

# Examining tourists' travel intentions in Türkiye during pandemic and post-pandemic period: The mediating effect of risk reduction behavior.

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## ABSTRACT

### Keywords:

Covid-19,  
Travel intention,  
Risk reduction behavior,  
Mediation effect,  
TPB.

In the first two years of the Covid-19 pandemic, risk perception negatively affected travel intention. Whether the vaccination has changed risk perception and the impact of vaccination on travel intention has not been fully evaluated in the literature. This study aims to examine the effects of the Covid-19 pandemic on tourists' travel intentions during the mass vaccination and normalization period by the Theory of Planned Behavior (TPB). The mediating role of risk reduction behavior between risk perception and travel intention is also investigated. An online survey was conducted with 1233 tourists in Türkiye. As a result of the Structural Equation Model (SEM), it was found that the variables of attitude, subjective norm, and perceived behavioral control had a positive effect on tourists' travel intentions. However, no significant effect of the Covid-19 risk perception on travel intention was determined. When the mediation is tested, the effect of Covid-19 risk perception on travel intention became significant. Since most of our sample population was vaccinated (94.8%), tourists did not perceive Covid-19 as a risk at first. When they applied risk reduction behaviors, they began to perceive Covid-19 as a risk and realized that the pandemic was still not over and necessary precautions had to be taken. While this study emphasizes the importance of the mediation effect risk reduction behavior, it provides us with new ideas about the changes in the travel intention of tourists during the pandemic period.

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## 1. Introduction


The Covid-19 pandemic has created negative effects that will last for years in many sectors, especially tourism. Türkiye is the 11<sup>th</sup> country most affected by Covid-19 worldwide. In 16.9 million reported cases, more than 101 thousand people died in Türkiye (WHO, 2023). Major changes have occurred in the travel decision processes of consumers both in the world and in Türkiye due to the pandemic. Information on vacation evaluations has become much more important due to health problems caused by the pandemic, travel restrictions, and changes in travel intentions. The possibility of encountering uncertainties and undesirable events when purchasing a product or service is perceived as a risk (Quintal et al., 2010). The concept of perceived risk in tourism can be explained as giving up or postponing travel to a certain destination due to the occurrence of a dangerous situation (such as civil unrest, violent crimes, theft, terrorism, war, natural disaster, poor hygiene conditions or pandemics) (Sánchez-Cañizares et al., 2021; Sonmez & Graefe, 1998). There is an inverse relationship between health risk and

tourism demand. When pandemics appear, touristic behaviors change. Tourists tend to cancel or postpone their reservations, change destinations, prefer not to go on vacation, and leave the affected destinations (Chua et al., 2021; Matiza & Kruger, 2021; Qiu et al., 2020). The fear of the virus affects tourists' travel preferences. Tourists tend to stay away from large hotels and crowded destinations due to inadequate social distancing and hygiene conditions (Benjamin et al., 2020; Zenker & Kock, 2020). A study conducted in China reveals that almost half of the respondents would make their next trip at least six months after the Covid-19 pandemic was brought under control (Li et al., 2021). Gürsoy et al. (2022) mentioned that even after the relaxation of travel restrictions, tourists decided to postpone travel plans due to fear of infection. As a result of the research conducted by DORinsight with 5007 people in Türkiye in 2020, 72% of the participants declared that they would not buy travel, and 63% of them would not go on travel (Çevik Tekin, 2020).

The theory of planned behavior (TPB) is widely applied in many studies on travel intentions and behaviors of tourists

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in recent years (Bae & Chang, 2021). According to TPB perceived behavioral control, attitude, and subjective norms variables strongly influence behavioral performance. Intentions predict a great deal of individuals' behavior (Ajzen & Fishbein, 1980; Taştan & Soylu, 2023). Studies have argued that it is necessary to determine how individuals' attitudes, subjective norms, and perceptions affect intention and behavior in adverse situations such as pandemics (Han et al., 2020; Sánchez-Cañizares et al., 2021; Seong & Hong, 2021). In addition to the effects of behavioral control, attitude, and subjective norms variables on the intention to go on travel during the Covid-19, the effects of Covid-19 risk perception and risk reduction behavior variables were included in the theory. It is aimed to examine the changing tourist behavior during the Covid-19 pandemic period and to provide explanatory information about Turkish tourists' intention to travel. The mediating role of risk reduction behavior is also investigated. The innovative aspect of this study is that it was conducted during the period of normalization and mass vaccination.

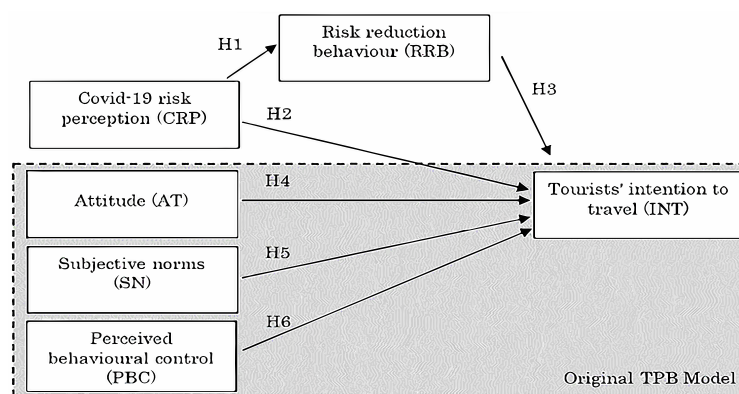
**Literature Review**

*Extended Theory of Planned Behavior*

TPB examines the relationships between intentions and behaviors (Fishbein, 1980). TPB includes both social (subjective norms) and psychological (attitude) factors in tourists' decision-making (Quintal et al., 2010). TPB is used in tourism, especially in determining travel intentions (Sánchez-Cañizares et al., 2021). Attitude (AT), subjective norms (SN), and perceived behavioral control (PBC) lead to the formation of a behavioral intention. Human behavior is under the control of certain factors, resulting from certain reasons and occurring in a planned manner. The scales used in the research were developed by Ajzen (1985) within the scope of TPB.

In tourism literature, the extended TPB model is applied to determine the intention (Shen & Shen, 2021; Yuzhanin & Fisher, 2016). Quintal et al. (2010) investigated the effects

of perceived risk on the intentions of tourists to travel to Australia using extended TPB. In the tourism and pandemic era, TPB was used for the first time during the swine flu pandemic by Lee et al. (2012) to determine the tourists' travel intentions. Frequency of past travels, perception of swine flu, and non-pharmaceutical measures have been added to TPB (Lee et al., 2012). In Covid-19, many researchers implemented the extended version of TPB in the field of tourism to investigate travel intentions. In the literature, it is seen that variables such as risk perception and risk reduction behavior are added to extend the original TPB (Han et al., 2020; Lee et al., 2012; Liu et al., 2021; Sánchez-Cañizares et al., 2021; Seong & Hong, 2021; Sujood et al., 2022). Han et al. (2020) reported that the perceived risk of Covid-19 rises the explanatory power of travel intention. Fear of Covid-19 and perceived high-risk change attitudes and behaviors (Nazneen et al., 2020). Neuburger and Egger (2021) stated that the perception of the pandemic resulted in postponing or avoiding traveling to affected places. It is important to measure how the risk can affect the tourists who want to travel during Covid-19. For this reason, "Covid-19 Risk Perception" (CRP) is added to the TPB as an independent variable (Bae & Chang, 2021). CRP is the degree of potential loss from traveling because of the negative consequences of the pandemic (Sánchez-Cañizares et al., 2021). Individuals who perceive health risks are assumed to engage in more preventive behaviors to minimize the risk (Bae & Chang, 2021). Tourists intend to avoid traveling to destinations where Covid-19 cases are reported and cancel their vacations (Liu et al., 2021). Personal non-drug interventions are getting information about diseases, improving hygiene conditions, maintaining social distancing, and monitoring personal health during travel (Lee et al., 2012; Liu et al., 2021). Non-pharmaceutical interventions, namely "Risk Reduction Behaviors" (RRB), are adaptive behaviors, thereby reducing the disease threat to an acceptable level and supporting behavioral intention (Lee et al., 2012). By considering the cited literature, in this study, the TPB was expanded by adding the variables "Covid-19 risk perception" and "risk reduction behavior"



**Figure 1 - Research model 1**

Source: Authors

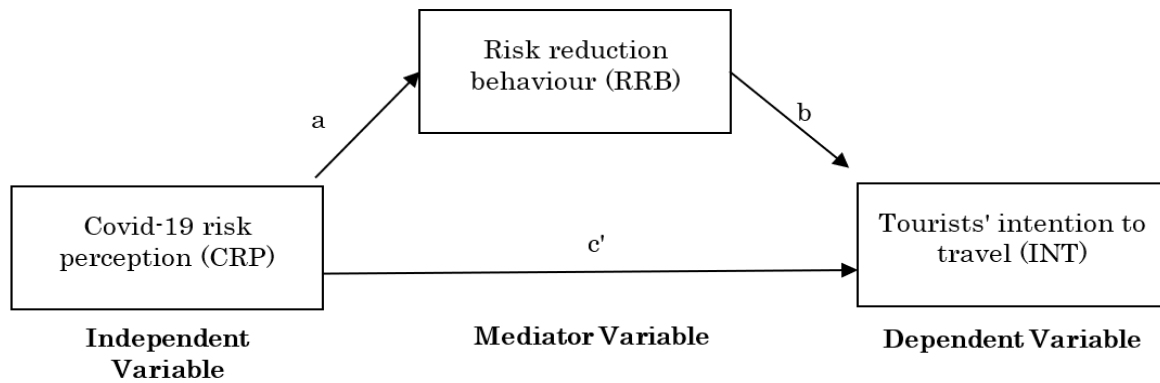


Figure 2: Research model 2

Source: Authors

(Lee et al., 2012; Liu et al., 2021). Figure 1 depicts the research model.

Considering all these studies, the six hypotheses proposed are as follows. Note that all hypotheses are valid for the Covid-19 pandemic period.

- H1:** CRP has a positive effect on RRB.
- H2:** CRP has a negative effect on tourists' INT.
- H3:** RRB has a positive effect on tourists' INT.
- H4:** AT has a positive effect on tourists' INT.
- H5:** SN have a positive effect on tourists' INT.
- H6:** PBC has a positive effect on tourists' INT.

**The Mediating Role of Risk Reduction Behavior**

It has been stated that risk reduction behaviors (non-pharmaceutical measures) function as a mediator between risk perception and travel intention. Lee et al. (2012) investigated the mediating role of risk reduction behavior between swine flu perception and the travel intentions of potential tourists in South Korea. They reported that non-drug interventions had a mediating effect between pandemic perceptions and travel intention. A study, conducted in China in June-July 2020, states that risk reduction behavior partially mediates between Covid-19 perception and travel intention (Liu et al., 2021). Considering these studies, the hypothesis that risk reduction behavior plays a mediating role is formed as follows. The research model of mediation is depicted in Figure 2.

**H7:** RRB has a mediating role in the effect of CRP on tourists' INT.

**2. Methodology**

**Data Collection**

The survey method was implemented to collect data. The questionnaire, containing 49 questions, was applied to a

sample group of tourists in Türkiye. In the first part, questions were asked about the demographic information of tourists and the status of being vaccinated against Covid-19. In the second part, there exist 42 items to determine the CRP, RRB, AT, AN, PBC, and INT during Covid-19. (Bae & Chang, 2021; Bratić et al., 2021; Lee et al., 2012; Neuburger & Egger, 2021; Seong & Hong, 2021; Sujood et al., 2022; Ying et al., 2021). The second part of the questionnaire was prepared on a 5-point Likert-type scale (1=I strongly disagree, ... 5=I strongly agree). Evaluations were made by taking the relevant opinions of 56 participants in the pilot study and the questionnaire was finalized.

The universe of this research consists of all tourists living in Türkiye. The study was conducted between 11 March 2022 and 21 April 2022. An online data collection platform "Google Forms" was used for collecting data. Especially for the study sample, it is necessary to reach the sample group between 10 and 15 times the number of questions in the questionnaire. Since a 49-question survey was prepared in this study, it is sufficient for the sample number to be between 490 and 735 (Thompson, 2000). In the survey, it was asked whether the responder has previously traveled. The study sample was composed of 1233 people, who traveled before and were considered tourists. The data size is suitable for Structural Equation Model (SEM) analysis.

**Data Analysis**

The data were analyzed with the SPSS 25 software. Descriptive analysis (frequency and percentage) was used to find the distribution of data according to demographic characteristics. Secondly, the normality of the research items is checked using descriptive statistics (mean, standard deviation, skewness, and kurtosis). Since the normal distribution of the data was obtained, the hypothesis tests were statistically evaluated at the 95% confidence level. Cronbach's alpha analysis, item analysis, item discrimination analysis, explanatory factor analysis, and confirmatory factor analysis were performed to determine the reliability and validity of the Likert scales.

Pearson correlation analysis was applied to find the relationships between the independent variable and dependent variables, and the SEM was established to evaluate the research models. Lisrel 8.51 was used for structural modeling.

### 3. Results

#### Participants' Profile

Table 1 represents the distribution of participants by variables. There were no significant differences in gender, marital status, or age. It was determined that 55.3% of the participants were public employees and most of the participants had a bachelor's degree or higher. Only 27.9% of the participants reported a monthly income of < 4254 Turkish Liras (TL) (the minimum wage during the data collection period) or no income. Most participants (94.8%) were vaccinated against Covid-19, and 5.2% were not vaccinated.

**Table 1 - Distribution of participants by variables**

Variables	Group	n	%
Gender	Female	686	55.6
	Male	547	44.4
Marital Status	Single	546	44.3
	Married	687	55.7
Age	18-29	387	31.4
	30-39	355	28.8
	40-49	306	24.8
	≥ 50	185	15.0
Occupation	Public Employee	682	55.3
	Student	291	23.6
	Private Sector	150	12.2
	Other	110	8.9
Educational Status	High school or below	80	6.5
	Associate degree	99	8.0
	Bachelor's degree	559	45.3
	Master	232	18.8
	Doctorate	263	21.3
Monthly Income (TL)	≤ 4254	97	7.9
	4255-6000	113	9.2
	6001-8000	196	15.9
	8001-10000	163	13.2
	≥ 10001	418	33.9
	No income	246	20.0
Vaccinated against Covid-19	Yes	1169	94.8
	No	64	5.2
	Total	1233	100.0

Source: Authors

#### Exploratory Factor Analysis

Table 2 presents the normality test results. Since the Likert type scale is used and due to the large sample size, we applied multivariate normality by considering the central limit theorem. According to the central limit theorem, it is assumed that the data are normally distributed since the sample size is larger than 30. The central limit theorem is considered as the second fundamental theorem of probability theory. Let  $X_1, X_2, X_3, \dots, X_n$  be independent random variables with the same finite mean  $\mu$  and variance  $\sigma^2$ . According to the central limit theorem, as the sample size ( $n$ ) increases, the distribution of the sample mean converges to a normal distribution with mean  $\mu$  and variance  $\sigma^2/n$ , regardless of the original distribution (Rempala & Wesolowski, 2002). It was determined that the distribution was normal since the skewness and kurtosis values were between -2 and +2, as well as the closeness of the mean and median among the central tendency measurements (Ivanova et al., 2020).

**Table 2 - Normality test results of the latent variables**

Sub-Dimensions	Central Tendency Measurements			
	Mean	Median	Skewness	Kurtosis
CRP	3.56	4.13	-0.743	-0.797
RRB	3.95	4.25	-1.542	1.632
AT	2.71	2.63	0.219	-0.908
SN	2.90	3.00	-0.042	-1.048
PBC	3.01	3.40	-0.213	-1.290
INT	2.98	3.18	-0.249	-1.124

Source: Authors

The criterion of having a factor load above 0.50 was used to decide whether an item should remain on the scale (Seong & Hong, 2021). Factor loading values were determined to vary between 0.535 and 0.925. To check the instability of the item, the distance between the factors was examined. There was no instability in the items because the distances between the factors were greater than 0.10. Items and factors are presented in Table 3. When the items collected under factors 1, 2, 3, 4, 5, and 6 are examined, these factors are "Intention to Travel" (INT), "Risk Reduction Behavior" (RRB), "Covid-19 Risk Perception" (CRP), "Attitude" (AT), "Subjective Norm" (SN), and "Perceived Behavioral Control" (PBC). When the internal consistency levels of each factor were calculated, it was determined that the reliability levels of each factor were 0.974, 0.952, 0.972, 0.958, 0.943, and 0.940, respectively, and these values were at an acceptable level of reliability.

**Table 3 - Factor loads of the scale items**

Items	Factors						Cronbach's $\alpha$
	1	2	3	4	5	6	
<i>Intention to Travel</i>							0.974
I choose the accommodation facility that has a safe tourism certificate.	0.773						
I determine my vacation destination according to the number of cases.	0.797						
I would recommend others to travel.	0.798						
It's a good idea to travel.	0.803						
I would like to travel.	0.810						
I set aside time and money to travel.	0.817						
I am sure I will travel.	0.827						
I guess I will travel.	0.828						
I plan to travel often.	0.829						
I intend to travel.	0.839						
I try to travel.	0.893						
<i>Risk Reduction Behavior</i>							0.952
I choose to travel to places with a low number of cases.		0.741					
I choose to travel to places with health care.		0.767					
I choose to travel to places that are not crowded.		0.771					
I pay more attention to my health.		0.851					
I wash my hands frequently.		0.855					
I follow the rules regarding Covid-19.		0.862					
I pay attention to social distancing.		0.869					
I often wear a mask.		0.887					
<i>Covid-19 Risk Perception</i>							0.972
There is a high probability of dying from Covid-19.			0.856				
I have a high probability of catching Covid-19.			0.863				
It is not safe to travel long distances on vacation due to Covid-19.			0.865				
It is not safe to travel to crowded cities due to Covid-19.			0.879				
The probability of contracting Covid-19 is higher than in other diseases.			0.884				
I am aware of the danger associated with Covid-19.			0.895				
I am afraid of contracting Covid-19.			0.925				
<i>Attitude</i>							0.958
It is unusual to travel.				0.670			
I would be happy to travel.				0.720			
It is necessary to travel.				0.725			
Traveling is positive.				0.748			
It's nice to travel.				0.758			
It's good to travel.				0.758			
It makes sense to travel.				0.790			
<i>Subjective Norm</i>							0.943
People who are important to me agreed with my idea of traveling.					0.728		
People who are important to me supported me to travel to places that are not affected by the pandemic.					0.731		
People who are important to me show understanding when I travel.					0.735		
People who are important to me thought positively about my travel.					0.783		
<i>Perceived Behavioral Control</i>							0.940
If I want to travel, nothing can stop me.						0.535	
It is convenient for me to travel.						0.605	
I have the resources and opportunities to travel.						0.652	
I research the place where I will travel.						0.667	
Traveling is completely under my control.						0.689	

Source: Authors

**Confirmatory Factor Analysis**

Confirmatory factor analysis was performed in the LISREL to verify the explained factor structure. Table 4 depicts factor loads of confirmatory factor analysis (CFA) and t values of these factors. According to Table 4, the factor loadings of the items were determined to be between 0.72-0.98. Since all factor loads and t values are greater than 0.50 and 2.58 respectively, it can be said that all standardized factor loading values obtained as a result of CFA were significant at the 99% confidence level.

**Table 4 - CFA findings of research scales**

Scales	Items	Factor Loads	R <sup>2</sup>	t
CRP	CRP_1	0.98	0.96	47.21**
	CRP_2	0.94	0.88	44.34**
	CRP_3	0.88	0.77	39.13**
	CRP_4	0.91	0.83	41.74**
	CRP_5	0.87	0.76	38.8**
	CRP_6	0.88	0.77	39.66**
	CRP_7	0.92	0.85	42.37**
RRB	RRB_1	0.93	0.86	43.09**
	RRB_2	0.90	0.81	40.92**
	RRB_3	0.90	0.81	40.69**
	RRB_4	0.90	0.81	40.66**
	RRB_5	0.88	0.77	39.27**
	RRB_6	0.75	0.56	30.62**
	RRB_7	0.72	0.52	28.76**
AT	RRB_8	0.74	0.55	30.3**
	AT_1	0.93	0.86	43.21**
	AT_2	0.90	0.81	40.73**
	AT_3	0.89	0.79	40.11**
	AT_4	0.86	0.74	37.56**
	AT_5	0.89	0.79	40.25**
	AT_6	0.78	0.61	32.33**
SN	AT_7	0.88	0.77	39.21**
	SN_1	0.94	0.88	43.83**
	SN_2	0.89	0.79	39.85**
	SN_3	0.91	0.83	41.22**
PBC	SN_4	0.86	0.74	37.52**
	PBC_1	0.96	0.92	45.81**
	PBC_2	0.86	0.74	37.87**
	PBC_3	0.87	0.76	28.03**
	PBC_4	0.82	0.67	35.05**
INT	PBC_5	0.85	0.72	36.73**
	INT_1	0.96	0.92	46.44**
	INT_2	0.85	0.72	36.85**
	INT_3	0.90	0.81	40.93**
	INT_4	0.93	0.86	42.99**
	INT_5	0.91	0.83	41.76**
	INT_6	0.89	0.79	40.42**
	INT_7	0.86	0.74	38.07**
	INT_8	0.91	0.83	41.90**
	INT_9	0.88	0.77	40.38**
	INT_10	0.81	0.66	34.53**
INT_11	0.78	0.61	32.55**	

\*\*p<0.01

Source: Authors

The goodness of fit criteria of CFA is depicted in Table 5. For the scale to be accepted, the goodness of fit indices

**Table 5 - Goodness of fit indices of the CFA model**

$\chi^2$	df	$\chi^2/df$	RMSEA	CFI	GFI	AGFI	NNFI	NFI	RMR	SRMR
3811.57	804	4.741	0.055	0.99	0.93	0.91	0.99	0.99	0.065	0.041
		Acceptable	Acceptable	Excellent	Acceptable	Excellent	Excellent	Excellent	Acceptable	Excellent

Source: Authors

must satisfy at least acceptable limits. Acceptable and excellent fit ranges of indices can be found in the study of Schermelleh-Engel and Moosbrugger (2003). When the values of indices are examined, it is seen that the value of  $\chi^2/df$  is at an acceptable level with 4.741 (p=0.000). RMSEA value is at an acceptable level. Other fit values satisfy excellent and acceptable fit values. According to these findings, it was determined that the factor structure of the scale was confirmed.

The reliability of the scale was assessed by examining the average variance extracted (AVE) and composite reliability (CR) values. Since CR and AVE values in Table 6 were determined above limits (CR > 0.70 and AVE > 0.50) (Han et al., 2020), the reliability and convergent validity of the scale were ensured.

**Table 6 - AVE and CR values of the scale**

Measurements	CR	AVE
CRP	0.97	0.83
RRB	0.95	0.71
AT	0.96	0.77
SN	0.94	0.81
PBC	0.94	0.76
INT	0.97	0.78

Source: Authors

Fornell Larcker Criterion was calculated to ensure discriminant validity in the study (Fornell & Larcker, 1981). According to this criterion, the square root of the mean explained variance value of each structure must be greater than the associated correlations of the structure to provide discriminant validity. As given in Table 7, all values presented in bold are greater than the associated correlations of the structure. Therefore, discriminant validity for the research model was provided.

**Table 7 - Discriminant validity for the research model (Fornell Larcker Criterion)**

Variables	CRP	RRB	AT	SN	PBC	INT
CRP	0.91	0.542	-0.119	0.002	-0.019	-0.036
RRB		0.84	0.051	0.175	0.159	0.178
AT			0.88	0.677	0.744	0.767
SN				0.90	0.666	0.697
PBC					0.87	0.785
INT						0.88

Source: Authors

The relationships between the variables are shown in Table 8. When the relationships were examined, it was determined that only the relationship between the INT and the CRP was not significant (p>0.05). Other independent variables had significant and positive correlations with the dependent variable.

**Table 8 - Measurement model assessment**

Variables	CRP	RRB	AT	SN	PBC	INT	Mean	SD
CRP	1	0.542**	-0.119**	0.002	-0.019	-0.036	3.56	1.21
RRB	-	1	0.051	0.175**	0.159**	0.178**	3.95	1.01
AT	-	-	1	0.677**	0.744**	0.767**	2.71	1.10
SN	-	-	-	1	0.666**	0.697**	2.90	1.11
PBC	-	-	-	-	1	0.785**	3.01	1.20
INT	-	-	-	-	-	1	2.98	1.13

\*\*p<0.01

Source: Authors

**Table 9 - The goodness of fit values for model 1**

$\chi^2$	df	$\chi^2/df$	RMSEA	RMR	SRMR	GFI	AGFI	CFI	NFI	NNFI
3077.27	801	3.841	0.048	0.065	0.041	0.92	0.91	0.99	0.99	0.99
		Acceptable	Excellent	Acceptable	Excellent	Acceptable	Excellent	Excellent	Excellent	Excellent

Source: Authors

**Evaluation of the Structural Model**

Before the SEM analysis, confirmatory factor analysis was performed, and it was determined that the variables contained sufficient statistics for analysis. The first model given in Appendix 1 is evaluated to examine the effect of CRP, AT, SN, PCB, and RRB on the INT. The model has  $\chi^2 = 3077.27$ ,  $df = 801$ ,  $p = 0.0000 < 0.01$ .  $\chi^2/df$  is calculated as 3.841. Since it is below 5, it means an acceptable fit. Table 9 presents the goodness of fit indices. Calculated values represent an excellent and acceptable fit of the constructed structural model.

Based on these results, Table 10 shows the evaluations of the research hypotheses.

**Table 10 - Results of the structural equation modeling 1**

Hypotheses	Coefficients	t-Values	Result
CRP→RRB	0.56	20.48**	Accepted
CRP→INT	-0.03	-1.73	Rejected
RRB→INT	0.08	3.85**	Accepted
AT→INT	0.32	10.93**	Accepted
SN→INT	0.18	7.15**	Accepted
PBC→INT	0.43	14.44**	Accepted

Source: Authors

**H1:** CRP has a positive effect on RRB.

When the path diagram in Appendix 1 and the values in Table 10 are examined, it is seen that the CRP has a positive effect on RRB ( $\beta = 0.56$ ;  $t = 20.48$ ;  $p < 0, 01$ ), and the H1 hypothesis of the research was accepted. This result shows that a one-unit risk perception will have a positive effect on RRB (0.56).

**H2:** CRP has a negative effect on tourists' INT.

There was a negative effect on the CRP and tourists' INT, but this effect was not significant ( $\beta = -0.03$ ;  $t = -1.73$ ;  $p > 0.05$ ), so the H2 hypothesis was rejected.

**H3:** RRB has a positive effect on tourists' INT.

It was determined that RRB had a positive effect on tourists' INT ( $\beta = 0.08$ ;  $t = 3.85$ ;  $p < 0.01$ ), therefore H3 hypothesis was supported. This result shows that if one unit of RRB is exhibited, it will have a positive effect on tourists' INT, at a low level (0.08).

**H4:** AT has a positive effect on tourists' INT.

It was found that the AT had a positive effect on the tourists' INT ( $\beta = 0.32$ ;  $t = 10.93$ ;  $p < 0.01$ ), and the H4 hypothesis was accepted. This result shows that a one-unit improvement in AT will have a positive effect of 0.32 units on tourists' INT.

**H5:** SN have a positive effect on tourists' INT.

SN was determined to have a positive effect on INT ( $\beta = 0.18$ ;  $t = 7.15$ ;  $p < 0.01$ ), and the hypothesis H5 hypothesis was supported. A one-unit improvement in SN will have a positive effect of 0.18 units on tourists' INT.

**H6:** PBC has a positive effect on tourists' INT.

It was seen that PBC has a positive effect on tourists' INT ( $\beta = 0.43$ ;  $t = 14.44$ ;  $p < 0.01$ ), so the H6 hypothesis was accepted. A one-unit improvement in PCB will have a positive effect of 0.43 units on tourists' INT.

**Effect of Mediation**

The mediating role of RRB between CRP and tourists' INT has been assessed in Model 2. The method of Zhao et al. (2010) was implemented instead of Baron and Kenny (1986) method since the effect of the independent variable on the dependent variable was insignificant. The path diagram for the mediation model is given in Appendix 2.

**Table 11 - The goodness of fit values for model 2**

$\chi^2$	df	$\chi^2/df$	RMSEA	RMR	SRMR	GFI	AGFI	CFI	NFI	NNFI
1232.65	293	4.206	0.051	0.072	0.046	0.93	0.91	0.99	0.99	0.99
		Acceptable	Acceptable	Acceptable	Excellent	Acceptable	Excellent	Excellent	Excellent	Excellent

Source: Authors

The goodness of fit values for Model 2 are shown in Table 11.  $\chi^2/df$  is found as 4.206 ( $\chi^2 = 1232.65$ ,  $df = 293$ ,  $p = 0.000$ ) and it is below 5 (acceptable fit). Calculated goodness of fit indices represent that the constructed model is acceptable and has a perfect fit.

Path coefficients of the mediation model are provided in Table 12. The mediating role of RRB has been evaluated by the method of Zhao et al. (2010). When Appendix 2 and Table 12 are examined, it is seen that all paths (paths a, b, and c') are significant ( $t > 2.58$ ;  $p < 0.01$ ) in Appendix 2. After observing the road significance of the c', the multiplication of the coefficients of the a, b, and c' roads are calculated. The negative result of the product ( $-0.19 \times 0.56 \times 0.25 = -0.0266$ ) indicates that there is a partial mediation. In other words, partial mediation of RRB was observed between CRP and INT.

**H7:** RRB has a mediating role in the effect of CRP on tourists' INT.

Therefore, the H2 hypothesis, rejected in the former model, is accepted here. Considering this information, the H7 hypothesis of the research was supported. Compared to hypothesis H3, the effect level of RRB on the INT increased from 3.85 to 7.14.

**Table 12 - Results of the structural equation modeling 2**

Hypotheses	Coefficients	t-Value	Result
CRP→RRB	0.56	20.48**	Accepted
CRP→INT	-0.19	-5.50**	Accepted
RRB→INT	0.25	7.14**	Accepted

Source: Authors

## 4. Discussions and Conclusion

### Theoretical Implications

In this study, it was aimed to evaluate whether the vaccination has changed the risk perception and the impact of mass vaccination on travel intention. The effect of perceived risk on travel intention during Covid-19 was analyzed by extended TPB, and the mediating effect of RRB between CRP and INT was examined. Furthermore, the effects of AT, SN, and PBC on the INT were evaluated. In this study, it was found that CRP does not affect travel intention during the mass vaccination and normalization period in Türkiye. The effect of CRP on INT becomes meaningful when the RRB is implemented in the model. Many academic inferences can be made from the results obtained. In the first research model, no effect was observed between CRP and INT. However, due to the partial mediation of the RRB variable in model 2, the CRP had a negative effect on INT. The most important conclusion to be drawn here is to emphasize the importance

of the mediation effect. It has been revealed that when risk reduction behaviors come into play, risk perception levels of people negatively affect their travel intention. In the former model, the insignificant effect of CRP on INT is believed to be related to the elimination of pandemic restrictions, the start of the normalization period, the increase in vaccination numbers, trust in the vaccine, and safe tourism brands. The Covid-19 risk perception negatively affects the travel intention of tourists in studies published in 2020 when the Covid-19 vaccine is still being developed, and in 2021, when the vaccine was just started to be applied (Bae & Chang, 2021; Bratić et al., 2021; Han et al., 2020; Liu et al., 2021; Nazneen et al., 2022; Neuburger & Egger, 2021; Sánchez-Cañizares et al., 2021; Seong & Hong, 2021; Sujood et al., 2022). A similar result was reported for Türkiye. Garipağaoğlu Uğur et al. (2021) conducted an online survey of domestic tourists living in Türkiye and they found that the CRP negatively affects travel intention. In studies conducted at the very beginning of the vaccination period, the mediating role of the vaccine between CRP and intention to travel was examined, but no significant results could be obtained (Onat et al., 2021).

In articles published in 2022, it is stated that the Covid-19 vaccine and trust in the vaccine reduce risk perception. A study conducted in Türkiye mentioned that the Covid-19 vaccine reduced risk perception and, therefore, the intention and behavior of travel increased (Kırlar-Can & Ertaş, 2022). Shah Alam et al. (2022) reported that CRP did not affect travel intention due to reliance on the vaccine. The Chinese, who trust the effect of the vaccine, were found to have an increased intention to travel abroad (Fan et al., 2023). The Covid-19 vaccine was applied for the first time in Türkiye on January 13, 2021. Since then, the vaccination campaign has been started. During the data collection period of this study, more than 53 million people were vaccinated. This number corresponds to 85% of Türkiye's population over the age of 18. Additionally, 94.8% of the participants in our study had the Covid-19 vaccine (Table 1). Therefore, it can be said that Covid-19 risk perception did not affect the travel intentions of our sample consisting mostly of vaccinated individuals. Moreover, Zaman et al. (2021) stated that the safe tourism label increases the trust of tourists and reservations. Implementing the Safe Tourism Certificate Program in the accommodation facilities in Türkiye (Zeydan & Gürbüz, 2021), made accommodation more suitable for pandemic conditions. This causes people to act more fearlessly while on travel. To sum up, this paper contributes to literature by revealing the effect of risk reduction behaviour on travel intention. In the period of mass vaccination and normalization, individuals did not recognize Covid-19 as a risk, and the negative impact of risk perception on travel



was observed with the implementation of RRB. It is advisable for tourist to get vaccinated against Covid-19 for safer tourism. Normalization after pandemic can be achieved by only mass vaccination.

In literature, AT, SN, and PCB variables have a positive effect on INT (Bae & Chang, 2021; Bratić et al., 2021; Han et al., 2020; Liu et al., 2021; Nazneen et al., 2022; Neuburger & Egger, 2021; Sánchez-Cañizares et al., 2021; Seong & Hong, 2021; Sujood et al., 2022). Similar results were obtained in our study. AT on INT during the pandemic was more important than the effect of SN. It can be concluded that the attitude toward traveling for Turkish tourists is more important than the thoughts of the people in their immediate surroundings. While this situation is like studies conducted in China (Liu et al., 2021) and Spain (Sánchez-Cañizares et al., 2021), it differs from studies conducted in the USA (Han et al., 2020), Indonesia (Rahmafritria et al., 2021), and South Korea (Lee et al., 2012; Seong & Hong, 2021). Cultural differences between countries can be a reason for this situation.

#### Practical Implications

The findings show that the CRP for tourists disappears in the third year, but the risk is significant when it comes to the mediating effect of RRB. Mass vaccination of the public, implementing hygiene and safety measures in accommodation facilities, and safe tourism practices are believed to play a key role in this regard (Burhan et al., 2021). The effect of RRB on INT reveals the importance of tourists applying non-pharmaceutical precautions during pandemic periods (Lee et al., 2012; Liu et al., 2021). In a study conducted in Spain, the effect of CRP on INT was investigated, and it was stated that the perceived risk negatively affected AT and PBC. It was concluded that giving importance to risk reduction behaviors (security, cleanliness, hygiene, etc.) in tourism enterprises is necessary to overcome the psychological barriers of tourists and remove their risk perceptions related to travel (Sánchez-Cañizares et al., 2021).

Since elements of TPB affect intention, it is necessary to conduct tourism marketing in a way that is aimed at tourists' attitudes and subjective norms (Liu et al., 2021). To minimize the effects of the pandemic and continue their activities, tourism enterprises can apply an emergency response procedure to be prepared for a possible pandemic again, to increase their resilience, and combat the pandemic. They can prepare strategic plans and protocols to cope with the pandemic in their workplaces (Brown et al., 2017; Herbane, 2013).

#### Limitations and Further Research

The work has a peculiar nature. More studies are needed to confirm the conclusions obtained from this study. The first limitation is that the study is performed in Türkiye, with its unique features in terms of pandemic risk perception,

precautions, and results. So, it is not possible to generalize the results. For this reason, it is especially recommended to repeat the study in other countries to make comparisons among diverse cultures. Second, the study is based on an online survey so, it may not represent the entire population. The sample collected largely reflects the characteristics of tourists in Türkiye. Lastly, the survey was implemented when the vaccination process was completed, the pandemic restrictions were relaxed, and progress toward the full normalization process was observed. So, the results acquired reflect a view of tourists during the third year of the pandemic.

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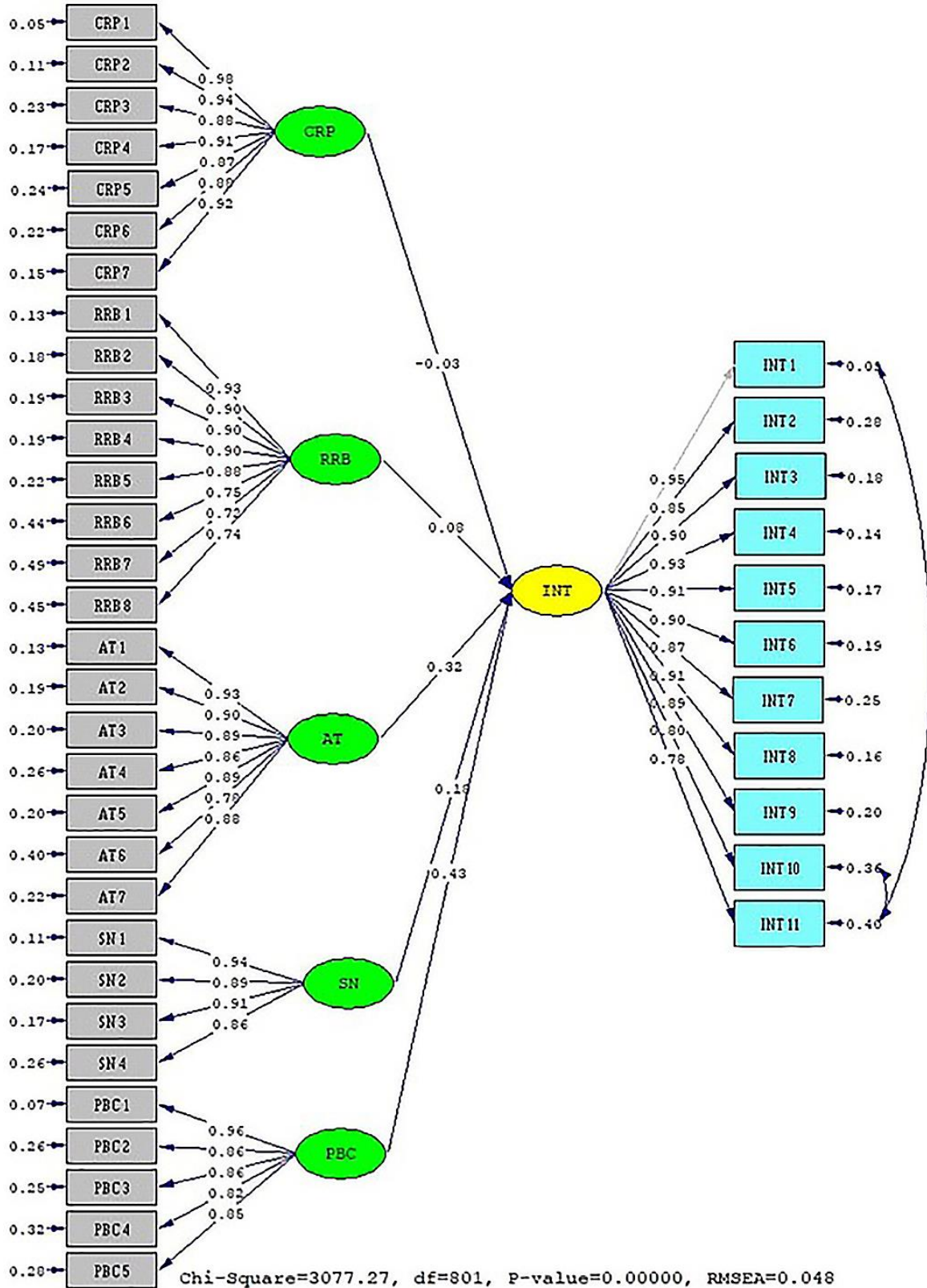
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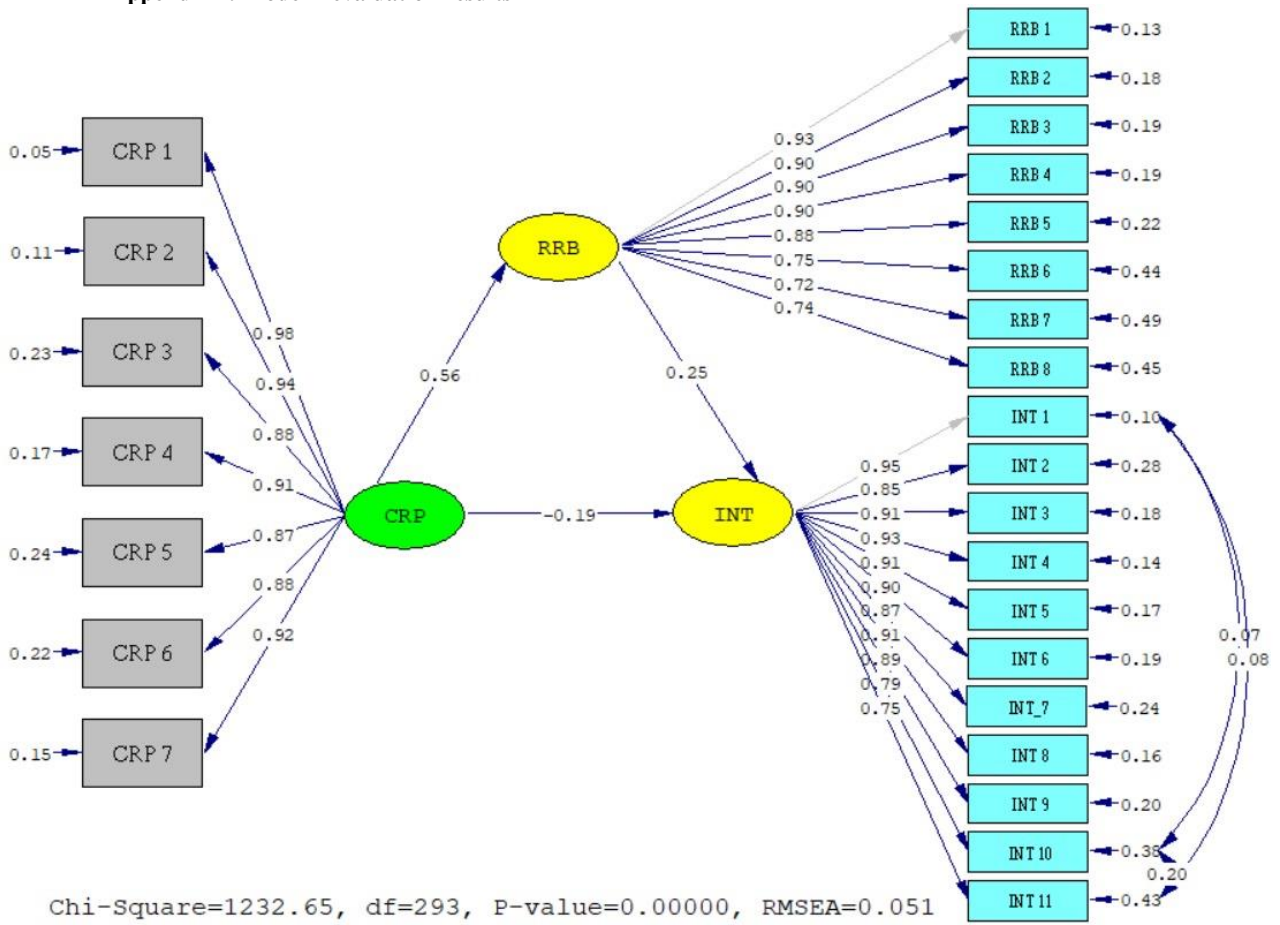
APPENDICES

Appendix 1: Model 1 evaluation results



Source: Authors

Appendix 2: Model 2 evaluation results



Source: Authors

**INFO PAGE**

Examining tourists' travel intentions in Türkiye during pandemic and post-pandemic period: The mediating effect of risk reduction behavior.

**Abstract**

In the first two years of the Covid-19 pandemic, risk perception negatively affected travel intention. Whether the vaccination has changed risk perception and the impact of vaccination on travel intention has not been fully evaluated in the literature. This study aims to examine the effects of the Covid-19 pandemic on tourists' travel intentions during the mass vaccination and normalization period by the Theory of Planned Behavior (TPB). The mediating role of risk reduction behavior between risk perception and travel intention is also investigated. An online survey was conducted with 1233 tourists in Türkiye. As a result of the Structural Equation Model (SEM), it was found that the variables of attitude, subjective norm, and perceived behavioral control had a positive effect on tourists' travel intentions. However, no significant effect of the Covid-19 risk perception on travel intention was determined. When the mediation is tested, the effect of Covid-19 risk perception on travel intention became significant. Since most of our sample population was vaccinated (94.8%), tourists did not perceive Covid-19 as a risk at first. When they applied risk reduction behaviors, they began to perceive Covid-19 as a risk and realized that the pandemic was still not over and necessary precautions had to be taken. While this study emphasizes the importance of the mediation effect risk reduction behavior, it provides us with new ideas about the changes in the travel intention of tourists during the pandemic period.

**Keywords:** Covid-19, Travel intention, Risk reduction behavior, Mediation effect, TPB

**Authors**

Full Name	Author contribution roles	Contribution rate
<b>İlknur Zeydan:</b>	Conceptualism, Software, Investigation, Data Curation, Writing - Review & Editing	80%
<b>Ahmet Gürbüz:</b>	Writing - Review & Editing, Supervision	20%

**Author statement:** Author(s) declare(s) that All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. **Declaration of Conflicting Interests:** The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article

**Ethics Committee Satatement:** Ethics committee report is available for this research and it has been documented to the journal.

**Ethics committee:** Karabük Üniversitesi Sosyal ve Beşeri Bilimler Araştırmaları Etik Kurulu

**Date of ethics committee decision:** 23.02.2022

**Ethics committee decision number:** 2022/02