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Analysis of Factors Determining Zero Inadmissible Passenger

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Abstract: This research aims to analyze the determining factors of passenger readiness towards zero inadmissible passengers. The research was conducted on Qatar Airways passengers using quantitative methods with sample consists of 200 passengers. Data were collected using a survey instrument based on 5 point likert scale. The research used structural equation model analysis technique with evaluation using inner and outer model. The results concluded that Travel Experience had no effect on Self Awareness. Regulation Knowledge has a significant effect on Self Awareness. Information has no effect on Self Awareness. Risk Knowledge has no effect on Self Awareness. Self Awareness has no effect on Readiness. Travel Experience has a significant effect on Readiness. Risk Knowledge has a significant effect on Readiness. Travel Experience does not have an indirect effect on Readiness through Self-Awareness. Regulation Knowledge has an indirect influence on Readiness through Self-Awareness, while Risk Knowledge does not on Readiness through Self Awareness. Risk Knowledge does not have an indirect effect on Readiness through Self Awareness

Keywords: Inadmissible Passenger; Readiness; Self-Awareness

INTRODUCTION

Air transportation refers to the means of transporting people or goods by air, typically using aircraft operated by trained personnel or automated systems. In today's fast-paced world, where time efficiency and speed are essential to support human activities, air transport has become a cornerstone of global mobility. The industry has seen rapid and diverse development, with many private airlines offering affordable and competitive services to meet public demand.

Globally, the aviation sector serves almost every country and plays a vital role in the formation of the global economy. It is not only a major economic driver through its direct operations but also through its influence on related industries such as tourism and aircraft manufacturing (Nuryadin et al., 2023). The significance of air transport extends beyond logistics,governments, the media, and the public continuously monitor airline performance, highlighting both the conveniences and challenges associated with air travel (Belobaba, P., Odoni, A., Barnhart, 2015).

Recent data shows that global passenger traffic rebounded strongly in March 2021, with a 52.4% year-on-year increase in revenue passenger kilometers (RPKs), reaching 88% of 2019 levels. International RPKs grew by 68.9%. In Indonesia passenger numbers rose sharply from

673,074 in 2020 to 2,526,539 in 2022. Yet, inadmissible cases also spiked, from 56 in 2019 to 155 in 2022 (International Air Transport Association (IATA), 2024).

However, the increase in air traffic also brings operational challenges. One persistent issue is the handling of inadmissible passengers those who fail to present valid documentation upon arrival. These passengers are typically denied entry and returned to the original carrier (Ridanovic, 2020).

An inadmissible person is defined in aviation law as a person who is or will be denied admission to a State by its authorities (Ruwantissa Abeyratne, 1999). When a passenger fails to meet the requirements for entry into the country, the carrier's legal duty for immigration fines is not the payment of damages but rather the payment of legal penalties as established by the national legislation of the country (Berin Rađanović, 2023).

To mitigate such incidents, airlines must deepen their understanding of immigration and visa requirements. Training programs should emphasize document verification, early detection of irregularities, and humane handling of inadmissible passengers. Integrated IT systems linked to international immigration databases along with AI and biometric technologies, can enhance real-time verification and reduce errors. Cybersecurity will create a safer environment for everyone. These actions will not only improve security but also show passengers that the airline genuinely cares about their safety (Khan et al., 2025).

This study identifies a critical gap in addressing the causes and consequences of inadmissible passengers. It proposes a multifaceted approach, combining data analysis, staff training, tech implementation, and policy evaluation to develop more effective solutions (Maurica, 2014).

Air transport is a high risk nature of aviation necessitates precision, as even minor errors can lead to severe consequences (Sipos, 2020). Nonetheless, the socio-economic value makes it indispensable. The ability to travel enhances human freedom and supports both public and private interests (Korže & Tucak, 2021).

In cities, accurate forecasting of passenger movements is essential for planning efficient transit systems. Modern technologies allow agencies to collect and analyze travel data, helping them adjust services in real time (Cheng et al., 2021)(Zhang & Huang, 2024). As globalization accelerates intercity travel, air transport remains the dominant mode for long distances (Wang et al., 2022).

Smart card data has improved understanding of public transport usage, enabling more responsive service adjustments (Espinoza et al., 2018). Similarly, airport accessibility, terminal design, and transit options like APM systems significantly impact user experience and sustainability (Avogadro et al., 2024)(Lin & Trani, 2000).

International law also requires states to uphold the dignity of inadmissible passengers, as stated in Annex 9 of ICAO standards and the UN Covenant on Civil and Political Rights (Ruwantissa Abeyratne, 2022). However, misallocated investments in infrastructure due to poor understanding of user needs may reduce overall travel satisfaction (Abenoza et al., 2018).

Moreover, ground handling services bear increasing responsibility, especially when fines are imposed due to immigration violations. These fines, determined by national laws, emphasize compliance rather than compensation (Ridanovic, 2020). The concept of remote control further expands border control practices beyond national boundaries (FitzGerald, 2020). Another example is a case of Thailand's Immigration Bureau underscores national security priorities, where the screening of people and vehicles is crucial in preventing inadmissible entries (Chaithammapakorn et al., 2020).

Despite tremendous increase in air travel, a key challenge remains: managing inadmissible people. While air traffic has recovered significantly since the epidemic, airlines are still trying to deal with the spike in passenger numbers, and the processing of inadmissible people remains an operational bottleneck. Although studies have investigated the economic and reputational effects of such accidents (Maurica, 2014) few have looked at holistic

solutions that combine multiple technical and operational tactics to successfully manage the problem. Furthermore, the combination of data analysis, personnel training, and the use of AI and biometric technology has mostly untapped potential for streamlining immigration operations and improving overall airline performance.

METHOD

The Research employed quantitative design and was conducted at Qatar Airways company in Doha, Qatar. The sample consists of 200 passengers travelling on the Qatar Airways A320. Data were collected using a survey instrument based on 5 point likert scale. Hypothesis testing was performed the Structural Equation Model (SEM) approach based on Partial Least Square. Model evaluation in PLS consists of two stages: measurement model evaluation (outer model) and structural model evaluation (inner model). Through construct validity, discriminant validity, convergent validity, and consistency reliability tests, and finally hypothesis testing.

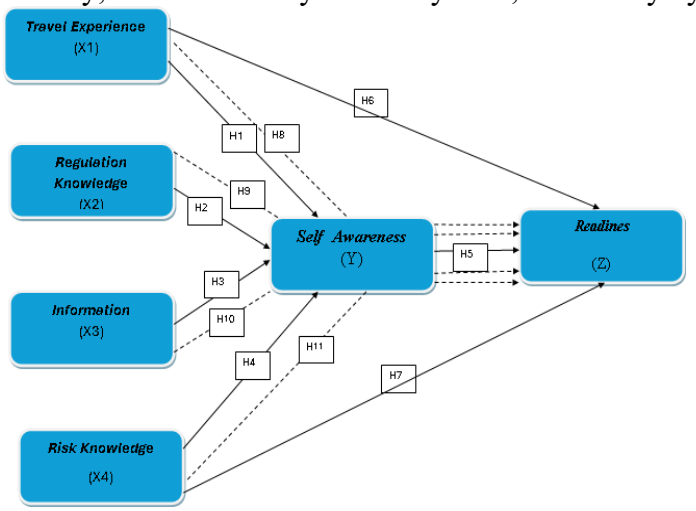


Figure 1. Conceptual Model

RESULTS AND DISCUSSION

The research shows the determining factors of zero inadmissible passengers are significantly effective in supporting preventive mechanism. The factors are travel experience, regulation knowledge, information, risk knowledge, self-awareness, and readiness.

The result of outer models measurements consists of convergent validity, AVE, discriminant validity, composite reliability.

Table 1. Convergent Validity

	Cronbach's alpha	Composite Reliability (rho_a)	Composite Reliability (rho_c)	Average Variance Extracted (AVE)	Discriminant Validity
Information (X3)	0.906	0.912	0.922	0.57	Valid
Readiness (Z)	0.882	0.89	0.905	0.517	Valid
Regulation Knowledge (X2)	0.888	0.895	0.911	0.562	Valid
Risk Knowledge (X4)	0.876	0.886	0.901	0.504	Valid

Self Awareness (Y)	0.905	0.906	0.925	0.637	Valid
Travel Experience (X1)	0.811	0.816	0.86	0.568	Valid

The Table 1 describe the average value of the variance extracted AVE of each construct is more than > 0.5, this is indicate that the research instrument has a good discriminant validity. The value of Cronbach's alpha and Composite reliability> 0.70 which means that all latent variables are reliable.

Table 2. Composite Reliability

	Cronbach's alpha	**Composite Reliablity (rho_a)**	**Composite Reliability (rho_c)**	**Average Variance Extracted (AVE)**	**Reliability**
Information (X3)	0.906	0.912	0.922	0.57	Reliable
Readiness (Z)	0.882	0.89	0.905	0.517	Reliable
Regulation Knowledge (X2)	0.888	0.895	0.911	0.562	Reliable
Risk Knowledge (X4)	0.876	0.886	0.901	0.504	Reliable
Self Awareness (Y)	0.905	0.906	0.925	0.637	Reliable
Travel Experience (X1)	0.811	0.816	0.86	0.568	Reliable

The table 2 describe the composite reliability value greater than 0.7 and Cronbach's alpha is above 0.6, so the questionnaire can produce stable or constant measurement results.
Testing the inner model or structural model is carried out to see the relationship between constructs, the significance value and R square of the research model.

Tabel 3. The result *Goodness of Fit*

	R-square	**Adjusted R-square**
Readiness (Z)	0.901	0.9
Self Awareness (Y)	0.506	0.496

Table 3 shows the R^2 (R-square) value for the Readiness variable of 0.901 or 90.1%. This value indicates that the Readines variable can be explained by the Travel Experience, Regulation Knowledge, Information, Risk Knowledge, and Self Awarenes variables by 90.1%. While the remaining 9.9% is influenced by other variables not included in the study. The R^2 value for the Self Awarenes variable is 0.506 or 50.6%. This value indicates that this variable can be explained by the Travel Experience, Regulation Knowledge, Information and Risk Knowledge variables by 50.6% while the remaining 49.4% are other variables not included in the study.

The results of testing using the bootstrapping.

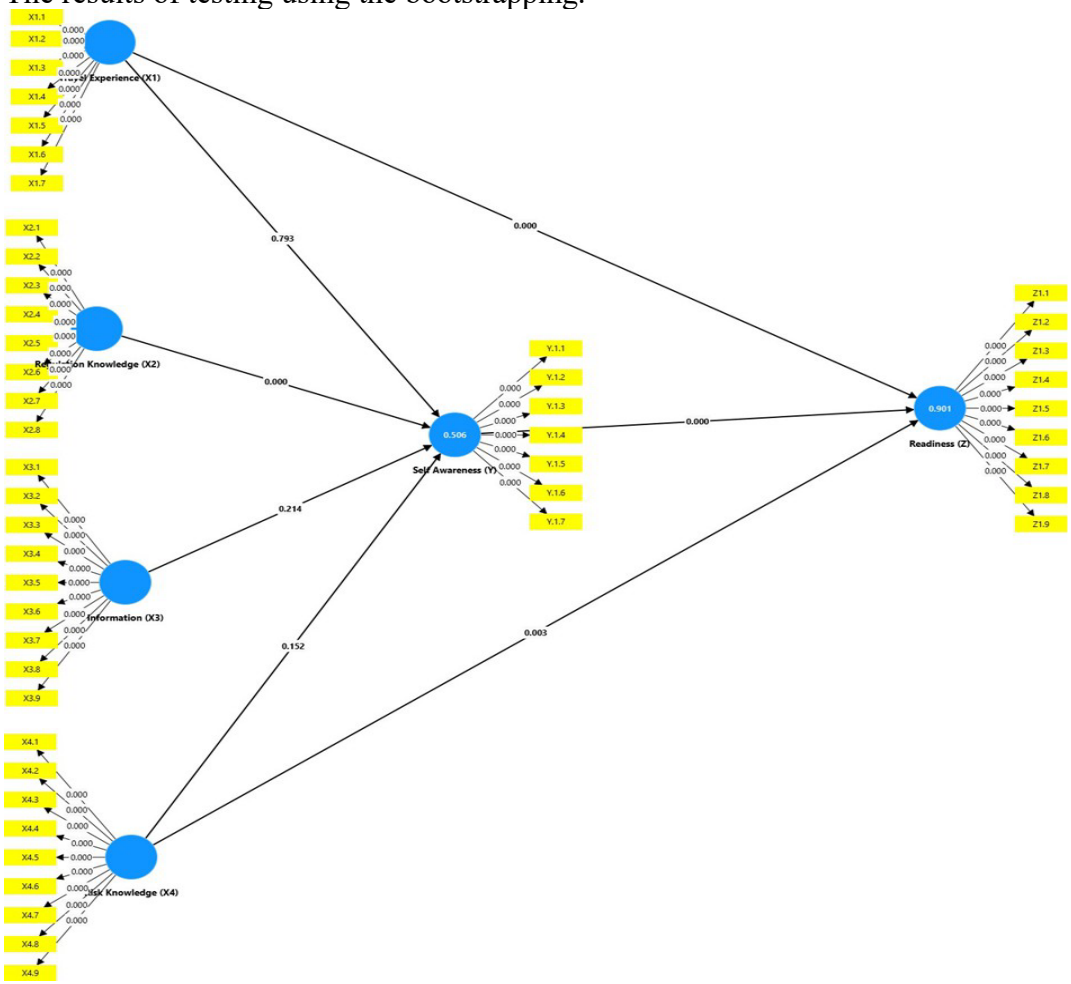


Figure 2 . Bootstrapping

Testing the structural relationship model aims to describe the interaction between the variables in the study. The process of testing the structural model is carried out using the P value test, where a P value < 0.05 indicates that there **is** a significant direct effect. The basis of direct hypothesis testing includes image results and path coefficient values, as well as indirect effects identified in the output.

Table 4. Hypothesis Result

	STD	VIF	STDEV	T Value	P Value
Information (X3) -> Self Awareness (Y)	-0.134	-0.132	0.108	1.243	0.214
Regulation Knowledge (X2) -> Self Awareness (Y)	0.662	0.656	0.094	7.01	0
Risk Knowledge (X4) -> Readiness (Z)	-0.229	-0.226	0.077	2.956	0.003
Risk Knowledge (X4) -> Self Awareness (Y)	0.166	0.17	0.116	1.434	0.152
Self Awareness(Y) -> Readiness (Z)	0.899	0.895	0.036	24.966	0
Travel Experience (X1) -> Readiness (Z)	0.319	0.322	0.084	3.819	0

Travel Experience (X1) -> Self Awareness (Y)	0.027	0.031	0.104	0.263	0.793

The interpretation of Table 4 is as follows:
Self Awareness (Y) -> Readiness (Z): This shows a very high T value of 24.966 and a P value of 0, indicating a highly significant positive relationship. It suggests that self-awareness strongly influences readiness.
Risk Knowledge (X4) -> Readiness (Z): The relationship is statistically significant with a P value of 0.003, indicating that risk knowledge positively affects readiness.
Travel Experience (X1) -> Readiness (Z): The relationship is also statistically significant with a P value of 0, suggesting that travel experience has a meaningful effect on readiness.
Regulation Knowledge (X2) -> Self Awareness (Y): This relationship has a P value of 0, indicating a strong and statistically significant positive impact of regulation knowledge on self-awareness.
Risk Knowledge (X4) -> Self Awareness (Y): This relationship has a higher P value of 0.152, suggesting it is not statistically significant in this model.
Self Awareness (Y) -> Readiness (Z): As noted earlier, this relationship is highly significant, with a very strong T value and a P value of 0.
Travel Experience (X1) -> Self Awareness (Y): This relationship is not statistically significant (P value = 0.793), suggesting that travel experience does not significantly affect self-awareness in this context.

This study aimed to explore the factors that influence passengers' preparedness for zero inadmissible passengers, focusing particularly on Qatar Airways customers. The findings offer valuable insights into the complex relationship between characteristics such as travel experience, regulatory knowledge, information, and risk awareness, and how these factors affect self-awareness and preparedness.

Initially, the study hypothesized that travel experience would positively correlate with self-awareness. However, the results showed no significant relationship between the two (p-value = 0.793). This suggests that prior travel experience does not necessarily improve a passenger's understanding of the importance of having the right documentation. This could be because even experienced travelers may not always be aware of the legal entry requirements for different countries, or they may rely on airline staff to handle these matters.

In contrast, a strong understanding of regulations was found to significantly influence self-awareness (p-value = 0.000). This supports the idea that passengers with a better grasp of travel regulations are more likely to be aware of immigration requirements. This finding highlights the importance of informing travelers about visa and entry regulations before their journey. Airlines could enhance passenger preparedness by providing more detailed pre-travel briefings or reminders.

The impact of general knowledge on self-awareness, however, was found to be minimal (p-value = 0.214). This could be due to the type of information passengers typically receive, which may not be specific or detailed enough to improve travel readiness. Additionally, passengers might not fully understand the information provided, especially if it is presented in a vague or uninspiring way.

Similarly, risk awareness did not significantly affect self-awareness (p-value = 0.166). This indicates that while passengers may be aware of potential travel risks, such as flight cancellations or delays, this awareness does not always extend to understanding immigration requirements. The study suggests that airlines should shift their focus in risk communication from general travel hazards to specific immigration and border control concerns.

While self-awareness did not directly influence travel preparedness, factors such as travel experience and risk awareness did have a direct impact on it. The study found a significant correlation between travel experience and preparedness (p-value = 0.003), emphasizing how prior travel experience helps passengers navigate the complexities of international travel. Experienced travelers are often more adept at dealing with challenges like immigration protocols and document requirements.

Moreover, knowledge of regulations had an indirect impact on preparedness through self-awareness. This suggests that when passengers are informed about travel restrictions, it first boosts their self-awareness, which then makes them more likely to comply with immigration requirements. This finding reinforces the importance for airlines to implement educational initiatives focused on regulatory awareness to better prepare passengers for their trips.

Overall, the study underscores that understanding travel regulations is crucial to passenger preparedness for international travel. While travel experience and risk awareness are important, they alone do not ensure that travelers are adequately equipped to meet immigration requirements. Information by itself seems insufficient, as passengers may overlook or forget key points unless they are clearly presented in a relevant and engaging manner.

CONCLUSION

This study's conclusions provide actionable insights for airline operators and governments. Airlines should prioritize enhancing passenger education on immigration laws, possibly through focused communication strategies that improve self-awareness. Moreover, incorporating technology like AI and biometric technologies into check-in and boarding procedures might enhance the verification of travel papers, hence diminishing the probability of admitting unauthorised passengers. Future study may investigate the influence of cultural disparities on passengers' comprehension of regulations and the effect of technology interventions on preparedness.

This research also recognizes several limitations. The sample was restricted to Qatar Airways passengers, and the results may not be applicable to other airlines or areas. The study also depended on self-reported data, which may introduce biases, such social desirability bias or recollection bias. Subsequent research should include a wider array of airlines and nations to corroborate and enhance the findings.

In conclusion, the study offers a thorough examination of the determinants affecting passenger preparedness about zero inadmissible individuals. It provides critical insights into how airlines may optimise their operating strategies to reduce the incidence of inadmissible passengers, hence enhancing their efficiency and adherence to international travel standards.

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