


Negative health impact of tourists through pandemic: hospitality sector perspective

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Seyedeh Fatemeh Ghasempour Ganji 

Department of Management, Faculty of Economics and Administrative Sciences, Ferdowsi University of Mashhad, Mashhad, Iran

Lester W Johnson

Swinburne Business School, Swinburne University of Technology, Hawthorn, VIC, Australia

Ali Kazemi

Department of Management, Kish International Branch, Islamic Azad University, Kish, Iran

Samaneh Sadeghian

Department of Management, Ferdowsi University of Mashhad, Mashhad, Iran

Abstract

Although the impact of tourism development on residents has received a lot of attention in the literature, the health impact of tourism has not been sufficiently addressed. Due to outbreaks of COVID-19, the importance of recognition of the negative health impact of tourism is relevant. Thus, the present study aims to identify the health impact of tourism through COVID-19 outbreaks considering residents' perspectives. In the current research, we gathered data from semi-structured interviews conducted from 10th August to 30 August 2020 to investigate community perception regarding the negative health impact of tourism through the COVID-19 era. We conducted 30 interviews with some Iranian residents. Data is analyzed by thematic analysis via MAXQDA software. Residents perceived negative health impacts through COVID-19 outbreaks as containing three subthemes including general negative impacts, direct negative impacts, and indirect negative impacts. The results also show that residents use two coping strategies to face these negative health impacts, namely negative coping strategies and positive coping strategies. Perceived negative health impacts, and residents' coping strategies are two major themes regarding Iranian residents' perception toward tourism negative health impacts through COVID-19 outbreaks.

Keywords

COVID 19, public health impacts, psychological impacts, tourism

Introduction

Residents can be affected by tourism in some ways. Although research has mostly highlighted the social, economic and environmental effect of tourism development on residents (e.g. [Ganji et al., 2020](#); [Gholami et al., 2019](#); [Kafashpor et al., 2018](#)), a few studies address the health impact (e.g. [Godovykh and Ridderstaat, 2020](#)). Previous literature has mostly highlighted the link of tourism and health in terms of health problems in travelers, and the medical consideration of travel planning (e.g. [Flaherty et al., 2017](#); [Packham, 1995](#); [Van Aalst et al., 2018](#)). In contrast, there are few studies that consider the health impacts of

travelers on the community (e.g. [Bauer, 1999, 2008](#)). They address some direct impacts of tourism on residents including the danger of disease transmission as well as the danger of accidents. In terms of indirect effects, they highlighted the possible indirect impact of economic, social and cultural effect of tourism on community well-being and health. For example, the

Corresponding author:

Seyedeh Fatemeh Ghasempour Ganji, Department of Management, Faculty of Economics and Administrative Sciences, Ferdowsi University of Mashhad, Mashhad, Iran.
Email: fa.ghasempour@mail.um.ac.ir

negative potential environmental effects of tourists on pollution of nature may endanger locals' health (Bauer, 2008). To measure the potential health effects of tourists on residents' health, we conducted a qualitative survey in Iran during the COVID 19 outbreaks.

Due to infectious disease outbreaks, like COVID 19, the effect of tourists on locals' health seems to be of importance. In this regard, movement and travelling may be one of the causal factors of speed of the infectious disease spread through countries, affecting both tourists and residents' health. Consequently, travel limitation and border restrictions were considered in numerous nations to control the spread of virus (Habes et al., 2020; Qiu et al., 2020). In the case of COVID 19, to decrease the spread rate of disease, most countries have considered border restrictions, and encouraged or even forced their citizens to decrease social contact and cancel travel. However, the previous studies are mainly focused on both the positive and negative health impact of tourists on the residential community in the normal period of time (Bauer, 2008), but the negative health impacts of tourism may be aggravated in times of crisis and disaster (Qiu et al., 2020). Thus, emphasizing the negative health impact of tourists through a crisis and pandemic may be valuable. Moreover, the effect of epidemics on tourism, specifically tourists, has generally been investigated by statistical methods (e.g. Kuo et al., 2008). A qualitative survey may offer more deep information on this topic.

It is obvious that the infectious disease also causes an extensive extent of health problems (Xiong et al., 2020). The features of irregularity, ambiguity, the seriousness of the virus, propaganda, and social distancing may certainly result in strain and psychological problems like anxiety and depression (Rajkumar, 2020). Facing and controlling these potential stress and psychological consequences of contagious diseases enforces a remarkable issue to the global population. The study on coping strategies seems to be an important outline to realize the danger and preventive aspects of psychological health problems. There are several quantitative studies focusing on coping strategies of different group of peoples through COVID-19 outbreaks (e.g. Dullius et al., 2021; Hidalgo-Andrade et al., 2021; Vally, 2020). However, to address these coping strategies deeply, qualitative studies are recommended by authors (Fluharty and Fancourt, 2021).

This research contributes to the risk theory and crisis management knowledge in some ways. While some research has considered the impact of crises on tourism (e.g. Hajibaba et al., 2015; Pine and McKercher, 2004; Rosselló et al., 2017; Solarin, 2016), only a few investigations have been done on the way tourists may intensify crisis events and have negative health impacts on the residents (e.g. Qiu et al., 2020; Ritchie, 2008).

Moreover, most of the previous studies were based on proposing a conceptual framework based on previous literature, and not specifically rooting their conclusion based on conducting an empirical survey. Thus, the negative health impacts or health risks perceived by residents from tourists through a qualitative empirical study should be valuable and help policymakers to suggest useful solution to manage and remedy these negative health consequences during and after the pandemic. Thus, to measure the potential negative health effects of tourists on residents' health through COVID-19 outbreaks, we conducted a qualitative survey in Iran to understand the perception of Iranian residents about the negative health impact of tourism and their coping strategy when faced with this risk perception during COVID-19 outbreaks.

Literature review

The impact of tourism industry on residents

The tourism sector has experienced solid development and has become one of the main and extremely flourishing industries (Ozturk et al., 2015). Tourism can be considered as a multi-purpose component which influences local residents (Kafashpor et al., 2018). Tourism industry development could influence residents both negatively and positively. Although researchers mostly considered the positive influence of tourism development with economic, socio-cultural, and environmental effects on local residents, it is barely believable that all the fruits of the tourism industry can be considered beneficial. For instance, the tourism industry promotes the city and the society's facilities but also may cause pollution (Rivera et al., 2015). Most of the current studies just consider four aspects of tourism development including, social impact, economic impact, environmental impact and cultural impact on residents' life (e.g. Ganji et al., 2020; Gnji et al., 2017; Kafashpor et al., 2018). However, due to the influx of the infectious disease by tourists, it is essential to investigate another aspect of tourism impact known as a health impact which is not deeply investigated through current research.

Dispersion of Infectious Diseases by the Tourism Industry

The movement of contagious virus by tourists is a key feature of travel. Travelers are not only in danger to get new infections, but also, they spread microbes and virus in the host area (Rodriguez-Garcia, 2001; Wilson, 1997). Travelling may boost the spread of contagious diseases like SARS, swine flu, and Ebola virus (Ala'a and Albattat, 2019). Richter (2003) indicated that the

occurrence or return of infectious diseases is amongst the consequence of global tourism and movement. At the same time, there is rising concern about the advent of unknown diseases, intensification in resistance and creating genetic exchange among infectious viruses and microbes, which makes the cure of an emergent diseases so difficult (Goldsmith, 1998; Moennig, 1992). Several of the diseases most frequently associated with tourism are Malaria, sexually transmitted diseases, hepatitis A, B, and C and so on (Gössling, 2002). Specifically, the SARS (2003) provoked lots of scholars to investigate its concerned effects and responses to contagious respiratory diseases (e.g. Page et al., 1994).

There are few studies considered health impacts of travelers on the community (e.g. Bauer, 1999, 2008). However, there seems to be remarkably insufficient surveys on the effect of diseases caused by travelers to native residents. Such residents are undoubtedly exposed to possible death and disability because of accidents, violence and injuries brought by tourism, and they have to suffer from the results of unfavorable behaviors including those involved to sex tourists (Gössling, 2002). Specifically, those residents working in tourism and hospitality industry including restaurants, hotels, airlines may be more affected by the negative health impacts of tourism. Richter (2003) investigated the effect of international tourism on global public health, discussing the increasing threat from infectious diseases and intensifying public health risks related to international tourism to tourists, host societies and the tourists' home countries. Amongst limited research on the health impacts of tourists on residents, Bauer (2008) provided a review paper recognized two categories of direct (accident, transmission of diseases, workplace health) and indirect health impact (financial, ecological, socio-cultural and political health impact), focusing on both positive and negative health impacts. For example, the negative potential environmental effects of tourists on pollution of nature may endanger locals' health (Bauer, 2008).

Residents perceived health impact and tourism during a crisis

Researchers' discussions on tourism and crises show two major contexts of risk theory and crisis management. Studies on the risk perception related to tourism have mostly concentrated on the tourists' points of view instead of focusing on the residents' perspectives (Qiu et al., 2020). Risk, health and safety concerns have been commonly investigated from the travelers' points of view, looking for verifying why tourists perceive risks differently due to demographic differences and what

factors (like illness, previous experience, etc.) affect such perceptions (e.g. Gössling et al., 2012). Travelers-related risks are shown to be those related to terrorism, war, uncertainty or health issues (Qiu et al., 2020). Eitzinger and Wiedemann (2007) highlighted the key role of investigating the risks perceived by locals, as their perceptions are formed by their special experiences, which vary from travelers' perception. However, there are a few empirical studies considering the perception of risk from residents' perspective (e.g. Qiu et al., 2020).

The effect of crises on the tourism sector has been a critical topic in previous literature. Most of the research has concentrated on the effect of different crises (e.g. Hajibaba et al., 2015), including different infectious disease (Pine and McKercher, 2004; Rosselló et al., 2017), financial crisis (Solarin, 2016) and terrorism (Parida et al., 2015), on tourism demand. However, according to the Ritchie and Jiang (2019) literature review through crisis management, absence of inclusive theoretical and practical research of the impact of crises on the tourism sector was recognized. Several authors have also suggested that tourism crisis management would reflect the residents' side as well (e.g. Lukashina et al., 1996; Qiu et al., 2020). However, several surveys have examined the effect of crises on travelers (e.g. Cafiso et al., 2018; Rosselló et al., 2017), a few studies have investigated how tourists may affect crisis and have negative impact on the destination locals (e.g. Ritchie, 2008; Qiu et al., 2020).

Thus, to fill these gaps, the current study seeks to investigate the residents' perception of the health impact of tourism (as one important risk perception issue) and their coping to remedy the health risk they perceived through the COVID-19 crisis.

Coping strategies to face the perceived health risk

Most of the studies related to coping strategies were quantitative research. Dullius et al. (2021) through their literature review study showed that the major coping strategies of health professionals against COVID-19 were supporting their family and relatives, colleagues, organizations, having access to continuing education and Personal Protective Equipment (PPE), religious belief, and doing hobbies. Vally (2020) reported more precautionary activities among patients with postsecondary education having chronic disease. Hidalgo-Andrade et al. (2021) also showed that seeking social support, exercising, and engaging in leisure activities are the most applicable coping strategies to face with stress related to online teaching. Fluharty and

Fancourt (2021) in their quantitative studies investigated the predictors of different coping strategies including problem solving based coping strategies (coping actively and use of planning), emotional based coping strategies (positive reframing, approval, humor, belief), avoidant coping (behavioral disorder, disavowal, substance use), and socially supported coping (emotional or instrumental support, and escaping). Girma et al. (2021) investigated the relationship between coping strategies of adults with chronic disease and Covid-19 related stress and showed that active coping, refusal, behavioral disorder, self-blame and belief coping strategies positively predicted the COVID-19-related stress score. According to their study, just the acceptance coping methods negatively affected the stress mark of the patients. Chew et al. (2020) reviewed psychological answer and coping strategies through previous outbreaks of contagious diseases, including Ebola and H1N1. They explained two major strategies including problem-oriented strategies (including finding replacement, self-protection activities and other-protection activities), and emotional based coping methods (avoidance and disavowal, social support, and positive reassessment of the condition). They showed that the coping methods differed in diverse epidemics, the problem-oriented methods are more relying on predicting better adjustment in manageable circumstances, while emotion-oriented methods would be preferred in unpredictable circumstances.

In hospitality literature, the vast range of exiting studies on crisis management and coping strategies concentrated on the macro-level, including a destination, a sector of the industry or a specific organization (e.g. Prayag, 2018; Faisal et al., 2020; Radic et al., 2020; Smart et al., 2021). For example, Smart et al., (2021) conducted the study in organization level, retrieving coping strategies through lodging industry, including day to day operation strategies and health and safety measures to marketing, human resources and cost-saving strategies. Thus, there is a lack of studies on coping strategies at the individual level in tourism industry. Thus, to fill this gap, we aim to conduct a qualitative research to investigate coping strategies in individual level, specifically coping strategies of residents who are exposed to tourists.

Research methodology

Research design

Qualitative research methods were used to gather data. Qualitative surveys seek to go beyond statistics to offer an investigator an in-depth perception of a

phenomenon (Toubes et al., 2021). Nunkoosing (2005) highlighted the implications of the interview in the role of a data collection method permitting individuals to think and to speak about their dilemmas, desires, hopes, feelings, perceptions, and experiences. In contrast to quantitative research, where the research reveals the investigator's matters, in interviews, the key attention is on the viewpoints of the interviewee (Bryman, 2012). So, qualitative research and semi-structured interviews were used in this study because such a methodology allowed us to gain realistic and deep information by leaving respondents free to explore their experiences (Halperin and Heath, 2017).

The interview protocol was sent to each interviewee several days before the interview session was started to ensure the familiarity of the interviewee with the purpose of the interview and questions. This may lead to more precise answers and decrease the stress of the interviewer. The interview protocol contained three parts. In the first part, the goal of the research was explained. Moreover, in this part the author emphasized that the privacy of the respondents would be of great importance to the researchers, and that it was not needed to mention their name and personal information, and emphasized the use of the interviews just for a scientific purpose. In this section, we requested for the recording of the interview and check the availability of the respondents for more contacts. The second section contained five demographic questions with regards to respondents' age, gender, education, city of residency, and their jobs. The third part contained six open-ended questions associated with the purpose of the study. Thus, considering the two research questions, the interview was designed based on previous literature to address the negative health impact of tourists travelling through COVID-19, and the residents coping strategies to face this perceived risk. According to negative health impact, some direct and indirect health impacts proposed from literature (e.g. Bauer, 1999, 2008) were considered. Thus, for instance the question "How tourism affected your quality of life and health during COVID-19 outbreaks", "How tourists directly or indirectly affect your health during COVID-19 outbreaks?" were asked. The second section of the interview protocol was related to individual coping strategies to remedy the negative health impacts. In line with this, questions like "How do you cope with these negative health impacts personally" and "how do you control your negative feelings and stress related to COVID-19 outbreaks" were asked.

Throughout the interview session, we benefited from some expert interviewers. After greeting, the interviewer explains the research protocol in respect of the goal of the survey and privacy issues, as well as to gain



Figure 1. The geographical location of Iran: the context of study.

permission to record the interview or not. Moreover, the availability of the interviewees for further contact was asked. The interviewers also tried to ensure intimacy and privacy issues throughout the interviews. In many cases, more related questions based on interviewees' answers were asked to ensure all aspects of the subject were covered.

Research context and sampling

According to pathogen-stress theory, culture may have an effect on personal behaviors regards to infectious disease. Thus, we selected one country, Iran, to do this research. For example, Iran has a collectivism culture, leading it to have a lower rate of infections. The reason is that, firstly, collectivists consider a great deal of weight on their in-group, caring for one another and thus protecting each other from the negative impacts of contagion (Fincher and Thornhill, 2008). Secondly, collectivist cultures are untrusting of individuals outside of their in-group, which can be considered as a protective behavior (Sherman and Billing, 1999). These culture may also affect the attitude and behaviors of Iranian permanent residents regards to tourists visiting through infectious disease outbreak.

Iran (Persia), with the capital of Tehran, is a country in Western Asia. It has common borders with Armenia, Azerbaijan and Turkmenistan in the north, with Afghanistan and Pakistan in the east, with Oman in the south, and in the west with Turkey and Iraq (Figure 1). The population of Iran is estimated to be 83 million, and covers an area of 1,648,195 km². Iran is the sixth-largest country in Asia. The most popular tourist

destinations are Tehran, Isfahan, Khorasan, Yazd, and Fars province. According to the World Bank, Iran tourism sector with 4.9 million international tourists in 2016 has constituted 7.3% of the Gross Domestic Product (GDP). Moreover, domestic tourism in Iran is one of the largest in the world. For example, in the first quarter of the Iranian year in 2016, about 75 million domestic travels were reported throughout Iranian cities. Moreover, health tourism (estimated 11 million medical tourists in 2017) and religious tourism are the most popular due to the low costs and high quality healthcare system as well as some popular religious sites located in Mashhad and Qom (Center for Economic Research and Studies report, 2019; ILIA corporation, 2021).

On 31 December 2019, a series of unexplained pneumonia cases were reported in Wuhan, China. COVID-19 revealed a much more severe effect than former pandemics, mainly in terms of affected areas and the number of affected population. For example, SARS cases were identified through 27 countries caused 774 deaths out of 8096 infected cases (WHO, 2004). This is in comparison with COVID-19 which affected over 102.1 million people and over 2.2 million deaths through more than 200 countries (WHO, 2021). In the case of Iran, up to 19 September 2021, it recorded 5,408,860 corona virus cases and 116,791 deaths related to COVID-19 outbreaks (WHO, 2021). To decrease the spread rate of infection, Iranian officials have canceled Friday prayers, locked down schools and universities, closed malls, marketplaces, and holy mosques, and banned festival celebrations. Although the government of Iran encouraged people to stay at

Table 1. Interviewees demographics.

Demographic characteristics		Number (N=30)	Percentage
Gender	Male	12	0.4
	Female	18	0.6
Age	<20	8	0.26
	21–30	7	0.23
	31–40	7	0.23
	40–50	5	0.16
	>50	3	0.1
Province	Mazandaran	2	0.06
	Tehran	4	0.13
	Isfahan	3	0.1
	Khorasan	5	0.16
	Fars	7	0.23
	Ghom	4	0.13
	Gilan	3	0.1
	Hormozgan	2	0.06
Jobs	Tourism industry	7	0.23
	Health professions/workers	7	0.23
	Retailers/store workers	6	0.2
	Transportation workers	2	0.06
	Police	3	0.1
	Other related jobs	5	0.16
Education	High school or less	7	0.23
	Bachelor	12	0.4
	Master	8	0.26
	Ph.D	3	0.1

home and not to travel, several Iranian people did engage in urban tourism. Moreover, international tourists still come to Iran from some infected countries. Accordingly, the hospitality industry in Iran has suffered heavy losses. According to Hotel News, the head of the country's hoteliers' association has announced that by the end of 7 July 4,000 billion Rials of damage has been inflicted on the hotel industry (Hotel News Web site, 1399). According to the Minister of Cultural Heritage, Tourism and Handicrafts, in the first 5 months of the outbreak of COVID 19, the damage equivalent to 118 thousand billion Rials has been caused to the tourism industry (Hassanpour et al., 2020).

The research population of this study was the Iranian citizens who are being exposed to tourists through COVID-19 outbreaks. In the current research, we gathered data from semi-structured interviews. Accordingly, six interviewers conducted 30 semi-structured interviews with locals to extract different dimensions of negative health impacts of tourism through COVID-19 outbreaks as well as the residents coping strategies. Due to COVID-19 infection risk, interviews were done via phone call and Skype, using the heterogeneous purposive sampling focusing on maximum variation of sample (Saunders, 2012). To

ensure the maximum variation of the sample, heterogeneity was highlighted in respect of measures like sexual category, occupation, age, level of education and place of residence. The first criteria to provide the sample are that the interviewees should be exposed to tourists to realize the risk of tourists through COVID-19 outbreaks. To consider the right participants, (1) the individuals who confirmed their relevancy by checking their social media profiles, (2) people whom the researchers knew through their surroundings and (3) snowballing from earlier interviewees were looked up. Based on previous research (e.g. Saunders, 2012) the sample size between 12 to 30 participants for qualitative study is considered as appropriate to clarify the phenomenon of the study. The sample size was considered as 30, which is the higher limit. To reach this sample size, we contacted approximately 80 people, checked via telephone or social media message if they fulfilled the eligibility requirement or not and if they wanted to participate in the survey or not. As the tourism supply and demand may associate with the rate of research results, we select interviewees from cities with popular historical, natural or religious sites including Isfahan, Yazd, Gilan, Ghom and Mashhad. As a criterion for inclusion in this survey, the questions such as "Have you been exposed to tourists due to your work or your house

location, etc.² were asked. Those who answered “No” to the question were excluded from survey. Interviews were conducted from 1st November to 24 November 2020. They took about 25 min on average. [Table 1](#) shows the interviewees demographic characteristics.

Data analysis

Related literature reviewed by the authors was used to design questions to understand how participants perceived the negative health impact of tourism during COVID-19 outbreaks, as well as coping strategies they adopted for coping with them. To analyze data, we used thematic analysis via MAXQDA 2020. Data gathered from the interviews were coded thematically to extract themes and sub-themes derived from the research purposes ([Walters, 2016](#)). We derived codes by carefully line-by-line reading of each interview, using both inductive and deductive coding proposed by [Samarasekara et al. \(2011\)](#). To ensure the credibility of the qualitative research, each researcher read interview transcript several times, separately analyzed the data and extracted codes independently ([Braun and Clarke, 2006](#)). The transcribed draft was read and reread repeatedly to realize total mood and emotions of interviewees ([Walls et al., 2011](#)). Moreover, it was analyzed by unraveling the main themes, sub-themes and codes associating with these themes ([Ho et al., 2017](#)). Firstly, an inductive approach as a data-driven method was used for coding so that original information that appeared was not ignored due to pre-existing information ([Azungah, 2018](#)), bring opportunities to acquired precious details that arise from the data ([Samarasekara et al., 2011](#)). To recognize sub-themes, we did the coding process frequently, considering likeness and variances. In the second stage, deductive coding, the codes produced were compared with present studies ([Shaheer et al., 2021](#)). In this stage of the coding procedure, themes acknowledged in previous research

were cross-checked for phrasing and their explanation to retain consistency ([Nagai et al., 2018](#)). Finally, any differences in coding provided by each researcher were discussed and updated to set the associations among the themes and sub-themes.

To ensure research reliability and validity, we adopted the [Lincoln and Guba \(1985\)](#) framework of qualitative research creditability measuring by three elements of truth value, consistency and applicability. To increase truth value of the study, audio recorded interviews were used. This made it possible for frequent listening of the data to investigate evolving themes. Moreover, all participants were asked to comment on the research results and make judgements about either the final themes are true based on their interview or not, and 14 respondents accepted to participate in this regard. To ensure consistency and achieving auditability, the authors try to provide the clear explanations of the research process ([Noble and Smith, 2015](#)). Moreover, data were analyzed with all of the research teams' members separately, and finally emerging themes were discussed. To increase the application of results to other settings, rich detail of settings was provided by the authors through the paper.

Results

According to interview analysis, we found two main themes, namely negative health impacts and strategies for coping with these impacts. [Table 2](#) shows derived themes, sub-themes and related codes.

The explanations for each theme and sub-theme are provided as follow:

Negative health impacts

The first major theme revealed from interviews is negative health impact. This contains three sub-theme of general negative health impacts, indirect negative

Table 2. Themes, sub-themes and codes.

Themes	Sub-themes	Codes
Negative health impacts	General negative health impacts	Accidents Transmission of disease
	Direct negative health impacts	Public mental health Public physical health
	Indirect negative health impacts	Health problems related to self-isolation and quarantine Health problems related to social distancing
Coping strategies	Positive coping strategies	Precautionary activities Stress release activities
	Negative coping strategies	Obsessive-compulsive behaviors Travel anxiety Harmful and negative behavior

health impacts and direct negative health impacts. Using MAXQDA tools, the hierarchical codes for each themes provide.

General health impacts

As shown in Figure 2, similar to other research related to the health impact of tourism, residents consider accidents and transmission of disease as two important general health issues related to tourism (e.g. Bauer, 2008). The feature of general health impact is that they are not specifically related to COVID-19 outbreaks.

Due to the influx of tourism, disease is transmitted to the locals from the tourists. For example, respiratory infections may increase due to transmission of tourists' colds and sore throats to local communities. Moreover, vector-borne diseases, sexually transmitted infections, and gastrointestinal infections including bacterial, viral or parasitic could be transmitted from visitors to residents. For example, one of the interviewees mentioned:

Tourists cause transition of disease from one city or country to another, for example infectious disease can transmit from international tourists to Iran.

Local residents may also be damaged in accidents as a result of dangerous driving by careless tourists. The reason is that tourists are unfamiliar with road conditions. Moreover, carelessness and consumption of narcotic drugs and alcohol while driving can cause death or hurt residents. For example, one of the interviewees mentioned:

There are lots of accidents in this area of the city as tourists confuse the road and drive on the wrong side of the street.

Direct health impacts

Direct health impact refers to health impacts of tourism directly related to COVID-19 outbreaks. Based on

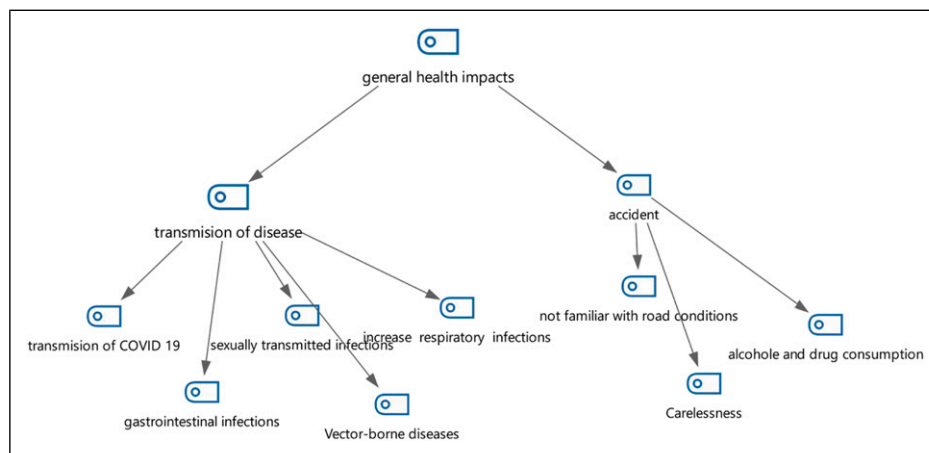


Figure 2. Hierarchical codes of general health impact.

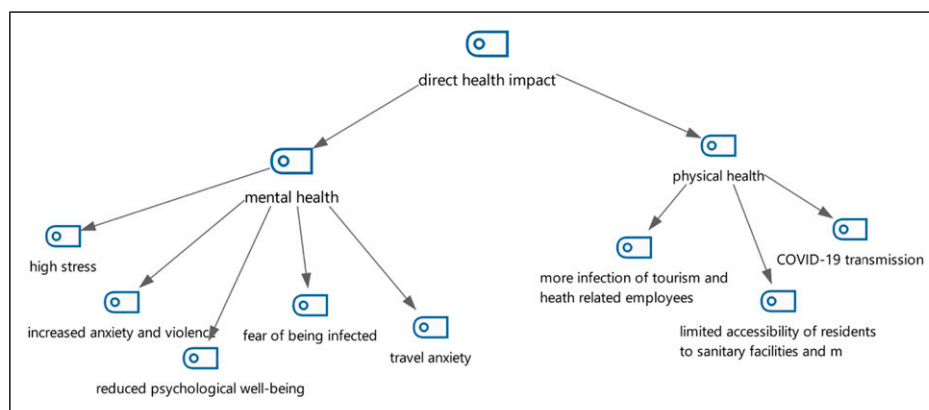


Figure 3. Hierarchical codes of direct health impact.

Figure 3, It contains the effect of COVID-19 on residents both psychological and physical health.

In terms of physical impact of tourism, residents highlighted COVID-19 transmission from infected tourists to residents. For example, one of the interviewees mentioned:

COVID-19 may be transmitted from tourists to residents and may affect residents' life directly and indirectly, resulting in death. It will be more dangerous and threatening for some vulnerable citizens like old ones or residents with some contextual diseases.

Another important example which interviewees mentioned is that tourism providers, hospitality workers like those working in restaurants are more infected due to the increasing rate of infected people. Residents also mentioned that due to a large number of tourists, the accessibility of residents to sanitary facilities and masks may be limited and cause increasing transmission of COVID-19.

Another negative health impact of the tourism in flux during COVID-19 outbreaks is related to increased anxiety and violence as two important psychological negative impacts of being under pressure and stress of infection. Moreover, residents feel less psychologically well. Residents feel more stress, distress and anxiety and depression specifically when their work is related to tourists and patients, like working in hotels or restaurants. For example, one of the interviewees mentioned:

I work in hotel, and due to increased rate of tourists now, I have a high level of pressure and stress related to being infected and infect my family. As I am always in a danger of

being infected, I always have a fear which affects my quality of life.

Indirect health impacts

Indirect health impacts are not directly related to tourists. These kinds of health impacts occur in consequence of being infected by COVID-19 or increased risk of being infected due to different reasons including influx of tourists. In this regard, two sub-themes were recognized in this research: health problems related to self-isolation and quarantine as well as health problems related to social distancing (Figure 4).

Results show that self-isolation has influenced common routines of the public that could cause an increase in loneliness, anxiety, domestic violence, insomnia, stress, depression, homicide and suicide as well as obesity. For example, one of the interviewees stated:

As I have to stay at home for a long time without any entertainment to be amused with, I sometimes feel depressed. We are mostly locked down in our home and feel a sense of anxiety because of this situation. Even if we stay home, we all the time think about COVID-19, we always read disastrous news in social media. It is so stressful.

Another interviewee who was in quarantine for 2 weeks as he was infected states:

It was the worst time of my life. I even could not communicate with my family members. The fear of death was all the time with me. I was so anxious and depressed on that time. Now, although those days finished up, I yet have a feel of fear and anxiety when I think about that period.

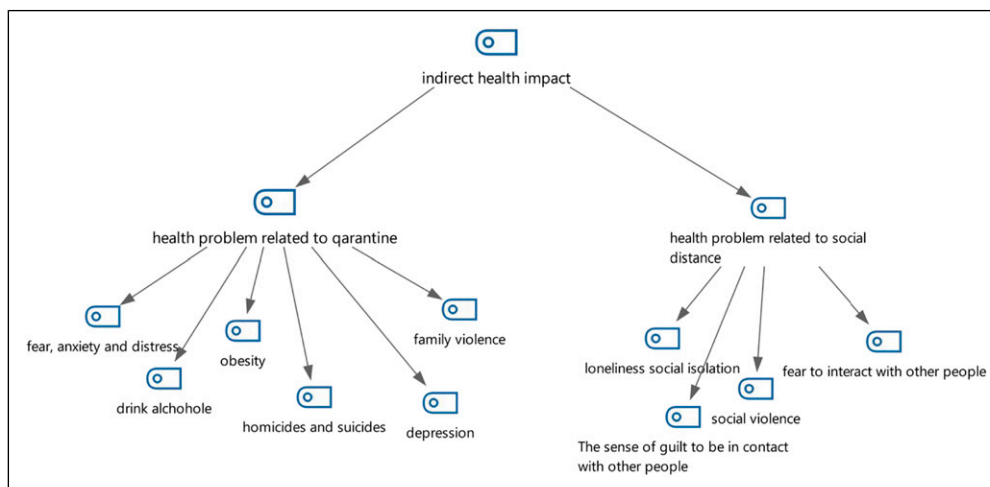


Figure 4. Hierarchical codes of indirect health impact.

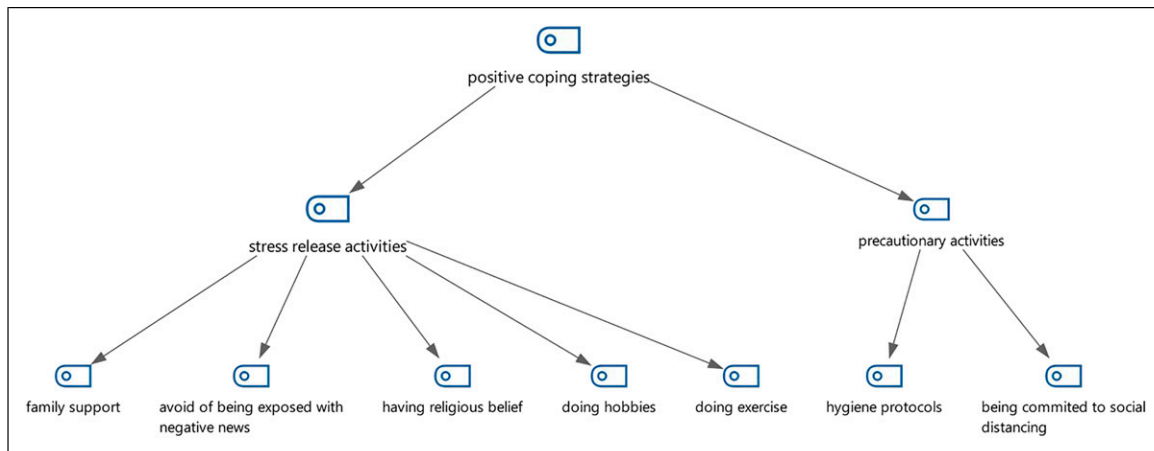


Figure 5. Hierarchical codes of positive coping strategies.

Moreover, some health problems derived from social distancing may be increased due to more outbreaks of COVID-19. As an impact of COVID-19, people may show some extent of social fear and social isolation. In this regard, they have to decrease their connection with others, leading them to a feeling of loneliness. They also show a sense of fear to interact with other people. The sense of guilt to be in contact with other people and the sense of anxiety were also reported by interviewees as they think they may infect others.

Coping Strategies

The second theme derived from thematic analysis is coping strategies of residents to reduce these general, direct and indirect negative impacts. We recognized two strategies including positive coping strategies and negative coping strategies.

Positive coping strategies. Positive coping strategies are those useful and effective activities which applied with people to release COVID-19 negative feelings that do not harm themselves or other people. As shown in Figure 5, Positive coping strategies are including some precautionary activities and stress release activities.

According to doing precautionary activities, some of interviewees highlighted that they try to decrease health problems of tourists by being committed to hygiene protocols and doing social distancing. Overall, the interviewees highlighted washing hands, wearing masks and doing personal hygiene in the workplace and social distancing as some important precautionary activities. For example, one of the interviewees mentioned:

As I am always being in contact with tourists, I try to wear two masks as it more likely avoids being infected. Moreover, using sanitation liquid is so important to protect

yourself against COVID-19. We also try to ask visitors to use mask in hotel lobby.

According to doing stress release activities, interviewees also highlight exercise, doing hobbies, having religious belief, avoiding being exposed with negative news, and being more supportive of family and relatives. They believe that these activities may enhance their immune system. They mentioned that speaking with their relatives by phone and on face-to-face online platforms makes them feel more relaxed. Some participants mentioned that they cautiously neglect negative news to decrease their stress. For example:

As a way to release my tensions I always try not to be exposed to negative news released from media. They are so terrible news. Most of them are related to COVID-19 high rate of death in Iran which makes people so exhausted.

Moreover, as an Islamic country, most of the interviewees mentioned spirituality and praying as an important stress releaser which help them to cope with COVID-19 stress.

Negative coping strategies. We defined negative coping strategies as harmful activities which applied with people to release COVID-19 negative feelings that harm themselves or other people in a psychological or physical way. Residents also may have engaged with negative coping strategies to reduce the negative health impact of COVID-19. We distinguished three types of negative coping strategies including obsessive-compulsive behaviors, travel anxiety and harmful and negative behavior (Figure 6).

Obsessive-compulsive behaviors. Obsessive-compulsive disorder (OCD) is considered as a psychological

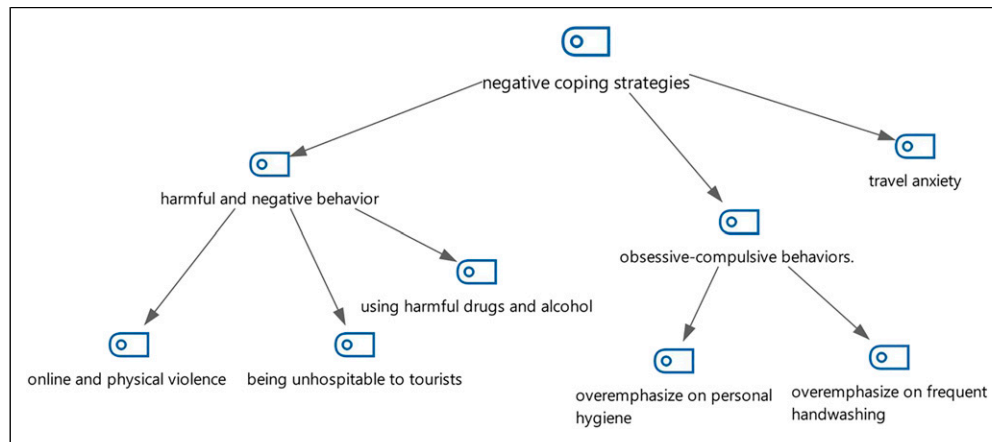


Figure 6. Hierarchical codes of negative coping strategies.

disorder which is mainly diagnosed in accordance with the attendance of obsessions and/or compulsions (American Psychiatric Association, 2013). Obsessions have been considered as repeated and insistent opinion, urges, or dreams that are felt as invasive and undesirable. Compulsions are also defined as a repetitive behaviors or psychic acts which individual experiences have driven to perform in return for an obsession or in line with rules that need to apply strictly (Lack & McMillan, 2015). Obsessive and compulsive only become a concern once they are performed unreasonably, illogically, for irrational deal of time, to an extent that causes substantial suffering to the individual, or once they impede day-to-day life (Lack, 2013). We defined obsessive-compulsive behaviors as a negative coping strategy which is used by an individual repeatedly and unreasonably to cope with COVID-19 risk. This makes individuals realize they are in serious trouble and disturb their living. In this regard, as a coping strategy, they may overemphasize on frequent hand washing, as well as on personal hygiene to protect themselves and their family members from COVID-19, leading to more stress. For example, one of interviewees mentioned:

I always think my hands are dirty, so I wash them frequently. I think all the surrounding is infected, so I am always busy cleaning everything over and over again to ensure they are clean.

Travel anxiety

Anxiety is a mental worry and strain for the future (Banerjee, 2020) and excessive anxiety may appear as a sign to prevent taking risks (Smith et al., 2016). The COVID-19 outbreak commonly scares people and makes them anxious (Luo and Lam, 2020). We considered travel anxiety as the fear of visiting an unfamiliar

place which makes the decision for future travelling problematic. Thus, we categorized the travel anxiety as a negative coping strategy by the individual. A number of interviewees highlighted that they feel some extent of anxiety with regards to travelling, what we term as travel anxiety. In this regard one of interviewees stated:

I feel a fear of travelling. I think travelling is so dangerous and I hate thinking about travelling even after the pandemic. I do not trust news related to Vaccine. I may delay travelling till the certain cure is discovered.

Harmful and negative behavior

The third kind of negative coping strategy contains using harmful drugs and alcohol, being inhospitable to tourists, as well as showing violence. These behaviors are amongst negative coping strategies to decrease the negative impact of COVID-19. For example, one of the interviewees mentioned:

In our city more than 50 people are dead as a result of drinking fake alcohol, as they think drinking decreases infection rate.

In terms of entrance of tourists, residents always think they are not respected as tourists endangered locals' health so being inhospitable is another negative reaction of residents. Additionally, online and physical violence may be increased as people may reduce their anxiety by using rude voice in social media or in contact with their family members or in public.

Discussion and conclusion

This research investigates the negative impacts of tourism for residents' health. We conducted 30 interviews, analyzing with thematic analysis. According to

interview analysis, we found two main themes, namely negative health impacts (general health impacts, direct health impacts, indirect health impacts) and strategies for coping with these impacts (negative coping strategies, positive coping strategies).

There are limited studies which extract residents' perception towards negative health impacts of tourists. However, our results are similar to this limited research. For example, similar to [Bauer \(2008\)](#) and [Bauer \(1999\)](#), residents consider accidents and transmission of disease as two important general health issues related to tourism. In terms of transmission of disease, pathogen-stress theory ([Fincher and Thornhill, 2017](#)) explain that the infection risks related to the openness of human contact and the increased contact with different group of people involves with more risk of human-to-human transmission. [Bauer \(2008\)](#) explained that Due to the influx of tourism, disease like respiratory infections, vector-borne diseases, sexually transmitted infections, and gastrointestinal infections may be transmitted to the locals from the tourists. [Bauer \(1999, 2008\)](#) also explained that locals may also be damaged in accidents because of the dangerous driving by tourists. Accordingly, [Page et al., \(1994\)](#) reported that 1.1% of 785 British tourists surveyed in Malta in 1993 experienced an accident, with slightly upper representation among 20–30 years old tourists.

However, some of health impacts represented in this research were not directly discussed in traditional tourism literature, as these negative residents' health impacts are directly related to COVID-19 outbreaks, known in the present research as direct negative health impacts. Accordingly, we recognized two sub-themes of physical impacts and psychological impacts which are directly related to COVID-19 outbreak. In Iranian community, [Ahmadi et al., \(2022\)](#) extracted different experience and challenges of patients infected by COVID 19, including physical health disorders and mental problems. To psychological effects, [Bäuerle et al. \(2020\)](#) conducted a research in Germany, showing increased nervousness, unhappiness and anxiety during COVID-19. [Tee et al. \(2020\)](#) also mentioned increased extent of depression, anxiety and stress of COVID-19 pandemic in the Philippines. In Iranian community, [Mohammadi et al. \(2020\)](#) conducted a research showing that patients were gaining more score through Depression, Anxiety, and Stress Scale (DASS) than general population.

We also recognized indirect health impacts which are not directly related to tourists. We defined them as health impacts that occur as a consequence of being infected by COVID-19 or increased risk of being infected due to different reasons including influx of tourists, containing two sub-themes of health problems

related to self-isolation and quarantine as well as health problems related to social distancing. These effects are also among the new ones in tourism literature, however some researchers quantitatively investigated it in the context of public health. [Coughenour et al. \(2020\)](#) reported worse depression students' scores after the stay-at-home order during COVID-19 outbreaks. Moreover, we found that being in lockdown at home has caused a rise in domestic violence. With regard to the health impact of being in lockdown at home, some researchers showed an increased amount of anxiety and violence due to social distance (e.g. [Usher et al., 2020](#)).

In terms of coping strategies of residents to reduce these general, direct and indirect negative impacts, we identified two strategies including positive coping strategies (precautionary activities stress release activities), and negative coping strategies (obsessive-compulsive behaviors, travel anxiety, and harmful and negative behavior). The current survey is similar to [Vally \(2020\)](#), [Dullius et al. \(2021\)](#), [Hidalgo-Andrade et al. \(2021\)](#), [Fluharty and Fancourt \(2021\)](#) and [Girma et al. \(2021\)](#) studies. For example, [Dullius et al. \(2021\)](#) showed that the key coping strategies of health experts against COVID-19 were being supported from family and relatives, colleagues, organizations, etc., religious belief, and doing hobbies. [Hidalgo-Andrade et al. \(2021\)](#) also showed being socially supported, doing exercise, and taking part in recreational activities are the most applicable coping strategies when faced with stress related to online teaching. Moreover, as mentioned by [Chew et al. \(2020\)](#), as the knowledge about COVID-19 outbreaks were limited at the time of gathering this data, the most coping strategies which mentioned by participants are amongst emotional-focused strategies. [Luo and Lam \(2020\)](#) showed that fear of COVID-19 positively influences travel anxiety. Moreover, based on pathogen-stress theory, once individuals mature in a parasite-infested context, they become not as much of open to tourists, less interested, less exploratory to decrease the risk of infection ([Rahman et al., 2021](#)), leading to being less contributing to learning, openness, and tolerance ([Fincher and Thornhill, 2017](#)).

This study aims to explain the negative health effect of tourism through COVID-19 outbreaks and residents coping strategies. In this regard, we interviewed 30 Iranian citizens, and asked for their perception about negative health impacts of tourism and their coping strategies through COVID-19 outbreaks. The result of this study show that negative health impacts of tourism may be categorized as the general negative impacts, direct health impact and indirect health impacts. Moreover, to cope with these negative impacts, residents use some negative and positive coping strategies.

Theoretical and practical implications

This research concentrates on a qualitative analysis of the negative health impact of tourism through COVID-19 outbreaks and residents' coping strategies in this regard. This research contributes to the stakeholders' theory, risk theory and crisis management in the tourism context. However, although previous research has considered residents as one of the key stakeholders, they rarely consider residents' risk perception related to health impact of tourists and its effect on their behavior. Moreover, this research contributes to the risk theories and crisis management literature as it is amongst a few investigations that focus on the way tourists may intensify crisis events and have negative health impact on the residents (e.g. Qiu et al., 2020; Ritchie, 2008). Moreover, most studies in crisis management through tourism industry were conducted in macro-level, needed to be improved by micro-level or individual level analysis. Accordingly, the current study by investigating the individual coping strategies of residents who were exposed to tourists enriches the crisis management literature in hospitality sector.

In terms of practical contribution, we highlighted the negative physical and psychological effect of tourist entrance. These effects may be underestimated if we just consider them by new infected cases, as its health effect is more than just physical effects. However, an increased number of countries conducted border restriction, and travel bans, these limitations are not strict in Iran. This research shows that the lack of strict preventive strategies may cause severe physical and psychological effects in public. Moreover, we showed that perceiving the negative health impact of tourism through COVID-19 outbreaks may influence residents' behavior negatively, by being inhospitable to tourists, feeling travel anxiety, online violence, etc. Moreover, the current research is among the few surveys analyzing the coping strategies of residents through COVID-19.

Due to these findings, in terms of crisis management, it seems that authorities and government should pay more attention to residents as an important stakeholder. Moreover, media have a great role to spread the right information with regards to COVID-19 prevention methods and coping strategies to decrease the public pressure. Using webcam-travel as recommended by Jarratt (2020) is a new approach which can be replaced traditional travels through pandemics.

Thanks to vaccination, we hope to shift from epidemic to endemic. However, the epidemic of COVID-19 may bring some valuable insights for future possible crisis management. For example, based on our research results, through infectious disease, tourist entrance may impose the residents a huge psychological pressure.

Thus, to control the outbreaks of virus, governments should enforce stricter travel laws and conduct more control on international and national travels. Moreover, 14 days' quarantine of international travelers in hotels, by their own cost, as some other countries do is so applicable. Use of thermometry and virus diagnose tests in the entrance of cities, airports, and so on may increase the diagnose rate of disease and decrease the disease transmission. However, decrease in travel may put a great burden to the tourism industry especially hotels. The government can provide some subsidies to tourism providers to encourage them to provide a safe environment and survive through pandemic as recommended by Hemmington and Neill (2021). The spread of vaccination and availability of confirmed vaccine through all over the world is needed to cope with such a huge pandemic like COVID-19. Some strategies may be considered as a post-epidemic strategy to remedy the negative psychological impacts of the epidemic on residents. Residents are so important in terms of being hospitable and support of tourism industry, paying attention to their psychological needs and offering free psychological consultant to them may be a good strategy to remedy these negative health impacts.

Limitations and further research direction

There are several limitations in this study. Firstly, although we tried to ask residents about their perceived negative health effects and their coping strategies related to tourists during a global pandemic, some of the responses might be derived from effects outside of tourism. For example, indirect health impacts are not definitely derived from tourists, however tourists are one cause factor. Secondly, our research is a qualitative study, focusing on negative health impacts and coping strategies which residents considered due to entrance of tourists through COVID-19. Other researchers may focus on related statistics or conduct quantitative research on the proposed model and factors. One of the limitations mentioned for qualitative studies is the limitation of generalization. To increase the applicability of the study the researcher tries to explain the study context (Lack, 2013). Moreover, further researchers may concentrate on the impact of each coping strategy on health impact amongst different groups of people. We just considered the residents perceived negative health impact through this study. Other researchers can extract residents' risk perceptions through COVID-19 outbreak as a whole and extract antecedents and outcomes of perceived health impacts or residents risk perception of tourism. Moreover, as we conducted qualitative research, doing a quantitative

research on the relationship between negative health impacts and coping strategies may lead to valuable findings.

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Availability of data and materials

Data will not share. For having this data, please contact S. Fatemeh Ghasempour Ganji at fa.ghasempour@um.ac.ir

ORCID iD

Seyedeh Fatemeh Ghasempour Ganji  <https://orcid.org/0000-0002-4401-1209>

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Author Biographies

Seyedeh Fatemeh Ghasempour Ganji is a Ph.D. student in Human Resource Management at the Ferdowsi University of Mashhad in Iran. She received her Bachelor's degree in Business Management, and then she continued her education with a Master's degree in Marketing Management at Alzahra University in Tehran. Her research interests include sustainable tourism development and place branding, with a specific concentration on the role of locals in developing countries' tourism development. She published her article in some high-ranked journals including *The Current Issues in Tourism*, and *Asia Pacific Journal of Tourism Research*.

Lester Johnson is a Professor of Marketing at Swinburne Business School. Prior to coming to Swinburne

in early 2014, he was at Melbourne Business School, Mt Eliza Business School, the University of Sydney, Bond University, and Macquarie University in a career in Australia going back to 1975. He has published more than 200 papers in areas of research such as Marketing and Tourism in several recognized journals such as the *Journal of Sustainable Tourism*, *Current Issues in Tourism*, *International Marketing Review*, *Journal of Services Marketing*, and the *European Journal of Sustainable Development* among others.

Ali Kazemi is a Ph.D. in international marketing. He is very interested in pursuing issues in international trade and marketing both academically and practically. That is why I try to strike a balance between academia and industry. Along writing research papers, I pass international vocational courses like FIATA, UCP 600, and Incoterms 2020 among others.

Samaneh Sadeghian finished her Ph.D. degree from the Ferdowsi University of Mashhad. Her research interests include tourism marketing and tourism development. Dr. Sadeghian has published papers in journals such as the *Asia Pacific Journal of Tourism Research*, and the *European Journal of Sustainable Development* among others.