Air Travel Safety Perception Among Tourists With or Without Flying Experience

Abstract. Air transport has the key position in the global economic growth. It represents the most important economic sector along with tourism, counting its direct, indirect and multiplier effects. The 21st century is the era of the air travel, as it has reached the share of more than a half of all passengers transported (51%). In the current safety conditions of aviation, even the smallest disorder could have major consequences. There are numerous factors in tourism that could cause difficulties in air travel. It is necessary to examine the psychological factors, as well as the safety perception of passengers. Transport safety is a significant factor for tourists, which could cause cancellation of bookings as a respond to perceived safety risk during the travel. Other researchers showed that passengers are ready to pay extra money for a transport, that seems more safer. Air travel passengers are often avoiding airlines, whose planes were involved in accidents. The main task of this paper is to reveal the major topics and the issues of perception, and to create a base for further scientific research. Results of the paper could be useful to managers of tourist and transport companies. The authors of the paper formed two hypotheses: H1 - There are no differences in air
travel safety perception between tourist with and without flying experience; H2 - Tourists with flying experience consider air transport as the safest. The data in this research was gathered through a direct questionnaire. The main methods used for data analyze and display of results were descriptive statistics, T-test and standard deviation. Data was processed with the IBM SPSS 19.0. software package for statistical research. Results showed that tourists without flying experience have doubts towards air travel safety, which is also influencing tourism. On the other hand, tourists with more experience regard airplanes as the safest way of travel.

**Keywords:** air transport, tourism, safety, tourist attitude, fear of flying, air travellers.

**Introduction**

Transportation of people and things can be considered to be one of the necessities of human kind since antiquity. The notion of transport exists since historical roots of humanity, and its importance has exponentially multiplied over time. Today it is one of the most represented mass phenomena.

Tourists’ transport service is an integral part of travel industry [1]. Transportation plays a significant role in the regional communication systems. It often forms a network around places, and it develops and operates a territorial subsystem for tourism and recreation [2].

The significance of traveler airline transportation across the globe can be illustrated by the number of airline travelers. In 2010, it was over 2.5 billion [3]. What needs to be considered is the participation ratio of certain types of transport in total international tourist movement:

- Air transport 51%;
- Road transport 41%;
- Aquatic transport 6% and
- Rail-road transport 2%. [4]

At the moment, era of air transport is in progress, considering that it had surpassed all other kinds of transport according to the number of transported passengers (51%). Apart from the increasing significance of this kind of transport, it is necessary to accentuate the return influence of tourism on airline transport. With the emergence of new attractive tourist destinations in the world, like in the United Arabic Emirates, it stimulates significant tourist movements.

Considering its proportions, even the slightest difficulties in its functioning can lead to significant consequences. When tourism is in question, there are a large number of factors which disrupt tourist air traffic. Those that need to receive special attention are of psychological nature, such as prejudice, irrational and rational fears, opinions, disinfection etc. From this aspect, it would be interesting to study people’s opinions on safety of airline traffic. In order to achieve relevant results, it is necessary to separate two basic categories, which need to be analyzed as parallels. Those are, airline passengers who already have experience with flying and passengers who have not used services of this kind of transport. We can ask the question if there is a difference in understanding of the degree of safety of airline traffic among these two groups. If that is the case, if it can be measured and its course established? If the answer is revealed, we can acquire information about the degree of its influence on functioning and development of airline traffic, as well as tourism. Data shows that an increasingly large number of airline companies are dedicating attention to fear of safety and fear of flying, meaning that this problem is worthy of attention.

Airline transport, as a subsystem of tourist industry is divided into four basic categories, according to their business orientation. Each of these business philosophies attracts different passenger structure, considering that their choice is influenced by their travel goals [5]:

- Classic airline companies;
- Charter airline companies;
- Low budget airline companies;
- Specialized airline companies.

Certain types of transport are often developed with the intention to be an attraction and to service tourists. In those cases, transport becomes a part of the offer of tourist destination [6].
Helidream Canaria company organizes panoramic helicopter flights for visitors to Tenerife city and its coast [7]. With the appearance of a new kind of tourism - space tourism, there is a whole new field to explore attitudes and opinions of tourists towards air traffic. Virgin Galactic company plans its first test flight by the end of 2013, and is considered to be a pioneer of this kind of transport [8].

**Literature overview**

Researching preferences and attitudes of tourists towards certain types of transport was directed in two different tracks in scientific works.

The first category contains works where authors take the attitude of tourists as a starting point, a concrete result of using services of transport companies, to study the said relation. These services take place on the way to the destination, as well as during the stay on the final destination. Every stay in a transport vehicle provokes certain emotions, reactions in the tourists and influences their satisfaction of the provided service.

Qu and Li (1997) researched the degree of satisfaction and attitudes relating to public transport in Hong Kong in the segment of Chinese tourists from the interior of the country [9]. Studied aspects were reliability, cleanliness, comfort, efficiency, choice and price of service of city public transport. Thompson and Schofield (2007) conducted a similar research in Manchester, England, where they included the category of safety [10]. The goal of their research was to determine the attitudes of transport quality, and its influence on general satisfaction of stay in the county. The questionnaire consisted of 18 attributes, divided into 3 factor groups. Safety of the vehicle and transportation by public transport were placed in “Efficiency and safety” group.

The second track of research takes its starting point the assumption that habits and model of human behavior are of the highest importance to the personal relation towards certain types of transport. This approach presumes that tourist–passenger attitudes are not based exclusively on the experiences that have already occurred. Attitudes are influenced by various factors, such as education, public information and social values.

Attitudes belong in the immeasurable factors, which are significantly different depending on the person, and for that reason it is impossible to determine general rules of influence on the decisions about travel.[11]

Influence of tourist awareness of the mode of travel has been researched by Garvill et al. (2003). During a terrain experiment they gathered information about opinions, habits and models of behavior of passengers via journals and questionnaires. Results have shown that decisions on the mode of transport have been made in accordance with their attitudes and habits.[12]

According to Innocenti (2013), models of behavior as a factor of influence on the choice of the mode of transportation, are based on the three following elements: recognition and inflow of information, influence of habits on tourist decisions and risk awareness in transport.[13]

The stated researches prove the existence of certain factors with potential tourists which influence their state of awareness, attitudes, and therefore, the decisions they make. In order to understand the behaviors and the possibility of their control, it is necessary to determine what those factors are and what is their influence on passenger attitudes and their relation with certain modes of transport. Each factor consists of a group of attributes which represent a certain cost or effort for tourists during travel (price, time, effort, discomfort and distrust). These groups make up the basis of the research of tourist behavior in scientific works [14]. The risk during travel, such as motion sickness, accidents, criminal behavior and terrorist attack represents another category of “cost”. These types of events can result in dissatisfaction, injury or even death of a passenger [15] [16]. Perception of risk and reaction to risk among people is not the same, but it depends on multiple factors: culture, personality and experience [17].

During decision making about the mode of transport to a tourist destination, the passengers take in consideration the time and money necessary as the most important categories. Secondary factors in decision making are personal attitudes about reliability, comfort, convenience and safety of the transport service. [11]

The travel companies should provide safe transport of tourists, through technically inspected vehicles and qualified drivers or pilots [18]. Transport security area is the lead factor and condition for the implementation of its potential in tourism, in addition transportation represents an integral part of any tourist trip.[2]
Table 1. Factors which influence decision making about travel

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<thead>
<tr>
<th>Measurable factors</th>
<th>Immeasurable factors</th>
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<tr>
<td>Cost</td>
<td>Habits</td>
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<tr>
<td>Time</td>
<td>Comfort</td>
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<tr>
<td>Reliability of travel time</td>
<td>Convenience</td>
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<td></td>
<td>Awareness</td>
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<td></td>
<td>Social categories</td>
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<td></td>
<td>Safety and security</td>
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Source: www.nrel.gov/docs/fy13osti/55635.pdf

The focus of this work is the attitude of tourists towards the safety of certain types of transport, as one of the most significant factors in the process of decision making. According to a series of statistical research, airline transportation is the safest mode of transport. Due to specific technological characteristics and a lesser degree of awareness, airline transportation most often causes psychological barriers in passengers.

Research of a German Institute for Public Opinion (GIPOR) has determined that approximately 15% of population has a fear of flying, while approximately half of the subjects feel uneasy while on an airplane. Nervousness often happens even several weeks before the travel [19]. Analysis of attitudes will be conducted in parallel between persons that have traveled by airplane and persons that, up until the point of research, have not, in order to determine the influence of flying experience on the attitudes relating to the safety of this mode of transport.

The passengers can find an alternative mode of transport if the one chosen seems unsafe (e.g. the driver is of older age with eyesight problems, travel of a female individual by night train predominantly occupied by males). [11]

The influence of fear of flying on perception of safety

Moen (2007) researches passenger reactions on travel insecurity via three categories: distress, search for excitement and trust [17]. Results have shown that the most frequent reaction is distress, and that tourists are ready to pay more money for travel which they find safer. Carlsson et al. (2004) also dealt with the readiness of tourists to pay a higher price for transport [20]. Beforehand, they presented the examinees with objective facts about the risk of travel. The answers confirmed that the passengers would agree to a higher price if that would contribute to safer travel by plane, unlike travel by taxi. Weinstein (1989), finds that there are persons who think optimistically about the travel outcome to reduce stress before the travel [21]. Feischer, Tchetchik and Toledo (2012) find that the passengers, due to impossibility of introspection of safety characteristics of airline companies, deal with other flight details in order to reduce distress [22]. Authors conducted a questionnaire among students in Israel in order to establish the elements of airline transport which are influential to the perception of safety. The examinees were offered four interior fights for New York and London, each with different characteristics. Results have shown that passengers experience day time flights to be much safer and that with the increase of the ticket fear of flying proportionally decreases.

Medical research shows that it is possible to enable over 80% of patients to travel normally by airplane. Treatment procedure begins with determining the thoughts which cause fears in patients. After that, they are gradually exposed to flying, beginning with talking and ending in practice. [23]

In economically oriented research, fear is examined from the aspect of cost, or loss of airline companies due to its influence on the degree of demand. Also, airline companies are increasingly more frequently deal with fear of flying. Lufthansa is among the airline companies which give their potential passengers the highest support. On their website there is a series of information about the symptoms, causes of fear of flying, as well as instructions about its treatment. This company organizes séances of small groups of people with professional psychologists. Participation in these séances is the best way to overcome uneasiness, panic and fear of flying. They are intended to all passengers who have the said problem, regardless of their flying experience. It includes talking to people, psychological advice and relaxation exercises. [19]
In this research, Siomkos (2000) dealt with the affect of airline accidents on general public [24]. They determined that the accidents do not have too high influence on frequent flyers, considering that they are informed about general safety of airline transportation in relation to other modes of transport. Third of examinees declared that they avoid using services of those airline companies whose planes have participated in recent accidents.

**Methodology**

Methods used in gathering, processing and analysis of data as well as representation of research results are: historical, statistical, comparative, descriptive and field research (benchmarking). Data from examinees has been collected via written benchmarking, with previously constructed questionnaires. It consisted of two parts. The first part was intended to gather basic socio-demographic data, to research important but anonymous data (6 questions). The second part dealt with concrete questions from the field of safety of airline traffic (6 questions for persons which have not yet traveled by airplane and 6 for those that did, who also had additional 2 questions of informative character). Firstly, the examinees were to declare if they traveled by airplane up until that moment. Depending on the answer, they were redirected to appropriate fields of the questionnaire. In that way, the examinees were classified, which is necessary for this type of research. Therefore, comparative data analysis of parallel categories was enabled. In this segment, the examinees graded the safety of certain means of transport, through five point Likert scale. Ranges on the scale were marked as follows: 1- not safe at all, 2- partially not safe, 3- cannot assess, 4- partially safe, 5- completely safe. Benchmarking was conducted during April to June, 2011, and the collecting of samples has been conducted by accidental choice method. Data within research are collected directly, via the questionnaire. For analysis and representation of results, descriptive analysis, T-test and standard deviation were used. To process data IBM program packet for statistical processing SPSS 19.0 was used.

**Results and discussion**

When dealing with the division of examinees according to gender, it is important to accentuate that the test group consists of mostly females. The ratio is: men 33.3% and women 66.7%.

A large portion of the sample falls into group of 19-29 year olds, that make 79.4%, then other categories in the following order: 30-39 year olds, 10.8%, 60-69 year olds, 3.9%, 50-59 year olds, 2.9%, 70+ years categories is 2.0% and the smallest group is 40-49 year olds, 1%. It is important to mention the fact that there were no minors.

With educational classification of the examinees there is a slightly more equable dispersion. Also, data shows that there are examinees with primary school, whether it was completed or not. During the gathering process of field data, popular “bologna process” of high education in Serbia was in its initial implementation phase, which often lead to changes in regulations but also in Law on higher education. Therefore, at the moment it seemed most logical to ask a question relating to this information in a way which would provide data about college and BA studies, as well as MA/magister studies. The most prevalent were persons with completed four year university education (BA), with 45.1%. The following category according to size was high school education 29.4%, followed by persons with MA or magister diploma 12.7%, college 11.8% and finally 1% of examinees had a PhD. Degree of education can be a significant component in the ability of reasonable and realistic thought, as well as distinctive weighing of all safety aspects in total.

<table>
<thead>
<tr>
<th>Mode of transport</th>
<th>Degree of safety</th>
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<tbody>
<tr>
<td>Average (1-5)</td>
<td>Std. Dev.</td>
</tr>
<tr>
<td>Automobile</td>
<td>3.60</td>
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<tr>
<td>Bus</td>
<td>3.73</td>
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<tr>
<td>Railway</td>
<td><strong>3.87</strong></td>
</tr>
<tr>
<td>Ship</td>
<td>3.53</td>
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<tr>
<td>Airline transport</td>
<td>3.70</td>
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Table 2. Average score of safety of transport vehicles by examinees, who have not yet traveled by air plane.
As previously stated, research was conducted in a parallel way. We wish to, at the same time, gain information from examinees who already traveled by airplane and those that did not, in order to compare them. Firstly, it is necessary to begin from the examinees without flying experience. There is a whole series of factors which can influence that; however we will not analyze them all considering the thematic parameters of this paper. We wish to learn more about the perception itself of the examinees about traffic safety. In this case, we are especially interested in airline transport. We need to see how this group of examinees grades different types of traffic vehicles. This is calculated via average of all examinees from this homogenous group. Table 2 contains averages and standard deviation for all 5 basic modes of transport (automobile, bus, railway vehicles, ship and airline transport). It can be noted that these examinees gave the highest score to railway transport (3.85/5.00). In practice, this means that traveling by train incites the highest confidence, in the aspect of safety. In this same case, standard deviation has the lowest score which is an indicator that there is a highest uniformity with providing answers to this question.

Chart 1. Overview of examinees’ grades about airline safety by examinees which have not yet traveled by airplane.

Since airline traffic is the primary focus of this work, specified data is necessarily accompanied by a more detailed representation of frequency of answers in scoring the degree of safety of this transport mode. It is represented in Chart 1, showing that 13% of examinees graded this mode of transport partially negative (answer with “partially not safe”), with 0% of the most negative and 20% of indecisive answer. The rest of sample group (67%), answered “partially safe” or “completely safe”.

In parallel with the previous part of the analysis, data collected for the second group, category of passengers that have travelled by plane, are given. These examinees have experience with flying. Therefore, they have direct experience of flight by airplane which leads to a transformation of their existing attitudes and prejudice in two ways. After acquiring “first hand” experience, their experience of airline transport is under significant influence, which leads to confirmation and strengthening of previously formed opinions, but can also lead to negation of such. Through that process, there is a change in existing opinions so difference in the results of these two analyzed groups is to be expected.

Table 3. Average score of safety of transport vehicles by examinees, who have traveled by air plane

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<tr>
<th>Mode of transport</th>
<th>Degree of safety</th>
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<tbody>
<tr>
<td></td>
<td>Average (1-5)</td>
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<tr>
<td>Automobile</td>
<td>3.62</td>
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<tr>
<td>Bus</td>
<td>3.58</td>
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<tr>
<td>Railway</td>
<td>3.86</td>
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<tr>
<td>Ship</td>
<td>3.50</td>
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<tr>
<td>Airline transport</td>
<td><strong>4.11</strong></td>
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Table 3 contains data gathered from said group of examinees, which can be called airline passengers. Average scores of safety of traffic vehicles are, in this case, mildly different from previous results. At first glance, the most significant deviations can be noticed with variable “bus”, where average score dropped. Unlike in previous group, the value is less by 0.15, which in case of average value is not neglectable data. Among else, with this variable a significantly higher value of standard deviation is detected (11.2% increase), which tells us that uniformity of scoring standards is less than in previous case. Other important thing in this case, is the higher average score of safety of airline traffic. It can be said that the examinees who traveled by plane gave this transport vehicle a significantly higher score in the matter of safety, in relation to the examinees who never traveled by this mode of transport. Average score of safety degree of airline traffic has increased by 11%. This hypothesis will, in continuation, be subjected to t-test.

Analyzing the said table, it can be established that airline passengers consider precisely airline traffic to be the safest mode of transport (4.11/5.00). According to these data, it can be concluded that the said hypothesis, marked as “H2” (“Examinees, who have traveled by airplane consider airline transport to be the safest mode of transport”) is completely true.

With the detailed design of proportion of scores with category “airline traffic”, in case of the group that had traveled by airplane, it can be noted that 1% of scoring, in total, was negative, given that none of the examinees gave the lowest score (“not safe at all”). Neutral scores made up 17%, while remaining 82% answers were positive scores. These data are explained in more detail in Chart 2.

Chart 2. Overview of examinees’ grades about airline safety by examinees which have traveled by airplane

The most important part of research is where we wish to confirm the hypothesis marked as H1 (“difference in perception of the safety of airline traffic among passengers with and without flying experience is nonexistent”). In order to confirm this hypothesis, we used t-test with two independent samples. After performing analysis, we had gotten the results shown in Table 4. It has been established that there is a significant difference in observing the safety of airline traffic among passengers that have flying experience and those that do not (t= 2.414). The difference is negative, in the favor of passengers that have traveled by airplane. Statistical significance scores at 0.018, and therefore it can be claimed with certainty that the perceived difference is correct.

Table 4. t-test of comparation of opinions about safety of airline traffic, between the examinees that have not traveled by airplane and those that have.

<table>
<thead>
<tr>
<th>Comparation of opinions about safety</th>
<th>t</th>
<th>Sig. (2-tailed)</th>
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<tr>
<td>* statistical significance is high</td>
<td>-2.414</td>
<td>.018*</td>
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Calculated difference in the opinions of examinees about airline safety clearly shows that the said hypothesis “H1” is not correct. There is a significant difference between understanding of airline flying safety, between persons that have not traveled by plane and those that have.
Analysis of opinions of airline traffic safety according to educational structure has been especially conducted in order to establish if the degree of education has an influence on perception. For practicality, the examinees were divided into two categories: lower (no education, elementary and high school), and higher education (college and above). When we cross examine these groups with the variable of airline travel, the most significant difference is with the examinees with airline experience. Those with higher education feel that airline traffic is far safer (4.15) than examinees with lower education (4.00). On the other hand, when dealing with examinees without airline travel experience, it can be noted that there are no differences in opinions among the said categories (3.80).

**Conclusion**

Basic factors that influence decision making about travel are classified in existing literature into primary and secondary. The highest influences on travel are, of course, time and money, without which the tourist cannot go on a travel. Due to its significance, they can be marked as fundamental factors. However, when one of these variables are suitable for a travel, further discussion about travel agency, arrangement and its price, or even the basic elements of travel such as means of transport, places of stay and accompanying repertory, their range and price, are regulated based on a new series of factors, which can be placed among the secondary. In this phase, tourists pay attention to reliability, comfort, conveniences and safety/security, traffic, touristic or catering services. The highest influence, from the said factors, is safety. This, according to authors of this paper, should also be observed in the frame of group of basic factors, considering it can lead to cancelation of travel, as a response to potential increased safety risk during any phase of travel. Existing literature has shown, that passengers are, in any case, ready to pay extra money for an arrangement or travel, as well as for a touristic service, if they find it to be safer. Similar example can be seen in airline traffic, where passengers have a habit of avoiding a company whose airplanes have, at a certain point, been involved in an accident.

Taking in consideration that factors of a travel easily lead to changes on the level of entire tourism, after analysis of research results we concluded that persons who have not traveled by airplane consider that railway is the safest mode of transport enabling them to reach their destination. Results have shown a lower degree of standard deviation, in relation to scoring of other transportation means. Based on that, it can be said that there were no significant oscillations in the answers to this question, and that individuals from this group gave a unified score. On the other hand, airline passengers consider, without a doubt, the safest mean of transport to be airline transport itself (hypothesis “H2” has been confirmed). Also, while scoring this mode of transport we note a lower score of oscillations in examinees answers.

With the score of airline safety by passengers with and without flying experience, there is an 11% average difference to the benefit of airline passengers. Therefore, hypothesis “H1”, has proven to be inaccurate, which is verified by a t-test.

Research results can be applied in practice with workers in tourism, through dedicating special attention to individuals who have not traveled by plane. By talking to them, or recommending courses dealing with fear of flying or flying with pleasure, they should be enabled a more pleasant journey. Ultimately, the tourist will be more satisfied with service, and will gladly give recommendation about a touristic company to other potential tourists.

This research can serve future research papers as a basis, especially with psychological themes in tourism. When dealing with the airline traffic itself, there should be a more detailed examination of all the influences which lead to significant difference in understanding safety of airline transportation between passengers with and without flying experience.

**References**


УДК 33

Воздушные путешествия Восприятие безопасности среди туристов с или без летного опыта

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Аннотация. Воздушный транспорт имеет ключевые позиции в мировой экономический рост. Она представляет собой наиболее важным сектором экономики наряду с туризмом, считая своим прямым, косвенным и эффект мультипликатора. 21 век является эпохой приобретение авиабилетов, как она достигла долей более половины всех пассажиров, перевезенных (51%). В нынешних условиях безопасности авиации, даже самый маленький расстройства могут иметь серьезные последствия. Есть множество факторов, в сфере туризма, которые могут вызвать трудности в сфере воздушных перевозок. Необходимо рассмотреть психологические факторы, а также безопасность восприятия пассажиров. Транспортная безопасность является важным фактором для туристов, которые могут привести к отмене заказов, как реагировать на риски предполагаемой безопасности во время путешествия. Другие исследователи показали, что пассажиры готовы платить дополнительные деньги за транспорт, который кажется более безопасным. Пассажиры воздушным транспортом часто избегая авиакомпаний, чьи самолеты были вовлечены в нечастные случаи. Основной задачей данной работы является выявить основные темы и проблемы восприятия, а также создать базу для дальнейшего научного исследования. Результаты работы могут быть полезны для руководителей туристических и транспортных компаний. Авторы работы сформировали две гипотезы: H1 - Там нет различий в сфере воздушных перевозок безопасности восприятия между туристической и без летного опыта; H2 - Туристы с летного опыта считают воздушный транспорт как самый безопасный. Данные этого исследования была собрана с помощью прямого анкетирования. Основные методы для анализа данных и отображения результатов были описанной статистики, T- тест и стандартное отклонение. Данные были обработаны с IBM SPSS 19.0. пакет программ для статистических исследований. Результаты показали, что туристы без летного опыта есть сомнения по отношению к безопасности авиаперевозок, которая также оказывает влияние на турист. С другой стороны, туристы с большим опытом отношении самолетов, как самый безопасный способ передвижения.

Ключевые слова: воздушный транспорт, туризм, безопасность, туристические отношения, страх перед полетом, авиапассажиров.