi: 10.5604/01.3001.0015.8059
- Grzelak-Kostulska E., Hołowiecka B., Kwiatkowski G., 2011, Problem aktywności turystycznej seniorów (Eng. The problem of seniors' tourist activity), [in:] A. Stasiak (ed.). Perspektywy i kierunki rozwoju turystyki społecznej w Polsce / Prospects and directions of development of social tourism in Poland, Wydawnictwo Wyższej Szkoły Turystyki i Hotelarstwa w Łodzi, Łódź, 265–279.
- Hajibaba H., Gretzel U., Leisch F., Dolnicar S., 2015, Crisisresistant tourist, *Annals of Tourism Research*, 53, 46–60. doi: 10.1016/j.annals.2015.04.001
- Haryanto T., 2020, Editorial: COVID-19 Pandemic and International Tourism Demand, *Journal of Developing Economies*, 5(1), 1–4. doi: 10.20473/jde.v5i1.19767
- Hossain A., Bailey G., Lubulwa M., 2003, Characteristics and Travel Patterns of Older Australians: Impact of Population Ageing on Tourism, *International Symposia in Economic Theory and Econometrics*, 15, 501–522. doi: 10.1016/S1571-0386(06)15020-6
- Huang Ch., Wang Y., Li X., Ren L., Zhao J., Hu Y., Zhang L., Fan G., Xu J., Gu X., Cheng Z., Yu T., Xia J., Wei Y., Wu W., Xie X., Cao B., 2020, Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China, *The Lancet*, 395(10223), 497–506. doi: 10.1016/S0140-6736(20)30183-5
- Hung K., Petrick J.F., 2009, How do we get baby boomers and future seniors on motor coaches?, *Tourism Analysis*, 14(5), 665–675. doi: 10.3727/108354209x12597959359338
- Januszewska M., 2017, Rozwój turystyki seniorów jako konsekwencja zmian starości demograficznej (Eng. Increase of senior citizens' tourism as a consequence of demographic aging changes), Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu / Research Papers of Wrocław University of Economics, 473, 257–264. doi: 10.15611/pn.2017.473.23
- Kaushal V., Srivastava S., 2021, Hospitality and tourism industry amid COVID-19 pandemic: Perspectives on challenges and learnings from India, *International Journal of Management*, 92, 1–9. doi: 10.1016/j.ijhm.2020.102707
- Kazeminia A., Del Chiappa G., Jafari J., 2013, Seniors' Travel Constraints and Their Coping Strategies, *Journal of Travel Research*, 20(10), 1–14. doi: 10.1177/0047287513506290
- Kim H., Woo E., Uysal M., 2015, Tourism experience and quality of life among elderly tourist, *Tourism Management*, 46, 465–476. doi: 10.1016/j.tourman.2014.08.002
- Kiniorska I., Brambert P., Kamińska W., Kopacz-Wyrwał I., 2023, Aging of the society: the European perspectives, *Bulletin of Geography. Socio-economic Series*, 60, 81–100. doi: 10.12775/bgss-2023-0017
- Kiryluk H., 2008, Główne wyzwania i problemy na współczesnym rynku turystycznym (Eng. Main challenges and problems in the modern tourism market), [in:] M. Jalinik (ed.), Innowacje w rozwoju turystyki (Eng. Innovations in tourism development), Wydawnictwo Politechniki Białostockiej, Białystok, 142–149.
- Kłosowski F., 2022, The impact of demographic processes on changes in services. An example of the Silesian Voivodeship, *Journal of Geography, Politics and Society*, 12(3), 38–50.doi: 10.26881/jpgs.2022.3.04

- Kociszewski P., 2016, Turystyka seniorów jako istotny czynnik aktywizacji osób starszych (Eng. Tourism of Senior Citizens as an Important Factor of Elderly People Activation), Zeszyty Naukowe Uczelni Vistula / Vistula University Working Papers, 46(1), 217–237.
- Kociszewski P., 2021, Aktywność turystyczna seniorów w kontekście odkrywania wartości dziedzictwa kulturowego (Eng. Tourist activity of seniors in the context of discovering the value of cultural heritage), Turystyka Kulturowa / Cultural Tourism, 1(118), 116–148. doi: 10.62875/ tk.v1i118.1241
- Kurtulmuşoğlu F.B., Esiyok B., 2017, Motivations and destination selection of mature international thalassotherapy tourist, *Current Issues in Tourism*, 20(7), 705–723. doi:10.1080/13 683500.2016.1170109
- Kurzeja M., 2018, Miejsce seniorów na współczesnym rynku turystycznym (Eng. Place the elderly on the modern tourism market), Zeszyty Naukowe. Turystyka i Rekreacja / Research Bulletin. Leisure and Tourism, 2, 5–18.
- Landsberg P., Poprawski M., Kieliszewski P., Mękarski M., Gojlik A., Kuchta J., Brodniewicz M., 2012, Po co seniorom kultura? Badana kulturalnych aktywności osób starszych (Eng. Why do seniors need culture? A study of cultural activities of older people), Poznań, https://www.academia.edu/2494034/Po\_co\_seniorom \_kultura\_ Badania\_kulturalnych\_ aktywności\_ osób\_starszych.\_Raport (accessed 6 March 2025).
- Le Serre D., Chevalier C., 2012, Marketing travel services to senior consumers, *Journal of Consumer Marketing*, 29(4), 262–270. doi: 10.1108/07363761211237335
- Littrell M.A., Paige R.C., Song K., 2004, Senior travelers: Tourism activities and shopping behaviours, *Journal of Vacation Marketing*, 10(4), 348–362. doi: 10.1177/135676670401000
- Madani A., Boutebal S. E., Benhamida H., Bryant C. R., 2020, The Impact of COVID-19 Outbreak on the Tourism Needs of the Algerian Population, *Sustainability*, 12(21), 1–11. doi: 10.3390/su12218856
- Markiewicz-Patkowska J., Pytel S., Widawski K., Oleśniewicz P., 2018, Turystyka senioralna w kontekście sytuacji materialnej polskich emerytów (Eng. Senior tourism in the context of the economic status of the retired in Poland), Ekonomiczne Problemy Turystyki / Economic Problems of Tourism, 42(2), 99–106. doi: 10.18276/ept.2018.2.42-10
- Mendoza A. G., Reinoso N., 2020, Estudio de pérdidas y estrategias de reactivación para el sector turístico por crisis sanitaria COVID-19 en eldestino Manta (Ecuador) (Eng. Study of losses and reactivation strategies for the tourism sectordue to health crisisCOVID-19, in the destination Manta (Ecuador), Revista Internacional de Turismo, Empresa y Territorio /International Journal of Tourism, Business and Territory, 4(1), 79–103. doi: 10.21071/riturem.v4i1.12743
- Michalska-Dudek I., Kokoszka-Lassota D., 2020, Silver tourism projektowanie ofert oraz komunikacji z segmentem trzeciego wieku w turystyce (Eng. Silver tourism designing offers and communication with the third age segment in tourism), [in:] A. Rapacz (ed.) Społeczno-ekonomiczne i przestrzenne aspekty rozwoju turystyki w regionie (Eng. Socio-economic and spatial aspects of tourism development in the region), Wydawnictwo Uniwersytetu Ekonomicznego we Wrocławiu, Wrocław, 74–84.
- Michalski T., Brosz M., Kiniorska I, Matviyishyn Y., Grabowski J., Strzałkowska A., Anisiewicz R., 2023, Samoocena poziomu stresu mieszkańców Trójmiasta, Kielc i Lwowa podczas pandemii COVID-19 (Eng. Self-Assessment of The Stress Level Among Tri-City, Kielce and Lviv Residents During The COVID-19 Pandemic), Czasopismo Geograficzne / Geographical Journal, 94(2), 327–338. doi: 10.12657/ czageo-94-14
- Michalski T., Stępień J., 2021, Ageing in European postcommunist countries – is it a threat to the welfare system?,

Environmental & Socio-economic Studies, 9(2), 63–71. doi: 10.2478/environ-2021-0011

- Nikitina O., 2016, The Senior Tourism in Russia: the Study of Motivation and Satisfaction Customers, *Logos, Universality, Mentality, Education, Novelty. Section Social Sciences*, 1, 39–51. doi: 10.18662/lumenss.2016.0501.04
- Nimrod G., 2008, Retirement and tourism. Themes in Retirees' Narratives, *Annals of Tourism Research*, 35(4), 859–878. doi: 10.1016/j.annals.2008.06.001
- Oleśniewicz P., Widawski K., 2015, Motywy podejmowania aktywności turystycznej przez osoby starsze ze Stowarzyszenia Promocji Sportu FAN (Eng. Motives of the tourist activity of the seniors form the FAN association), Rozprawy Naukowe Akademii Wychowania Fizycznego we Wrocławiu / Scientific Treatises of University School of Physical Education in Wrocław, 51, 15–24.
- Omelan A., Podstawski R., Raczkowski M., 2016, Tourist Activity of Senior Citizens (60+) Residing in Urban and Rural Areas, *Physical Culture and Sport. Studies and Research*, 72(1), 51–65. doi: 10.1515/szt.sr-2016-0028
- Parzych K., Gotowski R., 2016, Determinanty aktywności turystycznej osób starszych w Polsce na tle innych krajów europejskich (Eng. Selected indicators of the seniors tourist activity in Poland and in others European countries), Journal of Education, Health and Sport, 6(10), 680–698. doi: 10.5281/zenodo.222763
- Patterson I., 2006, Growing Older: Tourism and Leisure Behaviour of Older Adults, Cromwell Press, Trowbridge. doi: 10.1079/9781845930653.0000
- Podsumowanie lockdown-u w Polsce (Eng. Summary of the lockdown in Poland), 2021, Związek Przedsiębiorców i Pracodawców, Warszawa. https://zpp.net.pl/wpcontent/uploads/2021/01/25.01.2021-Business-Paper-Podsumowanie-lockdownu-w-Polsce.pdf (accessed 13 January 2025).
- Ponad 90% Polaków planuje wakacje 2020 w kraju ogólnopolskie badanie (Eng. Over 90% of Poles plan 2020 holidays in the country nationwide survey), Profitroom, 2020, https://www.profitroom.com/pl/blog/ponad-90-polakow--planuje-wakacje-2020-w-kraju-ogolnopolskie-badanie/ (accessed 20 March 2025).
- Population structure and ageing in 2024, Eurostat, https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Population\_structure\_and\_ageing (accessed 16 March 2025).
- Post-pandemic tourism: Will older adults travel differently?, 2021, https://www.aal-europe.eu/post-pandemic-tourism-will-older-adults-travel-differently/(accessed 8 February 2025).
- Prayag G., 2012, Senior Travelers' Motivation and Future Behavioral Intentions: Case of Nice, *Journal of Travel & Tourism Marketing*, 29, 665–681. doi: 10.1080/10548408.2012.720153
- Rozporządzenie Ministra Zdrowia z dnia 20 marca 2020 r. w sprawie ogłoszenia na obszarze Rzeczypospolitej Polskiej stanu epidemii (Eng. Regulation of the Minister of Health of 20 March 2020 on the announcement of a state of epidemic in the territory of the Republic of Poland), Ministerstwo Zdrowia RP, 2020, Warszawa, https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20200000491 (accessed 3 March 2025).
- Saha T, Lee K, Hyun KK, Cassidy J, Jang S., 2024, Understanding Travel Behaviors and Mobility Challenges Faced by Older Adults during the COVID-19 Pandemic, *Journal of Ageing and Longevity*, 4(3), 177–187. doi: 10.3390/jal4030012
- Sawińska A., 2014, Seniorzy i preseniorzy jako perspektywiczny podmiot rynku turystycznego i rekreacyjnego (Eng. Seniors and pre-seniors as a prospective segment of the tourism and recreation market), Rozprawy Naukowe Akademii Wychowania Fizycznego we Wrocławiu / Scientific Treatises of University School of Physical Education in Wrocław, 46, 171–177.

Seyfi S., Hall C. M., Shabani B., 2020, COVID-19 and international travel restrictions: the geopolitics of health and tourism, *Tourism Geographies*, doi: 0.1080/1461668.2020.1833972

- Sigala M., 2020, Tourism and COVID-19: Impacts and implications for advancing and resetting industry and research, *Journal of Business Research*, 117, 312–321. doi: 10.1016/j.jbusres.2020.06.015
- Smith C., Jenner P., 1997, The seniors travel market, Travel and Tourism Analyst, 5, 43–62.
- Śniadek J., 2007, Konsumpcja turystyczna polskich seniorów na tle globalnych tendencji w turystyce (Eng. Tourism consumption of polish seniors in the light of global tendencies in tourism), *Gerontologia Polska*, 15, 1–2, 21–30.
- Stępień J., Michalski T., Grabowski J., Waszak P., Grabkowska M., Macul A., Rojek J.J., 2021, Social response and spatial mobility change due to COVID-19 pandemic in Poland, Geographia Polonica, 94(3), 381–396. doi: 10.7163/GPol.0210
- Szukalski P., 2012, Solidarność pokoleń. Dylematy relacji międzypokoleniowych (Eng. Generations solidarity. Dilemmas of intergenerational relations), Wydawnictwo Uniwersytetu Łódzkiego, Łódź.
- Turystyka w 2020 r. (Eng. Tourism in 2020), 2021, Główny Urząd Statystyczny, Warszawa, https://stat.gov.pl/download/gfx/portalinformacyjny/pl/defaultaktualnosci/5494/1/18/1/turystyka\_w\_2020.pdf (accessed 21 March 2025).
- Update on American Travel in the Period of Coronavirus—Week of June 15th, 2020, Destination Analysts, https://www.destinationanalysts.com/blog-update-on-american-travel-in-the-period-of-coronavirus-week-of-june-15th/?utm\_source=Email&utm\_medium=Email&utm\_campaign=Email%20Marketing (accessed 7 February 2025).
- Walker M.C., 2004, *Marketing to seniors*, 1st Books Library, Bloomington.
- Warwas I., Wieczorek I., 2018, Age management as a part of silver economy the examples of Poland and Italy, Ekonomika i Organizacja Przedsiębiorstwa / Economics and Organization of the Enterprise, nr 7, 43–54.
- Wells C. R., Sah P., Moghadas S. M., Pandey A., Shoukat A., Wang Y., Wang Z., Meyers L. A., Singer B. H., Galvani A. P., 2020, Impact of international travel and border control measures on the global spread of the novel 2019 coronavirus outbreak, *Proceedings of the National Academy of Sciences* of the United States of America, 117(13), 7504–7509. doi: 10.1073/pnas.2002616117
- Wiadomości turystyczne, 2021, UNWTO: liczba podróży spadła o 75% (Eng. UNWTO: travel down 75%),http://wiadomościturystyczne.pl/aktualnosci/ 3389,,,0,unwto\_liczba\_podrozy\_spadla\_o\_75\_proc\_\_.html (accessed 30 December 2024).
- Wong J.Y., Yeh Ch., 2009, Tourist hesitation in destination decision making, *Annals of Tourism Research*, 36(1), 6–23. doi: 10.1016/j.annals.2008.09.005
- World Tourist Barometer, 2020, UNWTO, 18, 1. Madrid.
- Zawadka J., 2019, The importance and popularity of tourism among older people in Poland, *Przedsiębiorczość i Zarządzanie / Entrepreneurship and Management*, 20(2), 347–358.
- Zawadka J., Jęczmyk A., Uglis J., Wojcieszak-Zbierska M.M., 2021, Plany turystyczne mieszkańców miast w dobie pandemii COVID-19 (Eng. Tourist plans for urban residents at the time of the COVID-19 pandemic), *Warsztaty z Geografii Turyzmu*, 11, 3–34. doi: 10.18778/8220-576-3.01
- Zenker S., Kock F., 2020, The coronavirus pandemic A critical discussion of a tourism research agenda, *Tourism Management*, 12(81), 104164. doi: 10.1016/j. tourman.2020.104164
- Zsarnoczky M., David L., Mukayev Z., Baiburiev R., 2016, Silver tourism in the European Union, *GeoJournal of Tourism and Geosites*, 18(2), 224–232.