Travel-at-home: Paradoxical effects of a pandemic threat on domestic tourism

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ARTICLE INFO

ABSTRACT

This study introduces the evolutionary concept of assortative sociality and explores how it moderates pandemic anxiety effects on attitudes towards tourism and travel decisions. Based on a large-scale online survey (N = 4630) conducted in three European countries, we demonstrate that COVID-19 anxiety triggered assortative sociality, which reflects both xenophobic and ethnocentric traits. This changes perceptions of domestic and international travel attractiveness, and further leads to travel choices prioritizing domestic destinations. At the same time, xenophobic and ethnocentric traits also affected citizen attitudes towards supporting the domestic tourism industry – an industry that accommodates foreigners. In conclusion, the paper discusses the seemingly paradoxical effects of a pandemic threat on domestic versus international tourism.

CRediT author statement

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1. Introduction

The COVID-19 pandemic spurred worldwide travel restrictions and inflicted pain on the global tourism industry throughout 2020 to 2022. The closure and temporary reopening of international borders had the effect of boosting domestic tourism and changing the visitor composition of homeland destinations. The new post-pandemic normal of tourism shows plunging numbers in overseas guests and a simultaneous substantial growth in domestic visitor numbers and overnight stays (Forbes, 2020, October 22nd). Not only domestic travel is recovering faster than its international counterpart (UNWTO, 2020a), but people's preferences for long-haul destinations has also shifted towards smaller, nearby places (Patnait, 2021, January 14th; UNWTO 2020b).

Several recent papers investigated the drivers of this radical change in travel behaviour. Beyond the obvious external constraints (partial or full lockdown of borders, limited or cancelled transport connections, mandatory quarantine, and vaccine passports etc.), scholars also identified significant intra-personal drivers, arising from a complex processing of travel risk perceptions, health concern, fear of pandemic contagion, reduced behavioural control and coping (Pappas 2021; Shahabi Sorman Abadi et al., 2021; Shin et al., 2021; Villacé-Molinero et al., 2021; Zheng et al., 2021).

Travelling close to home despite fewer restrictions is a paradoxical phenomenon that defies extant theoretical models of tourist behaviour. As such, the emergent patterns of post-pandemic travel should be approached through the methodological lens of paradox research (Sigala, 2020). This approach fosters theorizing processes and the enrichment of established theories through the investigation of contradictions and seemingly oppositional constructs or relationships. Responding to the call of Sigala (2020) and Kock et al. (2020), this paper goes beyond replicating existing behavioural models in a COVID-19 context; instead, it makes sense of pandemic-induced changes and the travel-at-home phenomenon through the theoretical lenses of evolutionary psychology and cultural sociological perspectives.

COVID-19 has led to enduring fear and anxiety related to individuals' well-being, effectively transforming everyday practices of mobility and dealing with others. The prospect of contracting the disease is not only

reflected in higher hygiene concerns, but also in avoiding interactions with others/strangers (Kock et al., 2020). Almost two decades prior to the pandemic, Faulkner et al. (2004) provided empirical evidence of how people's perceived disease vulnerability and disease concerns (health threats) caused them become less supportive of unfamiliar immigrant groups (Faulkner et al., 2004). During the course of 2020, multiple reports attempted to capture the undesirable social and cultural consequences of pandemic fear. For example, the pandemic triggered anti-foreigner sentiments and hostility based on skin colour (Devakumar et al., 2020), national exceptionalism (Antonsich, 2020) and ethnocentric consumerism (Pekkanen & Penttilä, 2021). Introverted social and cultural movements contesting the idea of a borderless, globalised world have been also on the rise in European countries with ethnic and racial diversification (Muis & Reeskens, 2022). During the pandemic, these movements, and anti-foreigner sentiments were further boosted, most notably in Germany and the UK (Ashfort, 2020; Der Spiegel, 2021, May 6th; Esses & Hamilton, 2022).

Evolutionary psychologists have labelled this phenomenon as *assortative sociality,* which explains the simultaneous banding together with known groups and turning away from strangers as a behavioural immunity defence system response (Fincher & Thornhill, 2012; Thornhill & Fincher, 2014). Assortative sociality is activated by contagion threat (or parasite stress) and subsequently leads to distinct shifts in personality and social attitudes towards strangers (Kock et al., 2020). Pathogen-induced assortative sociality thus has fundamental implications for international tourism and intercultural exchange.

In the first year of the pandemic, global tourism was claimed to be on the brink of a paradigm change (Irwin, 2020, April 16th), curbed by behavioural drivers such as pandemic anxiety (Zenker et al., 2021), travel avoidance (Widmar et al., 2017) and coping (Zheng et al., 2021). However, as Hall and his colleagues note (Hall et al., 2020) no prior crisis has ever led to a permanent, large-scale transition in tourism. Thus, more empirical evidence is needed to settle the question whether the pandemic-induced changes are temporary or indeed the accelerating enduring transitions that were already underway.

We argue that, by focusing narrowly on reduced travel demand and external constraints in the wake of COVID-19, tourism scholars neglect the broader socio-psychological drivers of behavioural change. However, negative attitudes and sentiments toward foreigners during the pandemic (Esses & Hamilton, 2022), may also have an effect on intercultural encounters and international tourism as well.

Although pathogen-induced anxiety has been shown to have a distinct impact on people's travel intentions (e.g., Cahyanto et al., 2016), it is less evident how pandemic fear influences citizens' attitudes towards foreigners as guests as well as different types of travel and destinations. In particular, the prospects for domestic tourism may be ambiguous: while other sectors of national economies (e.g., domestic and local food production) benefited from the COVID-19 crisis, it is unclear how patriotic and ethnocentric consumerism would play out for tourism – the industry that mostly accommodates foreign others. Even though it is plausible (and established) that residents would prefer to spend holidays close to home during pandemics, it is unclear whether they would support an economic activity that thrives on international guests with pathogen potential.

Accordingly, the present study embraces a broader perspective, aimed at establishing the relationships between pandemic anxiety, assortative sociality, the attractiveness of and the support for domestic travel and tourism. This aim translates into four research questions: (1) How does pandemic anxiety affect assortative sociality in tourism? (2) How do different dimensions of assortative sociality affect the support for tourism? (3) How do these different dimensions affect the perceived attractiveness of domestic and international travel? Finally, (4) how do they influence bookings of domestic versus international holidays?

2. Theoretical foundations

The COVID-19 pandemic is a public health emergency that has put the global community and tourism industry under unprecedented stress. The increased safety concerns associated with travel gave a new momentum to studies of travel fear and anxiety as well as its consequences for tourism consumption. In the past three years, psychopathological constructs convincingly expanded the dominant explanatory frameworks based on risk perceptions. Broad-scoped theoretical concepts (e. g., xenophobia or self-protection theory) have been introduced to test different aspects of Fennell's (2017) comprehensive model of travel fear, a six-dimensional model integrating the characteristics, antecedents, types and responses to fear and anxiety. Table 1 gives an overview of the most pertinent examples of these advances and locates our research in

Table 1
Overview of literature on pandemic-induced anxiety and behavioural responses.

Theme	Theoretical focus	References	Our focus
Dimensions of anxiety	Theorizing anxiety as psychopathological disorder	Cisler et al., 2009; Sylvers et al., 2011; van Dam et al., 2013	We define anxiety as a sustained future-focused negative arousal, exhibiting distinct physiological symptoms. To measure this composite construct, the Pandemic Anxiety Travel Scale (PATS) is adopted.
	Theorizing travel fear	Fennell, 2017; Nanni & Ulqinaku, 2020; Reisinger & Mavondo, 2005	
	Drivers of anxiety	Faulkner, 2004; Fennell, 2017	
	Manifestations of anxiety	Ahorsu et al., 2020; Asmundson & Taylor, 2020	
	Measuring anxiety	Lee, 2020; Zenker et al., 2021	
Behavioural responses	Xenophobia	Asmundson & Taylor, 2020; Devakumar, 2020; Esses & Hamilton, 2021; Fincher & Thornhill, 2012; Kock, Josiassen, & Assaf, 2019; Muis & Reskeens, 2022; Shahabi Sorman Abadi et al., 2021; Thornhill & Fincher, 2014	Building on parasite stress theory we measure the *concurrent* evolutionary responses of xenophobia and ethnocentrism, also known as assortative sociality. Second, we also measure changes in choice patters (domestic vs. international travel) as potential coping strategy.
	Ethnocentrism	Fincher & Thornhill, 2012; Kock, Josiassen, Assaf, Karpen, & Farrelly, 2019; Lekakis, 2017; Pekkanen & Penttillä, 2021; Thornhill & Fincher, 2014; Zhang, 2017	
	Coping strategies	Moldes et al., 2021; Pappas, 2021; Park et al., 2022; Zheng et al., 2021	
	Avoidance	Cahyanto et al., 2016; Fennell, 2017; Reisinger & Mavondo, 2005; Widmar et al., 2017; Zheng et al., 2021	

this field.

2.1. Pandemic anxiety

Sylvers et al. (2011) and Fennell (2017) conceptualizes fear as a basic state emotion, characterised by a short-lived feeling (horror, shock, or panic) that prepares the body for a defensive response (flight or escape) to a specific, present threat. *Anxiety*, in contrast, is understood as a sustained, future-focused arousal responding to a diffuse or imminent threat, expressing "an organism's preparatory response to contexts in which a threat may occur" (Cisler et al., 2009, p. 35). Similar to evolutionary behavioural responses, anxiety manifests itself as unbalanced restlessness that serves as is coping response to overstimulation. Apart from psychopathology, anthropologists also took note of *travel anxiety* as a cultural phenomenon. For instance, Löfgren (2008) demonstrated how fiction novelists since the mid-19th century have described *travel fever* as a state of nervousness while being away from home. Responses to anticipating and being in stressful situations are expressed in negative emotions (e.g., uneasiness, being tensed, and nervous), somatic symptoms (e.g., high pulse, sleeplessness, feeling dizzy, or sweating), and cognitive symptoms (e.g., distress, or having doubts and worries). Consequently, enduring anxiety is assumed to shape behavioural traits.

While a certain level of anxiety is naturally associated with anticipating and travelling to foreign places and cultures, travel anxiety can also produce pathological, treatment-requiring conditions. With the rise of, global travel, multiple diagnoses have emerged to denote clinically significant anxiety disorders. These may relate to phobias (fear of air travel, open spaces or crowding), as well as concrete harms like contracting an infectious disease. Most recently, the pathological condition associated with the COVID-19 pandemic has received a distinct diagnosis labelled *coronaphobia* or coronavirus anxiety (Asmundson & Taylor, 2020). During the pandemic, medical researchers have adjusted generic screening tests of dysfunctional anxiety (van Dam et al., 2013) to measure coronaphobia (Coronavirus Anxiety Scale/CAS; Lee, 2020) and the fear of contracting COVID-19 (FCV–19S; Ahorsu et al., 2020). Most recently, Zenker et al. (2021) developed a five-item, tourism-specific pandemic anxiety scale (PATS), which manages to effectively capture the intra-personal anxiety of travellers with regards to pandemics.

The behavioural consequences of pandemic anxiety may manifest in altered travel attitudes and destination choices. Exposure to the risks of contagion, quarantining and fickle medical help may inspire helplessness and an avoidance of travelling altogether (Cahyanto et al., 2016; Zheng et al., 2021). In this sense, there is a need to explore coping strategies used to deal with the pandemic stress in a tourism context. While Zheng et al. (2021) addressed individual responses to anxiety (such as self-protection theory and resilience in specific travel situations), we will instead turn our focus to deeply seated, evolutionarily conditioned defence strategies.

Another coping strategy is the adjustment of consumption preferences, like choosing a specific destination. In the current pandemic, for instance, we see a strong shift towards domestic instead of international travel (Forbes, 2020, October 22nd). Recent consumer psychology studies might provide deeper theoretical explanations for this effect. Park et al. (2022), for instance, researched how the COVID-19 threat increases consumers need for pattern-seeking – giving an additional argumentation for preference of familiar domestic travel during a pandemic. Moldes et al. (2022) demonstrated that pandemic induced anxiety leads to materialism and hedonic consumption (which could also manifest itself in exclusive, international travel). Due to the travel restrictions and other variables people might opt then for available substitutes (i.e., domestic destinations).

2.2. Assortative sociality

To introduce the concept of assortative sociality to tourism, we first need to understand the parasite-stress theory of sociality, which was developed by evolutionary psychologists and human ecologists (Fincher & Thornhill, 2012; Thornhill & Fincher, 2014). It also has been corroborated in several cultural and empirical contexts (Uskul, 2012), including religious groups (Fincher & Thornhill, 2012), authoritarian regimes (Thornhill et al., 2009) and even tourism (Kock et al., 2020).

The theory maintains that evolutionary adaptations to parasitic (or infectious) diseases activate both biochemical and behavioural immune systems. The latter is "comprised of ancestrally adaptive feelings, attitudes, and values about and behaviors toward out-group and in-group members, caution about or unwillingness to interact with out-group people, and prejudice against people perceived as unhealthy, contaminated, or unclean" (Fincher & Thornhill, 2012, p. 62).

When the behavioural immunity system is activated by pathogenic cues, it invites shifts in personality traits. During epidemics, people become less agreeable and less open to experience, less extroverted and more wary towards strangers – as they are being considered immunologically dissimilar to in-group members. Bound to the perception that out-group members are more likely to carry the disease than one's in-group, individuals will be less tolerant towards foreigners, which will eventually lead to accentuated intergroup differences and conflicts.

This change is observable through the so-called *assortative sociality*, which denotes evolutionarily developed behaviour towards in- and out-group members. Assortative sociality manifests itself in three adaptive preferences or tactics: philopatry, xenophobia, and ethnocentrism – each aiming to avoid novel pathogens from the external world and containing local infections (Thornhill & Fincher, 2014).

Philopatry stands for spatial isolation and sedentarism; that is, the absence or low levels of movement away from permanent residency and reduced social contact with out-groups. The most effective measures for containing COVID-19 – social distancing, border closures, curfews, and minimizing assemblies – are all rooted in a philopatric approach to reducing interaction with immunologically dissimilar individuals. A philopatric tourist would most likely consider travelling to destinations close to home and would find international destinations less attractive.

Xenophobia is the avoidance of or hostility towards foreigners, which discourages contact with out-group members. Out-group members are identified along conspicuous cues, such as skin colour, mannerisms, and language. Evolutionary studies of intergroup communication (Zhang, 2017) indicate that during heightened pathogen threats, people perceive speakers with foreign accents as being more dissimilar to themselves. During 2020, this led to the stigmatization of and discrimination against certain ethnic groups in the US; People of Asian descent, in particular, were associated with the coronavirus (CDC, 2020). With regards to tourism, xenophobia was shown to play an important role in people's avoidance of international travel – even preceding COVID-19. An extensive cross-cultural study by Kock, Josiassen, and Assaf (2019) demonstrated that tourist xenophobia manifests itself as a sense of vulnerability discomfort while interacting with foreigners, as well as an aversion and avoidance of strangers when travelling abroad. Although the tourist xenophobia scale has been developed for international travel, its measurement items are formulated more broadly (along attitudes towards intercultural exchange). However, one can argue that the construct may also be relevant in a domestic travel context.

Ethnocentrism was originally coined by Sumner (1906, p. 13), who described it as a perspective "in which one's own group is the centre of everything, and all others are scaled and rated with reference to it." Accordingly, ethnocentrism entails in-group preference, but also communitarian ties and altruistic support to other members in coping with a specific challenge. Parasite-stress theorists assert that areas of high-pathogen stress are characterised by xenophobic and ethnocentric culture, which function to avoid and manage infectious diseases (Thornhill et al., 2009). In contrast, communities exposed to low pathogenic stress are characterised by intensive interactions and amity with out-groups contact alliances and more effective circulation of resources across group borders. Following from the discussion of

pandemic-induced assortative sociality, we suggest that:

H1. Pandemic anxiety increases (a) tourism ethnocentrism and (b) tourist xenophobia.

2.3. Support for tourism

According to Thornhill and Fincher (2014), such an in-group focus is a logical human behavioural strategy, which is transmitted via social learning and conditioned by in-group values. These values may manifest themselves in protectionism towards homeland institutions, culture, and the economy, including patriotic (Antonsich, 2020) and ethnocentric consumption (Bryła, 2019). Indeed, economic nationalism tends to develop during times of austerity, armed conflicts, and financial crises (Lekakis, 2017). A similar, economy-focused definition was adopted by Kock et al. (2019b, p. 427), who defined tourism ethnocentrism as an "individual's prescriptive beliefs and felt moral obligation to support the domestic tourism economy." The tourism ethnocentrism scale developed and tested by these authors conveys imperative statements about spending holidays at a domestic destination as a resident duty and responsibility.

Considering that domestic tourists are guests and national citizens at the same time, it can be argued that domestic tourists would be not only concerned about a healthy domestic tourism economy but would also support tourism growth in different ways. In the wake of uncontrolled tourism growth and its negative impact on resident communities, scholars have found that citizens apply a cost-benefits trade-offs when considering whether to support local tourism (Gursoy et al., 2010; Nunkoo & Ramkissoon, 2012). However, support for tourism also involves being hospitable to visitors and providing help to strangers (Stylidis et al., 2014) – whether it be foreigners or unknown people from other regions of their own country. This may seem paradoxical with the assortative sociality tactics during a pandemic, which would suggest that residents avoid tourists and express negative sentiments towards incoming tour operators and businesses. Nevertheless, based on the arguments of the hospitality imperative, we hypothesise that when people express ethnocentric tourism attitudes, they also become more supportive of tourism in their own country. Formally:

H2. Ethnocentrism increases individuals' support for tourism.

2.4. International and domestic travel

Assortative sociality theory suggest that pathogen-threat may not only affect people's attitudes towards visitors (and the industry catering to them) but would also shape the attractiveness of travel and people's real travel behaviour in the form of holiday bookings. For decades, tourism scholars have asserted that there is more prestige associated with international than domestic travel, with geographically distant destinations considered alluring (even if unattainable) status symbols across different cultural contexts (Irimiea, 2018; Yang et al., 2018). Iconic popular cultural representations of tourism – for instance, *The Beach* (Law et al., 2007) or the *James Bond* franchise (Reijnders, 2010) – have glorified exotic destinations and cosmopolitan travellers for the past 50 years. Thus, international travel also has symbolic value and serves as a marker of prestige. Alternatively, the attractiveness of spending holidays in a different country may also be approached from an existential psychological viewpoint. Travelling abroad triggers out-of-the-ordinary experiences and discoveries, being full of unfamiliar situations, sensory impressions and close contact with local people and strangers (Franklin & Crang, 2001; Moeran, 1983; Nørfelt et al., 2019). These experiences are no longer a privilege of the wealthy few, owing to the worldwide growth of low-cost tourism commodities. Cheap air-/cruise travel and platform accommodation rental have facilitated an even larger number of travellers who head to international destinations in order to 'live like a local' in foreign places (Russo & Richards, 2017). In contrast, familiar and time-honoured rural destinations lacking a cosmopolitan flair have reported dwindling visitor numbers in the past decades (UNWTO, 2020b).

However, continuing fear and anxiety related to the COVID-19 pandemic may challenge travellers' predispositions towards xenophilia and exoticism. Glamorous international hotspots and the prospects of meeting new people are now perceived risky, unsafe, and unwelcome, while common and unpretentious local attractions in the neighbourhood have been re-exoticized (Ioannides & Gyimóthy, 2020). During the long months of lockdown, leisure mobility was confined to day excursions or walks a few short blocks from home, which may have opened people's eyes to their immediate surroundings and encouraged recreational visits to parks and forests (Newton, 2020, April 3rd). The heightened risk aversion of cross-border travel has simultaneously brought about a renewed appreciation of homeland attractions. Although travel bans were lifted during the summer holiday season of 2020, domestic and short-haul tourism dominated European tourism; the expectation is that this tendency will prevail for the coming year (UNWTO, 2020a). It is therefore plausible that pandemic-induced assortative sociality could also considerably impact tourists' attitudes towards international and domestic travel, as well as their real travel behaviour (i.e., holiday bookings). Accordingly, we suggest:

H3. Tourism ethnocentrism increases (a) the perceived attractiveness of domestic travel and (b) individuals' bookings of domestic holidays.

H4. Tourism ethnocentrism decreases (a) the perceived attractiveness of international travel and (b) individuals' bookings of international holidays.

H5. Tourist xenophobia decreases (a) the perceived attractiveness of international travel and (b) individuals' bookings of international holidays.

3. Empirical study: anxiety-induced assortative sociality

3.1. Study design

To test our hypotheses, we conducted a large-scale online survey (*N* = 4630) in three European countries (Austria, Germany, and the United Kingdom). This gave us the opportunity to capture countries in different stages of the pandemic (JHU CSSE, 2020) and with different health restriction strategies, while ensuring that international travel (within Europe) was indeed a legal and realistic option (OxCGRT, 2020) at the time of the survey (15th to June 23, 2020).

At this time, Germany (like Austria) had a relatively low infection and death toll rate and was more and more lifting its health-related restrictions on travel. Austria was thereby one of the countries with the lowest levels of restrictions in Europe (50.0 on the Oxford COVID-19 Stringency Index, where 100 is the highest level of restrictions). Germany scored between 63.4 and 59.7 in the time of surveying, representing the average in Europe.

The United Kingdom, on the other hand, had one of the highest COVID-19 death toll rates per capita in Europe (JHU CSSE, 2020) due to a relaxed health strategy at the beginning of the pandemic. At the point of surveying, they still had a relatively high level of restrictions with 71.3 points in the Oxford COVID-19 Stringency Index (OxCGRT, 2020).

In addition, testing our hypotheses in three different countries also makes our empirical results more robust showing that the hypothesized relationships are potentially manifest in all three samples.

Finally, Germany and the UK are two of the largest generators of outbound tourism in Europe, as well as important inbound destinations. Austria is a well-known all-year tourist destination that was identified as one of the first hotspots during the initial European spread of the Coronavirus in winter 2019/2020 (especially the ski resort Ischgl), further justifying our selection of countries.

For testing, we created two models. Our first model (testing H1-2; H3a; H4a; H5a) comprises three dependent variables: people's attitudes

towards supporting tourism as well as the perceived attractiveness of domestic and international travel. Our second model includes two dichotomous dependent variables measuring real behaviour (bookings) to (re)test our hypotheses (H1-2; H3b; H4b; H5b).

3.2. Sample

Our participants in this sample study were recruited by a professional panel provider (Respondi AG). The participants took our online survey voluntarily and all participants were citizens of their country of residence. In total, we recruited 4630 respondents: 1520 from Austria, 1582 from Germany and 1528 from the United Kingdom. Table 2 shows the overall and country-specific demographics.

3.3. Methods and measurements

For our study, we adopted the following construct measurements: the Pandemic Anxiety Travel Scale (PATS; Zenker et al., 2021), Tourism Ethnocentrism (Kock et al., 2019b), Tourist Xenophobia (Kock, Josiassen, & Assaf, 2019), and Support for Tourism (Kock, Josiassen, & Assaf, 2019; Stylidis et al., 2014). For all items, we used a 7-point scale, ranging from 1 ("fully disagree") to 7 ("fully agree"). Appendix A shows all items of our constructs.

We also asked the respondents to rate the perceived Attractiveness of Domestic Travel and the Attractiveness of International Travel for their next trip – again using a 7-point scale varying from 1 ("dislike a great deal") to 7 ("like a great deal"). Next, we included questions related to the usual travel companions (e.g., alone, partner, and/or with children). Finally, we asked the respondents if they had concrete plans to travel for upcoming holidays. If so, we asked them to indicate the destination (country) as well as if they had already booked a holiday for this trip (yes/no). This enabled us to calculate our two behavioural variables: Booked Domestic Holiday and Booked International Holiday.

Next, we evaluated our four constructs using the psych package (Revelle, 2020) in R. To this end, we included all 20 items in an explorative factor analysis showing four factors, with all items loaded neatly on their own factor and only minor cross-loadings on the other

factors. Testing confirmed factorability: Bartlett's test of sphericity (χ^2 = 76060.55; df = 190; p = 0.00) and the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (0.91). Descriptive statistics are reported in Table 3, together with the items' skewness and kurtosis values. We take our data to be moderately non-normal based on the values of skewness and kurtosis (Finney & DiStefano, 2006).

For the remainder of the empirical data analysis, we employed confirmatory factor analysis (CFA) and structural equation modelling (SEM) using the lavaan package in R (Rosseel, 2012). The moderately non-normal data required using the MLM-estimator in the CFA-models and the first multi-group SEM-model. For these models, we reported robust standard errors and the Satorra-Bentler χ^2-statistic, in combination with the degrees of freedom (df) and its p-value. For the second multi-group SEM-model, the dependent variables are dichotomous variables. Hence, we had to employ the WLSMV-estimator and publish robust standard errors, a mean- and variance-adjusted χ^2-statistic, the degrees of freedom and its p-value.

In the case with large sample sizes and moderate data non-normality, we foresaw that the χ^2-test could be significant (e.g., Bagozzi & Yi, 2012; Bollen, 1990; Browne & Cudeck, 1993; Hair et al., 2014; West et al., 2012). Hence, the CFI, TLI, RMSEA, 90% confidence interval for RMSEA (CI90%) and SRMR are reported as well, combined with the examination of the correlation residuals (Kline, 2016). We used cut-off values following Bagozzi and Yi (2012): CFI≥0.93, TLI≥0.92, SRMR≤0.07, RMSEA≤0.07.

As our data was collected in three different countries, we first estimated the configural invariance model, which produced decent fit statistics (χ^2 = 2365.62; df = 492; p = 0.00; CFI = 0.969; TLI = 0.964; SRMR = 0.037; RMSEA = 0.050; 90%CI = 0.048–0.051; PCLOSE = 0.616). Next, we established partial measurement invariance between the country samples ($\Delta\chi^2$ = 13.036; Δdf = 8, p = 0.111) following Steenkamp and Baumgartner (1998).

Table 4 demonstrates convergent validity, as the values for α, ω, and AVE of the four constructs are higher than conventional thresholds: α ≥ 0.70, ω ≥ 0.70 and AVE≥0.50 (Hair et al., 2014). Table 5 demonstrates discriminant validity, as the AVEs of the constructs are higher than the squared correlations between the constructs (Fornell & Larcker, 1981).

Table 2
Demographics.

Variable	Categories	Austria (n = 1520)		Germany (n = 1582)		UK (n = 1528)	
		n	%	n	%	n	%
Age	18–30	257	16.9%	356	23.0%	247	16.0%
	31–40	346	22.8%	278	17.6%	241	15.8%
	41–50	362	23.8%	307	19.4%	313	20.5%
	51–60	373	24.5%	378	23.9%	437	28.6%
	61+	182	12.0%	263	16.6%	290	19.0%
Gender	Male	658	43.3%	797	50.4%	813	53.2%
	Female	862	56.7%	785	49.6%	715	46.8%
Education	Less than high school	623	41.0%	759	48.0%	153	10.0%
	High school	508	33.4%	405	25.6%	764	50.0%
	Bachelor	118	7.8%	141	8.9%	454	29.7%
	Master and higher	271	17.9%	277	17.6%	157	10.3%
Job situation	Employed	879	57.8%	937	59.2%	855	56.0%
	Self-employed	109	7.2%	87	5.5%	132	8.6%
	Unemployed	88	5.8%	57	3.6%	120	7.9%
	Homemaker	75	4.9%	71	4.5%	119	7.8%
	Student	92	6.1%	172	10.9%	51	3.3%
	Retired	227	14.9%	233	14.7%	205	13.4%
	Other	50	3.3%	25	1.6%	46	3.0%
Gross household income*	Less or equal 18,000€	284	18.7%	329	20.8%	323	21.1%
	18,001–36,000€	463	30.5%	411	26.0%	496	32.5%
	36,001–54,000€	355	23.4%	344	21.7%	350	22.9%
	54,001–72,000€	231	15.2%	254	16.1%	174	11.4%
	72,001–90,000€	102	6.7%	117	7.4%	101	6.6%
	90,001€ and more	85	5.6%	127	8.0%	84	5.5%

Note: *for the UK it was measured in an equal amount of £

Table 3
Descriptive statistics of the items, including skewness and kurtosis values.

Item	N	mean	SD	min	max	skewness	kurtosis
PATS_1	4630	4.58	1.80	1	7	−0.43	−0.72
PATS_2	4630	4.59	1.85	1	7	−0.44	−0.77
PATS_3	4630	3.93	2.06	1	7	0.05	−1.28
PATS_4	4630	3.72	1.92	1	7	0.13	−1.10
PATS_5	4630	4.39	1.96	1	7	−0.26	−1.07
TEthnocentry_1	4630	5.21	1.48	1	7	−0.67	0.16
TEthnocentry_2	4630	3.88	1.88	1	7	0.03	−0.97
TEthnocentry_3	4630	4.39	1.79	1	7	−0.28	−0.74
TEthnocentry_4	4630	4.54	1.66	1	7	−0.38	−0.40
TEthnocentry_5	4630	4.20	1.81	1	7	−0.18	−0.83
TEthnocentry_6	4630	4.67	1.69	1	7	−0.45	−0.42
XenoT_1	4630	3.17	1.47	1	7	0.26	−0.41
XenoT_2	4630	2.83	1.46	1	7	0.47	−0.37
XenoT_3	4630	2.84	1.51	1	7	0.49	−0.47
XenoT_4	4630	2.91	1.43	1	7	0.36	−0.44
XenoT_5	4630	2.78	1.47	1	7	0.52	−0.36
XenoT_6	4630	3.10	1.52	1	7	0.24	−0.69
SupportTourism_1	4630	4.88	1.44	1	7	−0.55	0.28
SupportTourism_2	4630	4.69	1.52	1	7	−0.44	−0.07
SupportTourism_3	4630	4.87	1.36	1	7	−0.42	0.26
Attractiveness of Domestic Travel	4630	5.40	1.57	1	7	−1.03	0.52
Attractiveness of International Travel	4630	4.53	1.97	1	7	−0.43	−0.99
Booked International Holiday (0 = no; 1 = yes)	4630	0.15	0.35	0	1	1.99	1.96
Booked Domestic Holiday (0 = no; 1 = yes)	4630	0.13	0.33	0	1	2.25	3.06
Travel with Partner (0 = no; 1 = yes)	4630	0.67	0.47	0	1	−0.71	−1.50
Travel with Young Child (0 = no; 1 = yes)	4630	0.11	0.31	0	1	2.52	4.36
Travel Alone (0 = no; 1 = yes)	4630	0.19	0.39	0	1	1.58	0.51

Note: SD = standard deviation; the abbreviated labels of the items refer to the constructs.

Table 4
Factor loadings, Cronbach's α, Composite Reliability, Average Variance Extracted.

Construct	Item Label	B	SE	p -value	β	SE	α	ω	AVE
PATS							0.91	0.91	0.68
	PATS_1	1.13	0.03	0.00	0.630	0.012			
	PATS_2	1.43	0.02	0.00	0.774	0.009			
	PATS_3	1.83	0.02	0.00	0.888	0.005			
	PATS_4	1.69	0.02	0.00	0.880	0.005			
	PATS_5	1.73	0.02	0.00	0.883	0.006			
Tourism Ethnocentrism							0.95	0.95	0.76
	TEthnocentry_1	1.20	0.02	0.00	0.811	0.006			
	TEthnocentry_2	1.55	0.02	0.00	0.825	0.006			
	TEthnocentry_3	1.64	0.02	0.00	0.916	0.004			
	TEthnocentry_4	1.42	0.02	0.00	0.859	0.006			
	TEthnocentry_5	1.62	0.02	0.00	0.896	0.006			
	TEthnocentry_6	1.51	0.02	0.00	0.894	0.005			
Tourist Xenophobia							0.93	0.93	0.70
	XenoT_1	1.10	0.02	0.00	0.751	0.009			
	XenoT_2	1.22	0.02	0.00	0.836	0.008			
	XenoT_3	1.34	0.02	0.00	0.886	0.005			
	XenoT_4	1.22	0.02	0.00	0.856	0.006			
	XenoT_5	1.28	0.02	0.00	0.874	0.006			
	XenoT_6	1.24	0.02	0.00	0.811	0.008			
Support for Tourism							0.88	0.90	0.75
	SupportTourism_1	0.922			0.922	0.005			
	SupportTourism_2	0.938			0.938	0.006			
	SupportTourism_3	0.686			0.686	0.012			

Note: SE = standard errors; α = Cronbach's α; ω = Composite Reliability; AVE = Average Variance Extracted; in case of the B's, the latent variables are standardized; both latent and observed variables are standardized for the β's. CFA estimation is the basis for the reported factor loadings, α, ω and AVE.

Table 5
Discriminant validity of the constructs.

	AVE and SC	1	2	3	4
1	PATS	**0.68**	*0.06*	*0.07*	*0.04*
2	Tourism Ethnocentrism	0.25	**0.76**	*0.06*	*0.24*
3	Tourist Xenophobia	0.26	0.22	**0.70**	*0.00*
4	Support for Tourism	0.19	0.49	−0.01	**0.75**

Note: The correlations are below the diagonal, squared correlations (SC) are above the diagonal in italics, and the AVE estimates are on the diagonal in bold. The correlations come from the CFA model. All correlations are significant at p < 0.001.

Common method bias in our data is unlikely to be a source of concern, as we loaded all observed variables on one common factor in a CFA framework (following Podsakoff et al., 2003) and it produced bad fit statistics ($\chi2 = 43302.080$; df = 324; p = 0.00; CFI = 0.394; TLI = 0.343; SRMR = 0.185; RMSEA = 0.169; 90%CI = 0.168–0.171; PCLOSE = 0.00).

3.4. Results

To examine our hypotheses, we estimated two multi-group SEM-models with three groups: Austria, Germany, and the United Kingdom. In both models, we controlled for our samples' demographics in all equations. For the dependent variables in both models, we also controlled for travel companions' variables. The first model included three dependent variables: Support for Tourism, Attractiveness of Domestic Travel, and Attractiveness of International Travel. The estimates varied freely between the country samples. Table 6 presents the results and the good fit statistics. Furthermore, a $\chi2$-difference test ($\Delta\chi2 = 101.685$, $\Delta df = 16$, p = 0.000) revealed that this free multi-group country model is superior to a model where the meaningful relationships in Table 6 are restricted to be the same between the country samples. Subsequently, the analysis of the correlation residuals (Kline, 2016) shows that these are small, both negative and positive values are included, and there is no evident pattern in these residuals. The full model can be found in Appendix B.

The second multi-group SEM-model had two dichotomous dependent variables: Booked Domestic Holiday and Booked International Holiday (using the WLSMV-estimator). We allowed all estimates to vary

without restraint between the country samples. Table 7 showed the estimated results and included decent goodness-of-fit-statistics. Note that the CFI is just below the threshold of ≥0.93 for excellent fit. Hair et al. (2014) indicated that for large samples, a CFI≥0.90 is also acceptable, especially in relation to an excellent RMSEA and SRMR. Similarly to the model in Table 6, the reported multi-group country model with estimates varied freely between the country samples in Table 7, has a better fit compared to a model where the meaningful relationships are restricted ($\Delta\chi2 = 26.03$, $\Delta df = 12$, p = 0.011). Next, we analysed the correlation residuals (Kline, 2016) and reached the same conclusion as for the first multi-group SEM: the residuals are small, negative and positive, and there is no apparent pattern. The full model is included in Appendix C.

The multi-group models in Tables 6 and 7 helped us to confirm all our hypotheses for all country samples. We found support for H1a and H1b. Pandemic anxiety (measured by PATS) increases Tourism Ethnocentrism (H1a) as well as Tourism Xenophobia (H1b). Both multi-group country models in Tables 6 and 7 reported positive effects for these relationships for all country samples. Table 6 provides evidence for the

Table 7
Multi-group country model for Booked Domestic and International Holidays.

Effects of	On	Austrian	German	UK
PATS	Tourism Ethnocentrism	0.258*** (0.027)	0.197*** (0.026)	0.158*** (0.025)
PATS	Tourist Xenophobia	0.283*** (0.027)	0.232*** (0.027)	0.159*** (0.026)
Tourism Ethnocentrism	Booked Domestic Holiday	0.149*** (0.045)	0.081* (0.041)	0.138** (0.045)
Tourist Xenophobia	Booked Domestic Holiday	n.s.	n.s.	n.s.
Tourism Ethnocentrism	Booked International Holiday	−0.210*** (0.039)	−0.110** (0.041)	−0.239*** (0.039)
Tourist Xenophobia	Booked International Holiday	−0.122*** (0.043)	−0.122** (0.041)	−0.136*** (0.042)

Note: *p ≤ 0.05; **p ≤ 0.01; ***p ≤ 0.001; Standard errors in parentheses; The model presents the unstandardized estimates. Model fit: $\chi^2 = 1844.990$; df = 759; p = 0.00; CFI = 0.921; TLI = 0.947; SRMR = 0.046; RMSEA = 0.030; 90% CI = 0.029–0.032; PCLOSE = 1.000.

Table 6
Multi-group country model for Support for Tourism, Attractiveness of Domestic and International Travel.

Effects of	On	Austrian	German	UK
PATS	Tourism Ethnocentrism	0.271*** (0.031)	0.213*** (0.031)	0.173*** (0.031)
PATS	Tourist Xenophobia	0.306*** (0.033)	0.244*** (0.031)	0.162*** (0.028)
Tourism Ethnocentrism	Support for Tourism	0.625*** (0.04)	0.567*** (0.041)	0.601*** (0.037)
Tourist Xenophobia	Support for Tourism	−0.134*** (0.032)	−0.132*** (0.033)	−0.412*** (0.034)
Tourism Ethnocentrism	Attractiveness of Domestic Travel	0.671*** (0.045)	0.475*** (0.04)	0.500*** (0.044)
Tourist Xenophobia	Attractiveness of Domestic Travel	−0.082* (0.038)	−0.191*** (0.038)	−0.286*** (0.044)
Tourism Ethnocentrism	Attractiveness of International Travel	−0.364*** (0.045)	−0.152** (0.050)	−0.372*** (0.055)
Tourist Xenophobia	Attractiveness of International Travel	−0.264*** (0.049)	−0.324*** (0.048)	−0.394*** (0.054)

Note: *p ≤ 0.05; **p ≤ 0.01; ***p ≤ 0.001; Standard errors in parentheses; The model presents the unstandardized estimates. Model fit: $\chi^2 = 3984.797$; df = 969; p = 0.00; CFI = 0.956; TLI = 0.948; SRMR = 0.037; RMSEA = 0.045; 90%CI = 0.044–0.046; PCLOSE = 1.000.

anticipated positive relationship of Tourism Ethnocentrism and Support for Tourism (H2). Indeed, ethnocentric tourism attitudes positively impact supportive of tourism in their own country. Also, Table 6 shows the expected positive relationship between Tourism Ethnocentrism and perceived Attractiveness of Domestic Travel for hypothesis H3a. Table 7 then verified the positive effect of Tourism Ethnocentrism on Booked Domestic Holiday as well (H3b). Hence, perceptions and bookings (real behaviour) for domestic holidays are positively impacted by increasing Tourism Ethnocentrism. For international travel, we expected that both rising ethnocentrism and xenophobia reduced perceived Attractiveness of International Travel. Table 6 gives evidence for the negative relationship of both Tourism Ethnocentrism and Tourist Xenophobia with perceived Attractiveness of International Travel (H4a and H5a). Finally, Table 7 confirms the negative relationships of both Tourism Ethnocentrism and Tourist Xenophobia with Booked International Holiday (H4b and H5b).

Finally, we focussed on some additional relationships. Even though Tourist Xenophobia explicitly asks about the attitude of visiting a foreign country (Kock, Josiassen, & Assaf, 2019), we could assume that such a trait might also include a certain level of general hostility against foreigners and distrust towards out-group members – which might extend to one's attitude towards incoming guests. Therefore, we estimated the relationship between Tourist Xenophobia and Support for Tourism and found a negative relationship. Similarly, this factor also reduces the Attractiveness of Domestic Travel (but to a much smaller extent than for international travel) for all countries (Table 6). In our second model, however, Tourist Xenophobia (against travelling to a foreign country) did not have an influence on actual domestic holiday bookings (Table 7).

4. Critical discussion

4.1. The paradox: travel reduced but tourism support increased

In summary, we found support for all our hypotheses, which suggests that pandemic-induced travel anxiety negatively affects travel (both perceived attractiveness and booking behaviour) through increased xenophobia. This pathogen-induced assortative sociality (Thornhill & Fincher, 2014) may have fundamental implications for international tourism and intercultural exchange. As noted by several authors (e.g., Hall et al., 2020; Kock et al., 2020; Reisinger & Mavondo, 2005), heightened health and security crises might transform the 21st-century traveller into a more anxious and risk-averse individual. Coupled with climate and sustainability concerns, the lasting COVID-19 pandemic is likely to "*create deep marks in the tourist's thinking and feeling and change how tourists travel*" (Zenker & Kock, 2020, p. 2). Such a change would likely transform global tourism patterns.

Our study addresses a paradox that is manifested in reduced travel activity and stronger support for tourism as a domestic economic activity. In our case, the pandemic simultaneously increased ethnocentrism, and by extension, domestic travel and support for the tourism industry. The in-group preference and support to other in-group members (Chien & Ritchie, 2018) might partially explain the increased support for tourism policies as well as the travel and hospitality industry. Granted, this seems to contradict evolutionary models of behavioural immunity responses, which would entail avoiding all strangers and outsiders, even domestic tourists from other regions (Kock et al., 2020). The cognitive distress of such a paradox might potentially be resolved by enlarging the definition of one's in-group to include the whole domestic travel market (and defining an out-group as only foreign), supported by the overlaps between ethnocentric and patriotic consumption.

Future research might dive deeper into this potential explanation by incorporating other measures. This might also include qualitative research, as some of the questions asked in our empirical analysis are very sensitive and might not be free of social biases. Therefore, exploring these aspects with a more qualitative approach could provide additional richness to these findings.

4.2. Xenophobia versus ethnocentrism

Our results also indicate that, in a pandemic, xenophobic traits follow the evolutionary logic of avoidance (Kock, Josiassen, & Assaf, 2019; Nørfelt et al., 2019), conditioning international travel preferences and behaviours in negative ways. At the same time, xenophobia also seems to explain domestic travel choices and attitudes towards tourism as such. While the scale used to measure the concept did not target this aspect explicitly, our findings show that xenophobia reduces the perceived attractiveness of both home- and outbound types of travel (but domestic to a lower extent than international), as well as international holiday bookings (but not domestic). Interestingly, tourist xenophobia also reduces the support for tourism as such, which aligns with evolutionary models of behavioural immunity responses. Therefore, one assumption could be that xenophobia is a pathogen-induced assortative sociality dimension that follows the evolutionary behavioural immunity response, while the other adaptive sociality dimension, ethnocentrism, creates a paradox that calls for alternative theoretical explanations.

On its face, ethnocentric consumerism is compatible with the views of assortative sociality theory: It entails that during pathogen stress, in-group members will strengthen their ties and support their in-group members and institutions (Fincher & Thornhill, 2012). Yet, we would argue that ethnocentrism is not solely an evolutionary trait, but also a dimension of social identity positioning; thus, it requires sociological frameworks to analyse.

For instance, the concepts of affective nationalism (Antonsich, 2020) or economic nationalism (Lekakis, 2017) may offer a fuller explanation of the communitarian and altruistic tendencies detected in the present study. This implies that during times of pandemics, more people see the maintenance of tourism as a shared responsibility and citizen duty, which may overrule the fear of accommodating foreign others.

On a broader scale, *system theory* (Luhmann, 2002) may also offer a solution to this. According to Luhmann, complex systems (like the economic, societal, or political systems) all follow their own logic and often create conflicts as a result. A societal system, for instance, works on the logic of survival and cooperation to reduce the risk of harm. In this logic, a pathogen threat should lead to the avoidance of travel. An economic system, however, works with the logic of risk-taking and profit. As long as the profit outweighs the risks, such an investment would be logical; people would support the risk of tourism in return for an economic benefit.

Future research could therefore examine the reasoning for travel during health threats in more depth, using sociological or system theory approaches. In addition, it seems highly relevant to dive deeper into the conceptualisation of xenophobia in tourism – not only to explain the avoidance of international travel, but also to detect changes in citizens' xenophobic tendencies towards tourists (i.e., resident xenophobia).

4.3. Travel behaviour, travel avoidance and country differences

Measuring real travel behaviour during a pandemic is challenging, due to the fast-paced changes of health restrictions and travel bans, as well as unpredictable transport operations. Thus, self-reported bookings still seem to be the best solution for avoiding a limited focus on travel

intentions (Dolnicar, 2018). Existing and anticipated travel restrictions were certainly important factors affecting the increase of domestic tourism in 2020. We tried to overcome this limitation by timing our survey at the beginning of the summer holiday season (far before the 2nd wave of the pandemic), when travel restrictions were temporarily relaxed throughout Europe, and by choosing three countries that allowed international travellers.

It is noteworthy that the pattern of hypothesized relationships between the constructs were similar across all three countries–although we did detect some country differences as well. Even though the UK was hardest hit by COVID-19 among the surveyed countries, pandemic anxiety showed the lowest impact on xenophobia and ethnocentrism (in comparison to Austria and Germany). In addition, tourist xenophobia reduced support for tourism in the UK far more extremely than in the other two countries. Perhaps, these attitudes are also resonating some of the Brexit discussions. The Germans, however, showed the lowest impact of xenophobia on the attractiveness of international travel and booking of international holidays (consistent with their stereotype of being a generator of outbound tourism, no matter what).

The data allow us to rethink the concept of travel intentions and travel behaviour during pandemics. In this vein, we should consider reconceptualising the active *opting-out* from travelling as an independent construct. Travel avoidance has so far been operationalised as the opposite of travel behaviour, rather than a deliberate intention of staying put. The recent paper on pandemic fear inducing short-term travel avoidance and coping mechanisms (Zheng et al., 2021) indicates the existence of a more cautious type of non-traveller. In this logic, travel avoidance may be related to psychopathological conditions (instead of a simple counterpart of not travelling) and needs more in-depth research. As Zheng et al. (2021) used an untested and very simplified two-item measurement for travel avoidance that only captures short-term avoidance, we would advocate for more conceptual research and a potential scale development for both short- and long-term travel avoidance.

Finally, the results of our study should invite tourism researchers to conduct more longitudinal studies, as we need to know how this relationship between pandemic anxiety and assortative sociality develops over time. The question of its stability depends on whether international travel undergoes a real paradigm shift (Irwin, 2020, April 16th; Zenker & Kock, 2020) or instead revert back to old travel habits once the crisis is over. It would also be interesting to see how the current dynamics (e.g., different mutations of COVID-19 in different countries) affect this paradoxical relationship between tourism ethnocentrism and tourist xenophobia. Because longitudinal studies can distinguish between short- and long-term effects, they could contribute to a better understanding of post-pandemic tourism, especially to explore if assortative sociality tendencies lead to permanent changes or only temporary effects.

4.4. Practical implications

Tourism and hospitality practitioners are eager to fully reopen operations again and come back to pre-pandemic activity levels after several years of closed borders and travel restrictions. On the positive side, many countries experienced a strong increase in domestic tourism and appeal of rural and peripheral destinations – which was previously often not a top-priority tourism market.

With increasing possibilities of international travel again, it remains uncertain whether domestic destinations will continue to attract citizens as guests to the same extent. If the industry wants to keep the growth momentum of domestic tourism, our results show that assortative sociality tactics (e.g., increasing xenophobia and ethnocentrism) works, but

probably with a social price to pay. Especially xenophobia and more extreme versions of ethnocentrism (e.g., nationalism) would trigger even more anti-foreigner sentiments and hostility (Devakumar et al., 2020), or national exceptionalism (Antonsich, 2020; Esses & Hamilton, 2021).

At the same time, our results also show that support for tourism is increased by ethnocentrism. As many places faced the challenge of lacking support for tourism by the residents before (Wang et al., 2021), appealing for patriotic consumption might be a way to create a more positive relationship with the domestic tourism and hospitality industry. The pandemic showed us, how important our industry is for local communities – and we should use this momentum to keep this residential support.

5. Conclusion

The present paper addressed the revival of domestic tourism in the wake of the COVID-19 pandemic from an evolutionary perspective, more specifically, the ambiguous behavioural consequences of assortative sociality. Based on a large-scale online survey conducted in three European countries (Austria, Germany, and the United Kingdom), we demonstrate comparable causal relationships between pandemic anxiety, assortative sociality, and preferences towards domestic versus international travel.

Our study shows that pathogen threat-induced anxiety triggers the behavioural immunity defence system that is reflected in assortative sociality responses. The dual behavioural traits of assortative sociality were simultaneously captured in preferences towards tourism contexts involving potential encounters with strangers. Xenophobia (negative attitudes towards out-group members) had a clear negative impact on the attractiveness of all types of travel (both within and beyond national borders), which would indicate a straightforward, enduring avoidance of travel in pandemic times. Paradoxically, however, ethnocentric traits (as another dimension of assortative sociality) demonstrated differentiated attitudes and behaviour from that of xenophobia, most notably with positive effects on the perceived attractiveness and bookings of domestic holidays. These contingent causal relationships may give a fuller explanation to the revival of homeland tourism. However, more studies with a longitudinal framework are required to establish whether assortative sociality tendencies lead to permanent behavioural changes in international travel trends.

Furthermore, we found evidence that pandemic fear affects citizens' support for tourism in paradoxical ways: While xenophobia reduced individuals' support for tourism, ethnocentrism stimulated supportive tendencies towards the tourism sector. These findings open up research avenues for connecting changes in individual tourist behaviour to wide-ranging societal transformations, including patriotic consumption, protectionist market interventions, and the return of ethnic segregation in tourism. As such, there might be a 'silver lining' for post-pandemic tourism: a transition towards more sustainable and less travel-intensive forms of tourism, as well as a renewed appreciation and acceptance of tourism as an economic activity.

Impact statement

The Covid-19 pandemic has not only disrupted the global tourism and hospitality industry at large, but also triggered radical changes in tourist behaviour and in attitudes towards tourism through health concerns. These concerns affect especially international travel as well as attitudes toward foreigners as host or guests, which we explain by behavioural immune system response (the so-called assortative

sociality). Domestic travel recovered faster though, which is not only attributable to lower restrictions, but also to deeper psychological factors related to assortative sociality (i.e., xenophobia and ethnocentrism). However, the same traits also created a seemingly paradoxical effect, where citizens' support of the domestic tourism industry increased; despite this is a sector that accommodates foreigners. Our empirical study in three European countries, provides relevant suggestions for keeping domestic tourists as target group and advocates practitioners to use the momentum of this renewed appreciation and acceptance of tourism as an economic activity.

Declarations of competing interest

Acknowledgements

Appendix A. Measures of model constructs

Construct	Item Label	Item (English)	Item (German)	Source
PATS	PATS_1	COVID-19 makes me worry a lot about my normal ways of travelling.	Durch Covid-19 mache ich mir große Sorgen, dass ich nicht mehr normal reisen kann.	Zenker et al. (2021)
	PATS_2	It makes me uncomfortable to think about COVID-19 while planning my vacation.	Es fühlt sich unbehaglich an, bei der Planung meines Urlaubs an Covid-19 zu denken.	
	PATS_3	I am afraid to risk my life when I travel, because of COVID-19.	Ich habe Angst durch Covid-19 mein Leben zu riskieren, wenn ich reise.	
	PATS_4	When watching news about COVID-19, I become nervous or anxious in regard to travel.	Wenn ich Nachrichten über Covid-19 höre, werde ich nervös oder ängstlich in Bezug auf Reisen.	
	PATS_5	I do not feel safe to travel due to COVID-19.	Aufgrund von Covid-19 fühle ich mich nicht sicher zu reisen.	
Tourism Ethnocentrism*	TEthnocentry_1	Brits should support the British economy by travelling to holiday destinations in the UK.	Deutsche sollten die deutsche Wirtschaft unterstützen, indem sie Urlaub in Deutschland machen.	Kock et al. (2019b)
	TEthnocentry_2	Brits should feel a duty to book a national holiday.	Deutsche sollten sich verpflichtet fühlen einen Urlaub im Inland zu buchen.	
	TEthnocentry_3	Everyone should back up the British economy by spending their holiday in the UK.	Jeder sollte die deutsche Wirtschaft unterstützen, indem er/sie seinen Urlaub in Deutschland verbringt.	
	TEthnocentry_4	Every time a Brit decides to spend their holiday in the UK, it makes the UK's future a little bit brighter.	Jedes Mal, wenn ein Deutscher beschließt seinen Urlaub in Deutschland zu verbringen, wird die Zukunft Deutschlands ein bisschen besser.	
	TEthnocentry_5	It comes down to all Brits to spend their holiday in the UK and support the country.	Es ist Sache aller Deutschen ihren Urlaub in Deutschland zu verbringen und das Land zu unterstützen.	
	TEthnocentry_6	Brits should spend their holiday in the UK because this secures jobs in the British tourism industry.	Deutsche sollten ihren Urlaub in Deutschland verbringen, da dies Arbeitsplätze in der deutschen Tourismusbranche sichert.	
Tourist Xenophobia	Intro	Please rate the following statements: *If I travelled to a foreign country* …	Wie sehr stimmen Sie folgenden Aussagen zu? *Wenn ich im Urlaub im Ausland bin* …	Kock, Josiassen, and Assaf (2019)
	XenoT_1	… I doubt that the locals would be welcoming to tourists like me.	… bezweifle ich, dass die Einheimischen Touristen wie mich willkommen heißen würden.	
	XenoT_2	… I would not feel comfortable in the culture.	… würde ich mich in der Kultur nicht wohl fühlen.	
	XenoT_3	… I would probably feel uneasy to engage with locals there.	… würde ich mich wahrscheinlich unwohl fühlen, dort mit Einheimischen in Kontakt zu treten.	
	XenoT_4	… there would be many misunderstandings between me and the locals there.	… würde es viele Missverständnisse zwischen mir und den Einheimischen geben.	
	XenoT_5	… I would be suspicious toward the locals I encounter there.	… wäre ich misstrauisch gegenüber den Einheimischen, denen ich dort begegne.	
	XenoT_6	… I would be worried that the locals would meet me with reservation.	… würde ich mir Sorgen machen, dass die Einheimischen mir gegenüber Vorbehalte haben.	
Support for Tourism	SupportTourism_1	I support tourism development in our country.	Ich unterstütze die Tourismusentwicklung in unserem Land.	Kock, Josiassen, and Assaf (2019); Stylidis et al. (2014)
	SupportTourism_2	I am supportive of increasing tourism in our country.	Ich unterstütze die Steigerung des Tourismus in unserem Land.	
	SupportTourism_3	The money invested to attract more tourists to our country is a good investment.	Das Geld, das investiert wird, um mehr Touristen in unser Land zu locken, ist eine gute Investition.	

Note: *For Austria this was measured with "Österreicher/Österreich" instead of "Deutsche/Deutschland".

Appendix B. Full multi-group model (model 1)

Effects of	On	Austrian	German	UK
Age	PATS	0.010*** (0.002)	0.012*** (0.002)	n.s.
Gender	PATS	0.234*** (0.055)	0.326*** (0.059)	0.269*** (0.060)
Education	PATS	n.s.	n.s.	n.s.
Income	PATS	−0.068*** (0.020)	n.s.	n.s.
PATS	Tourism Ethnocentrism	0.271*** (0.031)	0.213*** (0.031)	0.173*** (0.031)
Age	Tourism Ethnocentrism	0.010*** (0.002)	0.008*** (0.002)	0.011*** (0.002)
Gender	Tourism Ethnocentrism	0.133* (0.055)	n.s.	n.s.
Education	Tourism Ethnocentrism	−0.153*** (0.024)	−0.180*** (0.025)	−0.089** (0.032)
Income	Tourism Ethnocentrism	0.050* (0.021)	n.s.	n.s.
PATS	Tourist Xenophobia	0.306*** (0.033)	0.244*** (0.031)	0.162*** (0.028)
Age	Tourist Xenophobia	−0.010*** (0.002)	−0.010*** (0.002)	−0.009*** (0.002)
Gender	Tourist Xenophobia	−0.313*** (0.057)	−0.304*** (0.058)	−0.124* (0.061)
Education	Tourist Xenophobia	−0.109*** (0.024)	−0.080*** (0.025)	−0.083* (0.033)
Income	Tourist Xenophobia	n.s.	−0.042* (0.019)	−0.104*** (0.019)
Tourism Ethnocentrism	Support for Tourism	0.671*** (0.045)	0.567*** (0.041)	0.601*** (0.037)
Tourist Xenophobia	Support for Tourism	−0.082* (0.038)	−0.132*** (0.033)	−0.412*** (0.034)
Age	Support for Tourism	−0.006** (0.002)	−0.006** (0.002)	n.s.
Gender	Support for Tourism	n.s.	n.s.	n.s.
Education	Support for Tourism	n.s.	0.110*** (0.025)	n.s.
Income	Support for Tourism	0.073*** (0.020)	0.064*** (0.019)	0.060** (0.020)
Tourism Ethnocentrism	Attractiveness of Domestic Travel	0.671*** (0.045)	0.475*** (0.04)	0.500*** (0.044)
Tourist Xenophobia	Attractiveness of Domestic Travel	−0.082* (0.038)	−0.191*** (0.038)	−0.286*** (0.044)
Age	Attractiveness of Domestic Travel	n.s	0.007** (0.003)	n.s
Gender	Attractiveness of Domestic Travel	n.s.	n.s.	n.s.
Education	Attractiveness of Domestic Travel	0.071* (0.036)	0.161*** (0.033)	n.s
Income	Attractiveness of Domestic Travel	n.s.	n.s.	0.065* (0.031)
Travel with Partner	Attractiveness of Domestic Travel	n.s.	n.s	0.208* (0.106)
Travel with Young Child	Attractiveness of Domestic Travel	n.s.	n.s.	−0.357* (0.140)
Travel Alone	Attractiveness of Domestic Travel	n.s.	n.s	n.s
Tourism Ethnocentrism	Attractiveness of International Travel	−0.364*** (0.045)	−0.152** (0.050)	−0.372*** (0.055)
Tourist Xenophobia	Attractiveness of International Travel	−0.264*** (0.049)	−0.324*** (0.048)	−0.394*** (0.054)
Age	Attractiveness of International Travel	−0.010** (0.004)	−0.023*** (0.004)	−0.023** (0.005)
Gender	Attractiveness of International Travel	−0.266** (0.091)	n.s.	n.s.
Education	Attractiveness of International Travel	n.s.	0.088* (0.042)	n.s.
Income	Attractiveness of International Travel	0.072* (0.034)	0.164*** (0.032)	0.178*** (0.040)
Travel with Partner	Attractiveness of International Travel	n.s	n.s.	n.s
Travel with Young Child	Attractiveness of International Travel	n.s	−0.413** (0.156)	n.s
Travel Alone	Attractiveness of International Travel	n.s	n.s	n.s

Note: *p ≤ 0.05; **p ≤ 0.01; ***p ≤ 0.001; Standard errors in parentheses; The model presents the unstandardized estimates. Model fit: $\chi^2 = 3984.797$; df = 969; p = 0.00; CFI = 0.956; TLI = 0.948; SRMR = 0.037; RMSEA = 0.045; 90%CI = 0.044–0.046; PCLOSE = 1.000.

Appendix C. Full multi-group model (model 2)

Effects of	On	Austrian	German	UK
Age	PATS	0.010*** (0.002)	0.011*** (0.002)	n.s.
Gender	PATS	0.215*** (0.055)	0.317*** (0.059)	0.247*** (0.060)
Education	PATS	n.s.	n.s.	n.s.
Income	PATS	−0.073*** (0.021)	n.s.	n.s.
PATS	Tourism Ethnocentrism	0.258*** (0.027)	0.197*** (0.026)	0.158*** (0.025)
Age	Tourism Ethnocentrism	0.011*** (0.002)	0.008*** (0.002)	0.010*** (0.002)
Gender	Tourism Ethnocentrism	0.148** (0.055)	n.s.	n.s.
Education	Tourism Ethnocentrism	−0.158*** (0.025)	−0.184*** (0.025)	−0.082** (0.031)
Income	Tourism Ethnocentrism	0.054** (0.021)	n.s.	−0.056** (0.020)
PATS	Tourist Xenophobia	0.283*** (0.027)	0.232*** (0.027)	0.159*** (0.026)
Age	Tourist Xenophobia	−0.009*** (0.002)	−0.010*** (0.002)	−0.009*** (0.002)
Gender	Tourist Xenophobia	−0.325*** (0.056)	−0.271*** (0.058)	−0.124* (0.061)
Education	Tourist Xenophobia	−0.115*** (0.026)	−0.082*** (0.025)	−0.082* (0.032)
Income	Tourist Xenophobia	n.s.	n.s.	−0.111*** (0.019)
Tourism Ethnocentrism	Booked Domestic Holiday	0.149*** (0.045)	0.081* (0.041)	0.138** (0.045)
Tourist Xenophobia	Booked Domestic Holiday	n.s.	n.s.	n.s.
Age	Booked Domestic Holiday	n.s	n.s.	n.s
Gender	Booked Domestic Holiday	n.s.	n.s.	n.s.
Education	Booked Domestic Holiday	0.149*** (0.036)	n.s.	n.s
Income	Booked Domestic Holiday	n.s.	0.070* (0.030)	n.s.
Travel with Partner	Booked Domestic Holiday	n.s.	n.s	n.s
Travel with Young Child	Booked Domestic Holiday	n.s.	0.432*** (0.127)	n.s.
Travel Alone	Booked Domestic Holiday	n.s.	n.s	n.s.
Tourism Ethnocentrism	Booked International Holiday	−0.210*** (0.039)	−0.110** (0.041)	−0.239*** (0.039)
Tourist Xenophobia	Booked International Holiday	−0.122*** (0.043)	−0.122** (0.041)	−0.136*** (0.042)
Age	Booked International Holiday	n.s.	−0.008** (0.003)	n.s.
Gender	Booked International Holiday	n.s.	n.s.	n.s.
Education	Booked International Holiday	0.084* (0.037)	n.s.	n.s.
Income	Booked International Holiday	n.s.	0.103*** (0.029)	0.080*** (0.030)
Travel with Partner	Booked International Holiday	0.299** (0.108)	0.212* (0.105)	n.s
Travel with Young Child	Booked International Holiday	n.s	n.s.	n.s
Travel Alone	Booked International Holiday	n.s	n.s	n.s

Note: *$p \leq 0.05$; **$p \leq 0.01$; ***$p \leq 0.001$; Standard errors in parentheses; The model presents the unstandardized estimates. Model fit: $\chi^2 = 1844.990$; df = 759; p = 0.00; CFI = 0.921; TLI = 0.947; SRMR = 0.046; RMSEA = 0.030; 90%CI = 0.029–0.032; PCLOSE = 1.000.

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