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Hava Taşımacılığında Algılanan Değerin Müşteri Memnuniyeti Üzerindeki Etkisi Üzerine Bir Meta-Analiz Çalışması

Şahap AKAN[1]

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Öz

Bu araştırmada hava taşımacılığı endüstrisinde yapılmış ve algılanan değer ile müşteri memnuniyeti arasındaki ilişkiye odaklanan çalışmaların bulgularının meta analizi ile sentezlenmesi amaçlanmıştır. Ayrıca bu ilişkinin yönünün dışında gücünün de ortaya çıkarılarak etki büyüklüğünün saptanması hedeflenmiştir. Bu çalışmada WOS veri tabanından PRISMA 2009 protokolü uygulanarak 163 çalışma arasından dâhil etme hariç tutma kriterleri ile birlikte 12 çalışma belirlenmiştir. Daha sonra her çalışmalardaki korelasyon katsayıları (r) belirlenerek Fisher r-z dönüşümü ve rastgele etkiler yöntemleri kullanılmıştır. Bunun sonucunda algılanan değer ile müşteri memnuniyeti arasında pozitif yönde ve güçlü bir ilişki olduğu saptanmıştır ($\beta = 0.548$, $p < .001$). Mevcut araştırma çeşitli çalışmaların bulgularını birleştirerek genel etki büyüklüğünü belirleyerek bu değişkenler arasındaki ilişkinin gücünü daha sağlam ve tutarlı bir biçimde ortaya koymaktadır.

Anahtar Kelimeler: *Hava Taşımacılığı, Meta Analizi, Algılanan Değer, Müşteri Memnuniyeti*

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A Meta-Analysis of the Impact of Perceived Value on Customer Satisfaction in Air Transportation

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Abstract

This study aims to synthesize the findings of research in the air transportation industry that examines the relationship between perceived value and customer satisfaction through meta-analysis. It also intends to determine the strength of this relationship by calculating the effect size. A total of 12 studies were selected from the WOS database using the PRISMA 2009 guidelines from an initial pool of 163 studies based on the inclusion and exclusion criteria. Correlation coefficients (r) were extracted from each study and Fisher's r-to-z transformation and random effects methods were applied. The analysis revealed a positive and strong relationship between perceived value and customer satisfaction ($\beta = 0.548$, $p < .001$). By combining the findings of multiple studies, this research demonstrates the robustness and consistency of the relationship between these variables through the overall effect size.

Keywords: *Air Transportation, Meta-Analysis, Perceived Value, Customer Satisfaction*

JEL Kodu: *M3*

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Introduction

In today's rapidly changing world, human mobility has increased significantly, with people eager to reach their destinations as quickly as possible when traveling between cities or countries. As a result, air transportation has emerged one of the most efficient ways to meet this need. However, speed alone is not enough to satisfy customers (Suprapto and Oetama, 2023, p. 1493–1495). As the service industry has development, customer expectations have increased significantly, and poor service can lead to dissatisfaction, causing customers to turn to competitors (Tu, Li, & Chih, 2011; Tu, Lin, & Chang, 2011). This makes customer satisfaction (CS) essential, particularly in the air transportation sector, where competition is intense and profit margins are thin (Holloway, 2008, p. 7–10). Although all players in the industry strive to ensure passenger satisfaction, only a few manage to achieve consistently high levels. These successful companies view CS as a strategic tool and continually innovate to drive sustainable growth (Chien and Su, 2003, p. 345; N. Kumar, Scheer, and Kotler, 2000, p. 138). In today's competitive environment, where CS is paramount, innovations not only differentiate companies from the competition, but also create added value. At this point, satisfaction provides a competitive advantage and shapes perceived value (PV) – an important driver of CS (Bazan, 1998, p. 23; Flint, Blocker, and Boutin, 2011, p. 226-227). The relationship between CS and PV can be examined through the lens of expectancy-confirmation theory proposed by Oliver (1980). This theory posits that perceived value, defined as the balance between service benefits and costs, establishes expectations that subsequently influence satisfaction. Customers evaluate PV by comparing the quality of service they receive to the sacrifices they make (Zauner, Koller, and Hatak, 2015, p. 4). Therefore, no matter how effective a company's innovations may be, their impact is equally dependent on customer perceptions. By examining the relationship between PV and satisfaction, companies can better understand the effectiveness of their services and the lasting impression they make on customers (Andersen and Weisstein, 2019, p. 361; Shen, Xiao, and Wang, 2016, p. 20-21). Numerous studies have examined how PV is related to CS across different aspects of air transportation services (Hussain, Al Nasser, and Hussain, 2015; Janawade, Bertrand, Leo, and Philippe, 2015; Lee and Wu, 2011). However, these studies are conducted within specific contexts and focus on particular topics, providing valuable insights into air transportation. Given the complex structure of the aviation industry and the associated high customer expectations, systematically reviewing these studies is essential to enriching the body of knowledge in this field. Calculating the overall effect size of such studies is especially valuable for assessing the strength of the relationship and informing the development of new strategies. This requires methods such as meta-analysis, which provide more robust and generalizable results. Meta-analysis has raerly been applied within the aviation industry. For instance, Bakır (2023) investigated how service quality impacts CS, whereas Erturgut and Gürler (2023) examined the relationship between CS and loyalty. However, this study examines on the relationship between PV and CS. The unique aspect of examining the relationship between PV and CS lies not only in addressing service quality, but also in considering perceived cost-effectiveness more broadly. Rather than focusing exclusively on the long-term relationship between CS and loyalty, PV plays a key role in understanding the early stages of CS development. For this reason, emphasizing the connection between PV and CS is essential to developing value-based strategies that go beyond traditional, quality-based methods. The aim is to determine the true effect size of this relationship. Therefore, a meta-analysis was conducted to evaluate the variables in a more objective, rigorous and unbiased manner (Alfi, 2023, p. 69). The study addresses the following research questions:

1. Does PV have significantly impact on CS in the air transportation industry?
2. What is the effect size of the relationship between PV and CS as indicated by the existing literature?

The paper is organized as follows: Section 2 presents a review of the relevant literature, Section 3 outlines the research methodology, and Section 4 details the findings of the analysis. The final section explores the theoretical and practical implications of the study, as well as its limitations and suggestions for future research.

Literature Review

Perceived Value

PV is rooted in equity theory, where consumers compare their input/output ratio with that of the service provider (Adeola and Adebiyi, 2014, p. 69). Although PV has various definitions, the commonly accepted definition is "the consumer's overall assessment of the utility of a product based on perceptions of what is received and what is given" (Zeithaml, 1988, p. 14). According to this definition, PV can be viewed as a balance in which customers weigh the quality, benefits and other factors they receive against the price and other sacrifices they make (Mayr and Zins, 2012, p. 358). These sacrifices extend beyond monetary payments to encompass non-monetary factors, including stress, energy expenditure, and time loss (Rungsrisawat, Namdej, and Jermsittiparsert, 2019, p. 300). Thus, PV is determined by the balance between perceived costs and benefits. In this context, it results from customers' evaluation of the products or services they experience (Huang, 2023, pp. 4–5).

PV influences purchase behavior by shaping customers' preferences for products and services (Choi, Huang, Choi, and Chang, 2020, p. 25). To maximize PV, companies should implement strategies aimed at enhancing it. These strategies can include activities such as offering discounts and reducing purchase time. Such initiatives are crucial for establishing a strong connection between the customer and the company, as their interactions generate value for the customer (Adeola and Adebiyi, 2014, p. 69). At this point, companies should focus on addressing the real needs of consumers. Services developed with this approach can significantly increase customer PV. In this context, there are numerous innovation opportunities for airlines (Huang, 2023, p. 3).

Although various initiatives have been undertaken to increase PV, identifying and measuring post-purchase PV is essential for a comprehensive evaluation. In this context, researchers have developed several scales to measure PV. A prominent example is the PERVAL scale by Sweeney and Soutar (2001, p. 216), which consists of 19 items categorized into 4 dimensions: quality, emotional, price and social value. Over time, different scales have emerged for different sectors. For example, a 22-item scale was developed to measure the PV of sports services, focusing on social, functional, emotional and economic value (Sevilmiş, Özdemir, García-Fernández, and Zhang, 2024, p. 15). Similarly, the MVAL-SCALE, developed to measure PV in mobile commerce, covers the dimensions of utilitarian, interaction and credibility (Dastane, Goi, and Rabbanee, 2023, p. 18). When looking at the aviation sector, it is noticeable that no industry-specific scale has yet been developed. However, PV in air transportation has been assessed by adapting scales from other studies. These adaptations are tailored to the unique dynamics of the sector and allow researchers to explore the relationship between PV and other variables. Studies on PV in air transportation have considered factors such as expectations (C. F. Chen, 2008), service quality (Boonchunone, Nami, Tus-u-bul, Pongthavornvich, and Suwunnamek, 2021; L. Chen, Li, and Liu, 2019; Choi et al., 2020; Hapsari, Clemes, and Dean, 2016) and brand awareness (L. Chen et al., 2019) as antecedents of PV. In other ways, word of mouth (Gürler and Ertugut, 2018; Mayr and Zins, 2012; Pappachan, 2023), loyalty (Boonchunone et al., 2021; Llach, Marimon, del Mar Alonso-Almeida, and Bernardo, 2013; Mayr and Zins, 2012), reputation (Mayr and Zins, 2012), satisfaction (Adeola and Adebiyi, 2014; C. F. Chen, 2008; Choi et al., 2020; Gürler and Ertugut, 2018; Hapsari et al., 2016; Mayr and Zins, 2012; J.-W. Park, Robertson, and Wu, 2006), image (J.-W. Park et al., 2006) and repurchase intention (L. Chen et al., 2019) are observed as consequences of PV. The literature review shows that the relationship between PV and CS is frequently studied. Therefore, a meta-analysis of these variables is expected to provide important insights.

Customer Satisfaction

CS is a critical factor for success in competitive markets. It is considered a fundamental performance standard for organizations striving to achieve their goals (Hussain et al., 2015, p. 167). In recent years, this topic has attracted significant attention in the literature. Conceptually, CS is a cognitive response resulting from the evaluation of a purchased service along with its cost (E. Park et al., 2019, p. 371). Satisfaction varies

depending on the service received and individual perception. Generally, satisfaction arises when a product or service meets the customer's needs, while dissatisfaction arises when those needs are not met. (Khan and Khan, 2014, p. 64).

CS can be further understood through expectancy disconfirmation theory (Oliver, 1980, p. 460). According to this theory, consumers form certain expectations before purchasing a product or service (e.g. an airline service). These expectations serve as a standard against which the actual service is compared. As a result, consumers may experience confirmation (satisfaction) positive confirmation or disconfirmation depending on the outcome (Sezgen, Mason, and Mayer, 2019, p. 66).

The slogan "The customer is always right" is often heard in everyday life and underlines the importance of high CS. It is not enough to satisfy customers to a certain degree, but they must be extremely satisfied. Achieving this can foster long-term relationships and result in customer loyalty (Hussain et al., 2015, p. 167). It is crucial to remember that CS is dynamic and can change over time, so regular evaluation is essential. If expectations are not continually met, customer attrition can occur. To avoid this, companies must regularly measure customer expectations (Khan and Khan, 2014, p. 64).Various methods are used to measure CS, particularly in the airline industry, where approaches such as the logit model (Agarwal and Gowda, 2021; An and Noh, 2009), machine learning (S. Kumar and Zymbler, 2019; Mirthipati, 2024) and structural equation models (Farooq, Salam, Fayolle, Jaafar, and Ayupp, 2018; Hussain et al., 2015; Şimşek and Demirbağ, 2017) multiple criteria decision analysis (Chou, Liu, Huang, Yih, and Han, 2011; Tsafarakis, Kokotas, and Pantouvakis, 2018) are used. These methods not only evaluate current satisfaction levels, but also predict future trends.

In the air transportation industry, measuring CS is critical for five main reasons. First, it improves communication with passengers from different customer segments. Second, it evaluates whether the services meet expectations. Third, areas with potential for improvement are identified. Fourth, it enables airlines to evaluate their strengths and weaknesses relative to their competitors. Finally, increased CS also increases employee motivation (Lucini, Tonetto, Fogliatto, and Anzanello, 2020, p. 2).

Method

Meta-Analysis

This study used meta-analysis, a quantitative method for systematically analyzing and comparing results from different studies, to examine the relationship between PV and CS and reveal the true relationships between these variables. Its importance lies in providing a quantitative basis for selecting variables and understanding their relationships for future research based on a comprehensive literature review (Zhu, Liu, and Dong, 2022, p. 271).

Meta-analysis systematically combines different studies into a single design (Dekkers, 2018, p. 658). This approach helps determine whether variations in effect sizes are attributable to a single population effect by combining effect sizes from multiple studies (Alfi, 2023, p. 69). Essentially, it is a statistical analysis that aims to produce generalizable results through the synthesis and reinterpretation of results from multiple studies (Atalay, 2019, p. 434). This process allows for the elimination or reduction of errors within a single study, and by minimizing interpretive discrepancies between studies, more universal conclusions can be drawn (Zhu et al., 2022, p. 271). Studies included in a meta-analysis must meet certain criteria. Studies must be primarily experimental as meta-analyses cannot be used to summarize theoretical research (Atalay, 2019, p. 434). The methodology can be applied to different areas such as medicine and tourism and the results can be transferred to a broader context.

To conduct a meta-analysis, several steps must be followed. First, the research question is defined, followed by a thorough literature search. The data collected is then coded and statistically evaluated and the results are finally discussed.

Inclusion and Exclusion Criteria

The research included studies that examined the relationship between PV and CS in the air transportation industry. Since the 1980s, with increasing competition in air transportation, customer perceptions of services developed with a customer-centric approach have been measured. Therefore, the research focuses on studies conducted between 1980 and 2024 and published in the Web of Science (WOS) database. Peer-reviewed articles and book chapters within this time frame were included. In addition, proceedings and review articles were excluded, and only full-text studies written in English were included.

Data Collection

Literature review studies often encounter biases or gaps in identifying all relevant research. The PRISMA protocol, developed in 2009, is used to minimize this. This protocol systematically identifies studies based on inclusion and exclusion criteria, ensuring a comprehensive scan of relevant research to answer specific questions (Rethlefsen et al., 2021, p. 2). The PRISMA protocol was also used in this review. It serves as a guide for authors to transparently document what they have done, found and planned as part of a review (Sarkis-Onofre, Catalá-López, Aromataris, and Lockwood, 2021, p. 1).

Studies were retrieved from the WOS database, which was selected for its ease of accessibility, access and indexed content. After logging in to WOS, the following search terms were used ("customer satisfaction" or "satisfaction" or "consumer satisfaction" or "passenger satisfaction") AND perceived value AND ("airline industry" or "airline" or "air transportation" or "aviation" or "aviation industry" "airways"). The search covered the years 1980 to 2024 and resulted in 163 documents. A duplication test was conducted to eliminate duplicate documents. The results were exported from WOS and uploaded to Mendeley to ensure that no duplicates remained. Proceedings and reviews were then excluded, focusing only on studies written in English. After applying the necessary filters, 145 studies remained. Each study was then manually reviewed according to systematic criteria. In order to ensure a systematic approach to this review, a specific set of criteria must be followed. The literature review showed that the criteria were comprehensively addressed in Bakır's (2023, p. 237) study. In this study, the same criteria were applied to determine which studies to include:

* If a correlation coefficient was not reported, the coefficient of determination (R^2) was converted to (r)
* The validity and reliability of the scales used were ensured.
* Variables were analyzed unidimensionally. For multidimensional operationalization, the correlation coefficient of the general components had to be provided.
* Sample sizes were reported in the included studies.

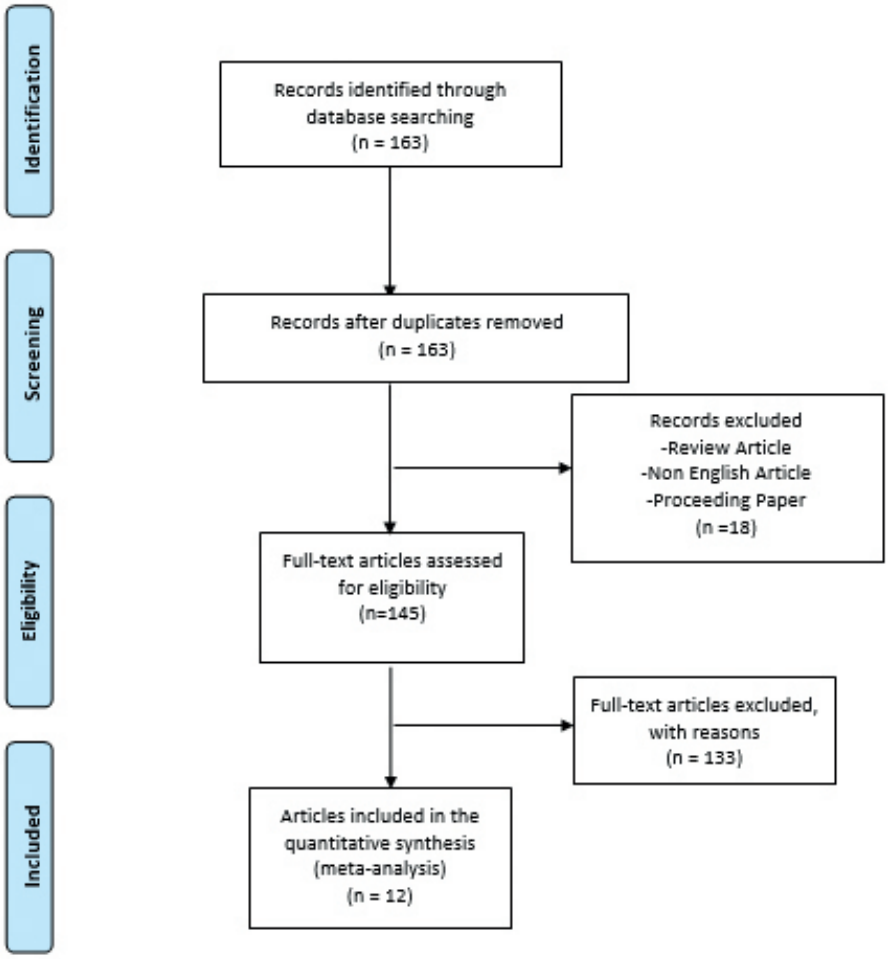

Figure 1. The Prisma Process

Based on these criteria, 12 studies were selected from the original pool of 145 studies for inclusion in the meta-analysis. It is generally accepted that the inclusion of at least three studies in a meta-analysis is sufficient, and it is considered adequate if the total sample size exceeds 999 (Herbison, Hay-Smith, & Gillespie, 2011, p.145; Okan, 2024, p.201). Therefore, the selection of 12 studies is considered appropriate for this research. Furthermore, the inclusion of 12 studies increases the validity and reliability of the findings and allows a more comprehensive view of the results. The selected studies, along with their correlation coefficient (r) values and sample sizes, are listed in Table 1.

Table 1

Selected Studies on the Correlation Between Perceived Value and Customer Satisfaction

	PERCIEVED VALUE	SATISFACTION	Correlation Coefficient (r)	Sample
(Shen et al., 2016)	Perceived Value	Passenger Satisfaction	0.438	642
(Andersen and Weisstein, 2019)	Perceived service value	Passenger satisfaction	0.690	186
(Wehner, López-Bonilla, and López-Bonilla, 2022)	Perceived value	Customer satisfaction	0.437	1523
(Lee and Wu, 2011)	Perceived service value	Service Satisfaction	0.470	715
(Han, Yu, and Kim, 2018)	Perceived value	Satisfaction with airport duty-free shopping	0.629	375
(Forgas, Palau, Sánchez, and Huertas-García, 2012)	Offline Perceived value	E-satisfaction	0.302	1203
(Luo and Lee, 2011)	Perceived service value	Service Satisfaction	0.470	715
(Bezerra and Gomes, 2019)	Perceived Value	Passenger Satisfaction	0,062	335
(Choi et al., 2020)	Perceived Value	Satisfaction	0.784	556
(Janawade et al., 2015)	Perceived value of the alliance	Satisfaction (with respect to the alliance)	0.429	97
(Yuan et al., 2021)	Perceived Value	Passenger Satisfaction	0.630	1345
(Hussain et al., 2015)	Perceived Value	Satisfaction	0.378	253

Analysis and Findings

Data Analysis

The meta-analysis of the selected studies was conducted using the Jamovi program. Jamovi was chosen for its accessibility as a free program and its user-friendly interface, which makes it easier for researchers to conduct meta-analyses. To enable meta-analyses in Jamovi, the MAJOR plugin, which is also available free of charge, was installed. Several key analyses were performed using this open-source statistical software, including publication bias assessment, heterogeneity testing, and application of the random effects model.

Publication Bias Assessment

Meta-analyses can be affected by publication bias, where studies with significant results are more likely to be included, while those with non-significant results may be excluded. Such selective inclusion can distort the overall effect size, potentially inflating or underestimating the true effect (Erturgut and Gurler, 2023, p. 5). This study used several techniques to assess publication bias, including the funnel plot, fail-safe N, Begg and Mazumdar rank correlation, Egger's regression, and trim and fill tests. These methods help ensure a more comprehensive and unbiased representation of the studies included in the meta-analysis.

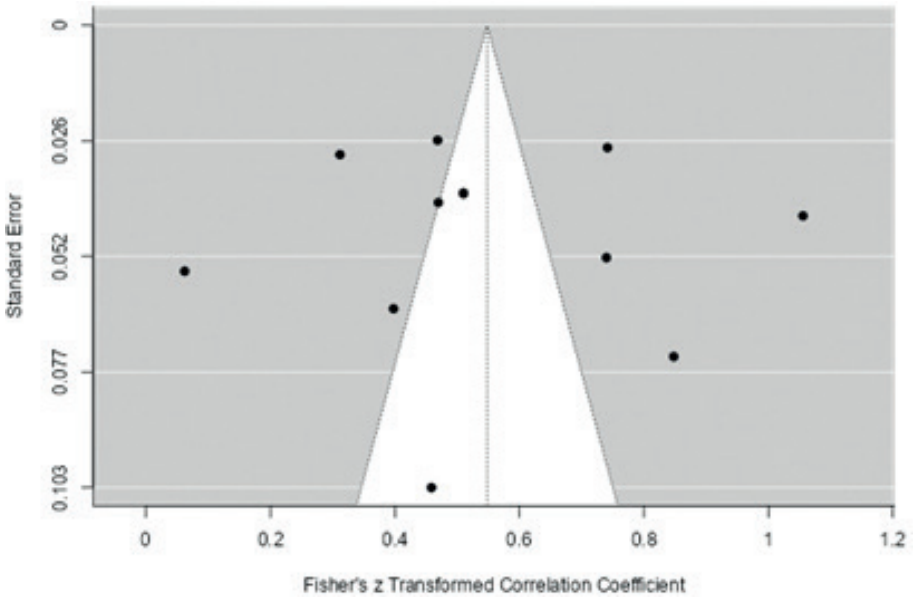

Figure 2. Representation of Publication Bias Through a Funnel Plot

A funnel plot is a visual tool for assessing publication bias, with the dots representing individual studies and providing insight into the symmetry and distribution of the data, thereby indicating the presence of bias (Terrin, Schmid, and Lau, 2005, p. 894). In this study, no visible signs of publication bias were observed when examining the funnel plot. The variations observed between studies appeared to be reasonable and within expected limits. This suggests that the results are balanced and reliable. However, as the funnel plot alone does not provide a definitive assessment of publication bias, other tests were used in this study to ensure robustness.

Table 2

Publication Bias Assessment

Test Name	**value**	**p**
Fail-Safe N	9186.000	< .001
Begg and Mazumdar Rank Correlation	0.108	0.630
Egger's Regression	-0.039	0.969
Trim and Fill Number of Studies	0.000	

Note: Fail-safe N Calculation Using the Rosenthal Approach

Table 2 shows the results of the tests used for publication bias assessment, with the exception of the funnel plot. The Fail-Safe N test estimates how many studies with null or negative effect sizes would need to be included in the meta-analysis to invalidate its results (Fragkos, Tsagris, and Frangos, 2014, p. 2). According to Rosenthal's Fail-Safe N approach, 9,186 studies would need to be added to invalidate the significance of this meta-analysis. This large number suggests that the results of the study are robust and not affected by publication bias. The Begg and Mazumdar rank correlation test assesses the relationship between effect sizes and standard errors (Cassey, Ewen, Blackburn, and Møller, 2004, p. 452). For this test, a p-value of 0.05 or lower in this test indicates a statistically significant relationship between effect sizes and standard errors, suggesting the potential presence of publication bias (Begg & Mazumdar, 1994, p. 1095). The test showed a very low correlation coefficient of 0.108 and a non-significant p-value of 0.630, indicating no evidence of publication bias. Egger's regression test evaluates the asymmetry of the funnel plot to detect publication bias (Ye, Huai, Ding, Chen, and Sun, 2013, p. 8785). The p-value of this test was 0.969, which is greater than 0.05, indicating no significant asymmetry and therefore no publication bias (Okan, 2024b, p. 203). In addition,

the coefficient of -0.039, which is very close to zero, suggests that the funnel plot is highly symmetric. Finally, the Trim and Fill test estimates how many studies are missing from the funnel plot to ensure symmetry (Duval and Tweedie, 2000, p. 456–457). The analysis found zero missing studies, indicating that no studies are missing, further supporting the absence of publication bias. In summary, the combination of a high fail-safe N, the non-significant results of the Begg and Mazumdar and Egger's regression tests, and the zero Trim and Fill number strongly suggests that there is no or minimal publication bias in this meta-analysis.

The heterogeneity test is an important part of meta-analysis and serves as a key factor in interpreting research findings and ensuring the reliability of the results (Friede, Röver, Wandel, and Neuenschwander, 2017; Kulinskaya, Dollinger, and Bjørkestøl, 2011). This test assesses the extent to which the effect sizes of the included studies differ, thus revealing the consistency or inconsistency of the findings. It also helps to determine whether a fixed-effects or random-effects model should be used in the meta-analysis. Therefore, the heterogeneity test plays an important role in selecting the appropriate model and improving the quality of the meta-analysis (Borenstein, 2023, p. 1–3).

Table 3

Heterogeneity Statistics

Tau	Tau^2	I^2	H^2	df	Q	P
0.258	0.0666 (SE= 0.0295)	97.68%	43.021	11.000	389.911	< .001

Table 3 shows the results of the heterogeneity statistics. Tau and Tau^2 are commonly used to measure heterogeneity. Tau^2 estimates the variance in effect sizes across studies, while Tau is the standard deviation of this variance (Swargiary and Kadali, 2023, p. 6). In this study, the Tau^2 value of 0.0666 indicates some heterogeneity, although it is not extremely high. The Tau value of 0.258 reflects the average deviation of the study effects from the overall mean effect size. I^2 measures heterogeneity as a percentage and indicates how much of the total variation in effect size is due to heterogeneity rather than chance (Naaktgeboren et al., 2016, p. 6). In this case, an I^2 value of 97.68% suggests that almost all of the variation between studies is due to heterogeneity, which means that there are significant differences in the study results. H^2 assesses the proportion of heterogeneity that is due to true differences between studies rather than sampling variability (Xu, Deng, Xu, and Gu, 2024, p. 8). An H^2 value greater than 1 indicates heterogeneity, and in this study the H^2 value of 43.021 suggests that a substantial proportion of the variation is due to real differences between studies rather than random chance. Finally, the Q test assesses whether the observed heterogeneity is statistically significant (Erdoğan and Kanık, 2011, p. 75). In this study, the Q-test results ($Q(11) = 389.911$, $p < .001$) indicate significant heterogeneity (Xu et al., 2024, p. 8). The threshold value for 11 degrees of freedom at the .05 significance level (χ^2) is 22.362, confirming that the heterogeneity is statistically significant. Given the high heterogeneity observed, the random effects model was considered appropriate for this meta-analysis. The results of the Tau^2, I^2, H^2, and Q tests together indicate considerable variability between studies, suggesting that the differences are due to real variation in research results rather than random sampling error.

Random Effects Model

The distribution of data in the study determines the analysis model to be applied. A random effects model is used for heterogeneous data distributions, while a fixed effects model is applied for homogeneous data distributions (Okan & Ağaç, 2023, p. 383). The relationship between PV and CS was analyzed using the random effects model, which combines effect sizes from various studies to calculate a reliable average. This model considers variability across studies by assigning weights to each, enabling a more precise estimation of the average effect size (Benligül, Bektaş, and Arslan, 2022, p. 91). This study investigated effect sizes that represent the relationship between PV and CS, using correlation coefficients to quantify the effect size. Effect

sizes reflect the strength of the relationship between two variables, and their interpretation depends on the size. According to Cohen et al. (2007), an effect size of 0-0.10 indicates a small effect, 0.10-0.30 a modest effect 0.30-0.50 a moderate effect 0.50-0.80 a strong effect, and ≥0.80 a very strong effect.

Table 4

Random Effect Model

	Estimate	SE	Z	p	CI Lower Bound	CI Upper Bound
Intercept	0.548	0.0760	7.21	< .001	0.399	0.697

Note. Tau^2 Estimator: Restricted Maximum-Likelihood

Table 4 presents the results of the effect size calculations using the random effects model. The overall effect size was found to be 0.548 and ranges from 0.50 to 0.80, suggesting a strong effect. Consequently, the results of the meta-analysis show a robust association between PV and CS.

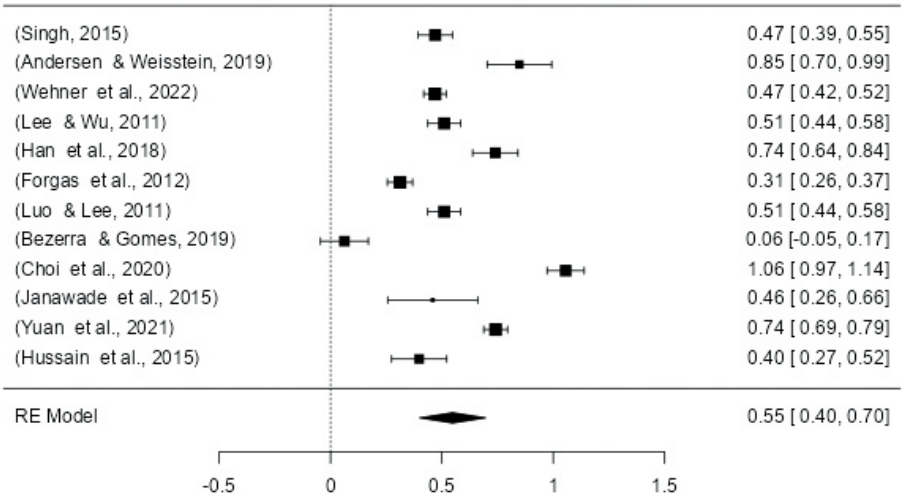

Figure 3. Forest plot

The forest plot visually represents the effect sizes of each individual study. Each row in the plot represents a study and shows the effect size (black square) and associated confidence interval (black bar). Effect sizes range from 0 to 1, and the forest plot provides a visual comparison of these values (Lewis and Clarke, 2001, p. 1479). Choi et al. (2020) show a high effect size of 1.06 [0.97, 1.14], indicating a very strong relationship between PV and CS in their results. In contrast, Bezerra and Gomes (2019) report a much smaller effect size of 0.06 [-0.05, 0.17], indicating a weak or negligible effect. In terms of confidence intervals, studies with narrower confidence intervals have more reliable results (Andersen and Weisstein, 2019), while those with wider intervals indicate less certainty in the findings (Bezerra and Gomes, 2019; Janawade et al., 2015). At the bottom of the forest plot is the overall effect size and confidence interval, which in this study was calculated as 0.55 [0.40, 0.70]. This overall result aligns with the findings of the random effects model, further reinforcing the conclusion of a strong relationship between PV and CS.

Conclusion

The study contributes to the literature by providing an industry-specific perspective, examining the relationship between PV and CS within the air transportation industry. The effect size of 0.548 highlights the central role of PV in enhancing CS and strengthens the applicability of theoretical models in this context. These findings are also consistent with previous studies (C. F. Chen, 2008; Lopentus & Erdiansyah, 2020; Okan, 2024b, 2024a). The results enrich the literature in several ways. First, the identification of

an effect size of 0.548 highlights the significant role of PV in shaping CS. These findings are consistent with Zeithaml's (1988, p. 4) theoretical models, which suggest that customers continually evaluate the cost of a product or service against the benefits received, ultimately resulting in satisfaction or dissatisfaction. Zeithaml points out that customer value is a primary driver of satisfaction, and this study confirms the validity of this argument. Secondly, the findings support the expectancy confirmation theory of CS, which posits that satisfaction is largely based on customer expectations (Oliver, 1980, p. 460). Since PV is a critical factor in shaping these expectations, the theory suggests that PV directly affects CS. As PV increases, CS also increases. This study is notable for quantifying the effect size of this relationship in the air transportation industry. Third, the relationship between PV and CS also supports models that emphasize the role of value-based approaches in influencing satisfaction. For example, the value-satisfaction-loyalty chain model argues that PV drives satisfaction, which in turn influences post-purchase behavior, including loyalty. In particular, it is emphasize that increased CS promotes loyalty (Gallarza, Arteaga-Moreno, Del Chiappa, & Gil-Saura, 2016;Gallarza, Arteaga, & Gil-Saura, 2019; Gallarza, Gil Saura, & Arteaga Moreno, 2013). In this context, PV can be considered a key lever for increasing satisfaction in the airline industry.

The research provides valuable insights for both airport and airline managers. By providing a broader perspective on the relationship between PV and CS, the study provides managers with comprehensive information to implement improvements in various areas. These efforts should focus on increasing CS through a value-based approach, which includes strategies such as value pricing and loyalty programs. Looking at processes from the perspective of value creation offers opportunities in all areas of the air transportation industry. For instance, value-based pricing can contribute to profitability by improving the customer experience. Moreover, introducing new experiences that delivery value to customers can increase PV while meeting their needs and desires. In addition, offering various promotions and benefits through loyalty programs can strengthen long-term relationships with customers, further increasing PV. A customer-centric approach, particularly in areas that involve direct contact with passengers, is essential to effectively communicate value. By focusing on these areas, PV can be increased, leading to higher CS. This in turn can help maintain a competitive advantage and improve profitability.

As with any research, this study has certain limitations. First, it focuses exclusively on the air transportation industry and only includes English full-text articles and book chapters available in the WOS database. Future studies that include studies in other languages and from other databases are essential to obtain more comprehensive results. In addition, extending the research to other sectors such as tourism, banking and retail would lead to a more comprehensive understanding of the relationship between PV and CS. Secondly, this study only focuses on the relationship between PV and CS. Future research could explore the influence of other variables, such as trust, on CS. Factors such as business model, culture and gender could also be investigated as potential moderator variables to assess their impact on CS. Thirdly, this study used the Jamovi program for the meta-analysis. While Jamovi is sufficient for basic meta-analysis purposes, more complex analyses may require additional software. Programs such as Stata and R could expand the scope of the analyses and provide more detailed and nuanced results.

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Genişletilmiş Özet

Amaç

Hava taşımacılığının farklı alanlarındaki hizmetlere ilişkin olarak algılanan değer ile müşteri memnuniyeti değişkenleri arasındaki ilişkiyi ele alan çok sayıda çalışma yapılmıştır. Ancak, bu çalışmaların sistematik bir şekilde incelenmesi ve mevcut bilginin daha derinlemesine geliştirilmesi kritik bir öneme sahiptir. Özellikle bu alandaki çalışmaların genel etki büyüklüğünün hesaplanması, ilişkinin kuvvetini belirleme ve yeni stratejiler geliştirme açısından oldukça faydalıdır. Bu araştırma, algılanan değerin müşteri memnuniyeti üzerindeki etkisini ve gerçek etki büyüklüğünü anlamayı amaçlamaktadır. İlgili değişkenler arasındaki ilişkiyi daha nesnel, sağlam ve yanlılıktan uzak bir biçimde değerlendirebilmek için meta-analizinin yapılması hedeflenmiştir. Bu doğrultuda araştırma, "Algılanan değer, hava taşımacılığı endüstrisinde müşteri

memnuniyeti üzerinde önemli bir etkiye sahip midir?" ve "Mevcut alan yazına dayanarak algılanan değer ve müşteri memnuniyeti değişkenleri arasındaki ilişkinin genel etki büyüklüğü nedir?" sorularına cevap aramıştır.

Tasarım ve Yöntem

Bu araştırma, algılanan değerin müşteri memnuniyeti üzerindeki etkisini incelemek amacıyla meta-analiz yöntemini kullanmıştır. Meta-analiz, genel olarak alan yazındaki farklı çalışmaların sonuçları arasındaki farklılıkları sistematik bir şekilde analiz etmek, karşılaştırmak ve değişkenler arasındaki gerçek ilişkileri ortaya koymak için yapılan bir niceliksel analizdir. Meta-analizinin önemi, alan yazın taraması temelinde sonraki yapılacak çalışmalar için değişkenlerin seçimi ve değişkenler arasındaki mevcut ilişki için nicel bir temel sağlamasıdır. Dolayısıyla, araştırma uygulamalı bir çalışma niteliğinde olup kesişimsel bir tasarım benimsemiştir. Bu tasarım ile mevcut alan yazınında yer alan farklı çalışmalardan elde edilen bulguları sistematik olarak bir araya getirerek daha genellenebilir sonuçlar elde etmeyi amaçlamaktadır. Araştırmanın ana kütlesini, hava taşımacılığı alanında algılanan değer ve müşteri memnuniyeti arasındaki ilişkiyi ele alan hakemli tam metin çalışmalar kapsamaktadır. Bu araştırmada, 1980-2024 yılları arasında hava taşımacılığı alanında yapılmış, Web of Science (WOS) veri tabanındaki İngilizce tam metin makalelere ve kitap bölümlerine odaklanılmıştır. Veri toplama sürecinde PRISMA protokolü uygulanmış ve bu sayede alan yazındaki çalışmalar belirli bir sistematik temelde taranmıştır. WOS veri tabanında gerçekleştirilen tarama sonucunda 163 çalışmaya ulaşılmıştır. Daha sonra elde edilen çalışmalar arasında herhangi bir benzerlik olup olmadığı konusunda Mendeley programı kullanılarak kontrol sağlanmıştır. Sonraki süreçte, belirlenen kriterler doğrultusunda araştırmaya dahil edilecek çalışmalar saptanmıştır. Bu doğrultuda, 12 çalışmanın belirlenen kriterleri sağladığı ve araştırma için uygun olduğu belirlenmiştir. Meta-analizde, etkilerin büyüklüğünü belirlemek amacıyla farklı çalışmalardan elde edilen korelasyon katsayıları (r) kullanılmıştır. Bu kapsamda, analizler Jamovi yazılımının MAJOR eklentisi aracılığıyla gerçekleştirilmiştir.

Bulgular

Jamovi programı kullanılarak yapılan meta analizi kapsamında, yayın yanlılığının ve heterojenliğin değerlendirilmesi amacıyla çeşitli testler uygulanmıştır. Değerlendirme sonucunda elde edilen huni grafiği, belirgin bir yanlılık gözlemlenmediğini göstermektedir. Bu durumu desteklemek için huni grafiğinin yanı sıra farklı testler de gerçekleştirilmiştir. Ayrıca, Rosenthal'ın Fail-Safe N yaklaşımı kullanılarak, araştırmanın sonuçlarını zayıflatmak ve anlamlılığı ortadan kaldırmak için 9186 ek çalışmaya ihtiyaç duyulduğu saptanmış; elde edilen sonuçların yayın yanlılığına dayanarak çarpıtılmadığı belirlenmiştir. Begg and Mazumdar sıra korelasyon testi ile çalışmaların etki büyüklükleri ile standart hataları arasındaki ilişki incelenmiş ve korelasyon katsayısının 0.108 olduğu, dolayısıyla çok düşük bir ilişki bulunduğu belirlenmiştir. Huni grafiğinin asimetrisini incelemek amacıyla Egger'in regresyon testi uygulanmış ve 0.969'luk p değeri ile asimetri tespit edilmemiştir. Trim and Fill sayısı sıfır olarak bulunmuş, böylece huni grafiğinde herhangi bir yanlılık olmadığı ortaya konmuştur. Daha sonra heterojenlik testi ile çalışmalardan elde edilen etki büyüklüklerinin farklılık gösterip göstermediği incelenmiştir. Bu test sonucunda ($Q(13)=327.760$, $p<.001$) olarak belirlenmiş ve ($\chi 2$) tablosunda 13 serbestlik derecesi için eşik değeri .05 (α) anlamlılık düzeyinde 22.362 olarak bulunmuştur. Böylece Q testi ile çalışmalar arasında heterojenlik gözlemlenmiştir. Bu nedenle, meta analizine ait modelin rastgele etkiler modeline göre incelenmesi gerekli görülmüştür. Rastgele etkiler modeli, çalışmalardan elde edilen etki büyüklüklerini birleştirerek ortalama değer hesaplanmasında kullanılmaktadır. Rastgele etkiler modeli ile yapılan analiz sonucunda, algılanan değer ile müşteri memnuniyeti arasındaki etki büyüklüğü 0.548 olarak hesaplanmıştır. Bu değer, Cohen'in etkilerin sınıflandırmasına göre güçlü bir etkiyi temsil etmektedir. Araştırmada ayrıca, orman grafiği ile her bir çalışmanın etki büyüklükleri ve güven aralıkları ortaya konmuştur.

Sınırlılıklar

Her çalışmanın sahip olduğu bir takım sınırlılıklar bu çalışmada da bulunmaktadır. İlk olarak, bu çalışma yalnızca hava taşımacılığı endüstrisine odaklanmış ve WOS veri tabanında yer alan İngilizce tam metin makaleler ile kitap bölümlerini içermiştir. Gelecek araştırmalarda, farklı dillerdeki ve veri tabanlarındaki çalışmaların da dahil edilmesiyle daha kapsamlı sonuçlar elde edilebilir. Ayrıca, turizm, bankacılık ve perakendecilik gibi farklı sektörlerde yapılacak çalışmalar, algılanan değer ile müşteri memnuniyeti arasındaki ilişkiyi daha iyi açıklamak açısından kritik öneme sahiptir. İkinci olarak, bu çalışma sadece algılanan değer ve müşteri memnuniyeti değişkenleri arasındaki ilişkiye odaklanmıştır. Gelecek araştırmalar, güven gibi farklı değişkenlerin müşteri memnuniyeti üzerindeki etkilerini inceleyebilir. Ayrıca, iş modeli, kültür ve cinsiyet gibi faktörler, moderatör değişkenler olarak ele alınarak incelenebilir. Üçüncü olarak, bu çalışmada meta-analizin uygulanmasında Jamovi programı kullanılmıştır. Jamovi, meta-analiz için yeterli bir program olmakla birlikte, daha karmaşık analizler için gelecekteki çalışmalarda Stata ve R gibi programlar da kullanılabilir.

Öneriler

Araştırmadan elde edilen sonuçlar, hem havayolu hem de havaalanı yöneticileri için önemli katkılar sağlamaktadır. Araştırma bulguları, algılanan değer ve müşteri memnuniyeti değişkenleri arasındaki ilişkiye dair kapsamlı bilgiler sunarak geniş bir perspektif ortaya koymaktadır. Bu doğrultuda, yöneticilerin değişkenler arasındaki güçlü ilişkiye dayanarak çeşitli alanlarda hizmet iyileştirmeleri yapmaları mümkündür. Değer temelli bir yaklaşımın benimsenmesi, fiyatlandırmadan müşteri sadakati programlarına kadar birçok alanda müşteri memnuniyetini artırmayı gerektirmektedir. Değer temelli yaklaşım, hava taşımacılığı endüstrisinde birçok fırsat sunmaktadır. Müşterilere sunulan deneyimlerin iyileştirilmesi, değer temelli fiyatlandırma stratejilerinin geliştirilmesine yardımcı olabilir ve bu da kârlılığı olumlu yönde etkileyebilir. Ayrıca, sadakat programları aracılığıyla müşterilerle uzun vadeli ilişkiler kurmak için çeşitli kampanya ve fırsatlar sunulması, algılanan değeri artıran önemli unsurlar arasında yer alabilir. Sonuç olarak, özellikle yolcularla temas edilen durumlarda, onlara değer sunabilecek müşteri merkezli bir bakış açısına ihtiyaç duyulmaktadır. Bu yaklaşım, hem algılanan değerin artırılmasına hem de müşteri memnuniyetinin sağlanmasına katkıda bulunacaktır. Böylece, artan kârlılıkla birlikte rekabetçi avantaj sürdürülebilir hale gelecektir.

Özgün Değer

Bu çalışmanın özgün değeri, hava taşımacılığı endüstrisinde ilgili değişkenler arasındaki ilişkiyi nicel olarak ortaya koymasıdır. Meta-analiz sonucunda belirlenen bu ilişki, 0.548'lik bir etki büyüklüğü ile değişkenler arasındaki pozitif yöndeki güçlü ilişkiyi net bir şekilde ortaya koymaktadır. Bu doğrultuda, algılanan değerin müşteri memnuniyeti üzerindeki önemli rolünü vurgulayarak alan yazına önemli katkılar sağlamaktadır. Bunun yanında, çalışmanın diğer bir özgünlüğü, hava taşımacılığı endüstrisinde yapılmış çalışmaları bir araya getirip kapsamlı bir değerlendirme sunması ve bunu meta-analiz yöntemiyle yapmasıdır. Böylece metodolojik olarak, değişkenler arasındaki ilişkiyi daha sağlam ve güvenilir bir şekilde ortaya koyması bakımından değerlidir. Son olarak, araştırma bulgularının beklenti doğrulama teorisi gibi modellerle uyumlu olması hava taşımacılığı endüstrisinde ilgili değişkenler arasındaki ilişkiyi daha derinlemesine anlama olanağı sağlamaktadır.