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# COMPLEX RELATIONSHIP BETWEEN AIR QUAL, PASSENGERS SATISFACTION AND LOYALTY: AN EMPIRICAL STUDY AT TRIVANDRUM AIR PORT

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## ABSTRACT

As several challenges are faced by the Airlines industry, they adopt AIRQUAL to build passenger loyalty through passenger satisfaction. The study has been made to measure the direct and indirect relationship between AIRQUAL, passenger satisfaction and passenger loyalty. Trivandrum city is selected for study. A structured questionnaire used to collect data from sampled respondents. The responses are analysed using SEM. The present study concludes that important AirQual factors are boarding, on flight and post arrival service Quality. The three air service Quality factors are having significant relationship with passengers satisfaction and loyalty whereas the higher relationship is noticed with passengers satisfaction.

**Key Words:** AIRQUAL, passenger satisfaction, passenger loyalty, SEM, on board quality, on flight quality and post arrival quality.

## INTRODUCTION

The airline industry is facing a hectic competition (Fornell, 2001)1. In order to succeed in the competition, the airline companies are selecting the passengers' satisfaction as their key marketing approach (Schulz, 2012)2. Chitty et al., (2007)3 stated that passenger satisfaction is a key performance indicator for the airline business. In order to achieve the passengers' satisfaction, the service quality of airlines is becoming a tool (Chang and Keller 2002)4. The service quality of airlines includes the services from safety to in flight amenities (Kandampully, 2000)5. Chikwendu et al., (2012)6 identified five important air transport service quality factors. (De Meyer and Mostert, 2010)7 suggested five factors from baggage handling to flight frequency.

The better air line service quality to passenger satisfaction are proved by Faheed (1998)8, Geraldine and Chikwendu (2013)9. However it is difficult to say that the satisfaction results in passenger loyalty (Hanum, 2013)10 in airline industry. Even though, there is a positive correlation between the passengers' satisfaction and passenger loyalty in airline industry. (Kalthom et al., 2007)11, it is not assured (Jin et al., 2005)12, but the loyalty is the expected aspect of all air transport operators (Ghazal and Suchita, 2014)13. Hence, it is essential to evaluate the linkage between the airline service quality, customer satisfaction, and loyalty in airline industry for future policy implications. So, the study focuses on this aspect.

### Literature review

### Airline service Quality

The conceptualization of service quality is more challenging since the service is intangible (Palmer, 2011)14. Ghylin (2008)15 defined the service quality is of high quality level apparently leading to customer satisfaction. Landrum et al (2008)16 measured the service quality by the outcome of service experience. The 'Air Qual' scale was constructed by Alotaibai (2015)17 and restricted by Nedunchezhian and Thirunavukarasu (2018)18 with the help of 38 items. It was validated by the same author in 2019 by 26 variables. The important variables are access, communication, competence, courtesy, credibility, security, transparency, timeliness, understanding of customers' needs, ticket purchase, pre-flight services post arrival services, on board services and airport services.

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**Passengers' satisfaction**

Passengers' satisfaction is the psychological fulfillment of the various expectations of passengers (Bezerra and Gomes, 2015)19. It is one of the important outcomes expected by the service providers (Clemes et al., 2008)20. In the airline industry, it is related to the satisfaction on safety (Hau et al., 2012)21, comfortableness (Huang, 2010)22, timeliness (Hussain et al., 2015)23, economy (Namukasa, 2013)24, and on board services.

**Passengers ' loyalty**

Loyalty is measured by both behavioral and attitudinal aspects (Kandampully and Suhastanbo, 2003)25. The behavioral aspects express the repeated patronage and willingness to recommend (Wong and Sohal, 2003)26. The attitudinal aspects reveal the consumers' aspiration and attachment with the particular product, firm and service provider (Chaudhuri and Holbrook, 2001)27. The passengers loyalty in airlines is measured by both aspects (An and Noh, 2009)28. It includes the repeated purchase, recommend to others, trust on the service provider, less price sensitive, positive words of mouth (Nadiri et al., 2008)29.

**Relationship between Air Qual, passenger satisfaction and loyalty**

The significant positive influence of air service quality on passenger satisfaction is evidenced by Hamsa (2013)30 and Nor et al., (2013)31. At the same time the influence of service quality of airlines on passengers' loyalty is proved by Yu (2009)32. The significant mediator role of passenger satisfaction in between Air Qual and passenger loyalty is found by Gures et al., (2014)33, and Yang et al., (2011)34.

**Research Hypothesis**

Based on the review of the studies, the present study formulates the Null hypothesis.

1) There is no significant direct and indirect impact of Air Qual on the passengers' loyalty.

**Methodology and Data**

The study use quantitative research approach. The required data are collected from the passengers at Tiruvandrum air port, Kerala. The target population of this study consists of all domestic and international air passengers departing from Trivandrum airport, Kerala. Initially, the study determines the sample size of 300 which consists of 150 domestic and 150 international air passengers. Thereafter, the sampled passengers are equally distributed to morning, afternoon and evening flights. The convenience sampling was used to identify the sampled passengers.

**Research Instrument and response rate**

The primary data are collected with the help of self administered structural questionnaire. The items on questionnaire related to the constructs namely Air Qual, passengers satisfaction and loyalty are drawn from previous related studies. The construct have been operationalized using seven point scales, ranging from very high to very low. The pilot study was conducted among 50 air passengers to enrich the Quality of questionnaire. The final questionnaire was used to collect the data. The response on the Questionnaire came to 168 in total which consists of 102 domestic and 66 international air passengers.

**Reliability and validity assessment**

The validity and reliability of the construct were assessed for generalization of research findings. Cronbach alpha was computed to assess reliability; content validity and convergent validity were assessed to examine the validity. The normality of data was assessed by range of skewness and kurtosis. Finally, the fitness of data for further analysis is examined. The score of each variable in construct at pilot study are taken for the analysis.

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The value of alpha is 0.60 whereas the standardized factor loading, composite reliability and average variance extracted are < 0.60. The range of required skewness and kurtosis are +3 to -3 whereas the KMO measure of sampling adequacy and significance of chi-square value are < 0.60 and < 0.05 respectively. All variables in the constructs are proved by the reliability and validity assessment (Co-oper and Schindler, 201135, Hair et al., 201036; Nunnally and Bernstein, 199437; Howell, 2007)38.

**Statistical Tools / Analytical Procedure**

The obtained data from questionnaire were compiled in an Excel format. The data are analysed with the help of sample mean, standard deviation, Pearson correlation with the use of SPSS. The Structural Equation Modeling is adopted to examine the linkage between Air Qual, passengers satisfaction and passengers' loyalty (Nessset and Helgesen, 2014)39.

**Results of Data analysis**

The perception on important AIRQUAL comprises of three items namely Boarding Service Quality, on flight service Quality and post arrival service Quality which consist of 8, 9 and 9 variables. The passenger satisfaction and loyalty comprises of 6 and 5 variables respectively. The relationships between these five constructs are presented in Table 1.1.

**TABLE 1.1 Correlation Matrix**

| *Sl. No.* | *Constructs* | *Mean* | *S.D* | *1* | *2* | *3* | *4* | *5* |
|---|---|---|---|---|---|---|---|---|
| 1. | Boarding SQ | 3.75 | 0.3545 | 1 | | | | |
| 2. | On flight SQ | 4.11 | 0.3676 | 0.2175 | 1 | | | |
| 3. | Post arrival SQ | 3.86 | 0.03391 | 0.3308 | 0.2961 | 1 | | |
| 4. | Passengers' satisfaction | 3.47 | 0.3886 | 0.6814* | 0.7173* | 0.7646* | 1 | |
| 5. | Passengers' loyalty | 3.02 | 0.4141 | 0.6102* | 0.6346* | 0.6244* | | 1 |

*Significant at five percent level.

The higher level of perception is noticed in the case of on flight service Quality since its mean score is 4.11, followed by post arrival service Quality with the mean of 3.86. The level of passenger loyalty is lesser compared to passengers satisfaction on air transport since its mean scores are 3.02 and 3.47 respectively. The degree of correlation between the three major AirQual factors are very lesser and also statistically insignificant. The passengers' satisfaction and customer loyalty on air transport are significantly correlated with three important Air Qual factors since its correlation coefficients are significant at five per cent level.

**Complex relationship between three constructs in the analysis**

The complex relationship explains the linkage between all constructs connected in the path diagram developed by SEM (Ali et al., 2015). In the present study, these are three important AirQual (Independent variables) passenger satisfaction (Mediator variable) and passengers' loyalty (outcome variable). The path diagram indicates both direct and indirect effect of independent variables on the outcome variable (Suki, 2014). The path diagram is given below.

After the development of path model, the fit indices of the model are estimated with the help of several indices. (Saha and Theingi, 2009)40. These indices are given in Table 1.2.

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**TABLE 1.2 Fit Indices of the Path Model**

| *Sl. No.* | *Fit indices* | *Goodness of fit criteria* | *Result* | *Remarks* |
|---|---|---|---|---|
| 1. | Significance of chi-square | ≤ 0.05 | 0.0249 | Good fit |
| 2. | RMSEA | ≤ 0.08 | 0.0411 | Good fit |
| 3. | GFI | ≥ 0.90 | 0.8442 | Marginal fit |
| 4. | AGFI | ≥ 0.90 | 0.8646 | Marginal fit |
| 5. | CFI | ≥ 0.90 | 0.9242 | Good fit |
| 6. | TLI | ≥ 0.90 | 0.9044 | Good fit |

All fit indices indicate the good and marginal fit of the path model developed by the SEM.

**Direct and Indirect effect of AirQual on Passengers Loyalty**

The direct and indirect effect of AirQual factors on passengers' loyalty is evaluated by SEM. The results are shown in Table 1.3.

**TABLE 1.3 Path coefficients of SEM (AirQual Factors on Passengers' loyalty)**

| *Sl. No.* | *Constructs* | *Direct effect* | *'p' value* | *Indirect effect* | *'p' value* | *Total effect* |
|---|---|---|---|---|---|---|
| 1. | Boarding SQ | 0.0814 | 0.1459 | 0.2788 | 0.0211 | 0.3602 |
| 2. | On-flight SQ | 0.1419 | 0.0309 | 0.2509 | 0.0304 | 0.3928 |
| 3. | Post arrival SQ | 0.0709 | 0.1841 | 0.2969 | 0.0074 | 0.3678 |
| | Total | 0.2942 | - | 0.8266 | - | 1.1208 |

The significant direct effect on the passengers loyalty is made by only on flight service Quality since its path coefficient is significant at three per cent level. The significant indirect effect is created by all three AirQual factors since its 'p' values are less than 0.05. The higher total effect on passengers loyalty is made by on flight SQ since its total effect is 0.3928. The total higher indirect effect is made on passengers loyalty compared to total direct effect since its' total effects are 0.8266 and 0.2942. It shows the significant mediator role of passengers' satisfaction in between AirQual factors and passengers loyalty on airlines.

## CONCLUDING REMARKS

The present study concludes that important AirQual factors are Boarding, on flight and post arrival service Quality. The three air service Quality factors are having significant relationship with passengers satisfaction and loyalty whereas the higher relationship is noticed with passengers satisfaction. The significantly and directly influencing AirQual factor on passengers' loyalty is only on flight SQ whereas in the case of indirect effect, all these AirQual factors are significantly influencing passengers' loyalty. The total indirect effect is higher compared to direct effect. It shows the significance of passengers' satisfaction as a mediator in between AirQual factors and passengers loyalty in airlines industry.

## REFERENCES

1. Fornell, C., (1992), "A national customer satisfaction barometer: the Swedish experience," **Journal of marketing,** 56 (1), pp. 1-18.
2. Schulz, R.N., (2011),The effects of business image on customer retention in hotels, in Eldoret.
3. Chitty, B., ward, S and Chua, C., (2007), "An application of the ECSI model as a predictor of satisfaction and loyalty for backpacker hostels", **Marketing Intelligence and Planning,** 25(6), pp. 563-580.

4. Chang, Y, and Keller, M.R., (2002), " A survey analysis of service quality for domestic airlines," **European Journal of Operational Research,** vol.139, pp. 166-177.

5. Kandampully, J., (2000), "The impact of demand fluctuation on the quality of service: tourism industry example," **Managing Service Quality,** 10(1), pp. 10-18.

6. Chikwendu, D.V, Eigen, E, Ezenria, A., (2012), "Evaluation of service quality of Nigerian airline using SERVQUAL model," **Journal of Hospitality Management and tourism,** 3(6), pp. 117-125.

7. De Meyer, C.F, Mostert, P.G., (2010), " The influence of passenger nation on relationship formation in south Africa domestic airline industry," **South African Journal of business Management,** 42 (4), pp. 79-88.

8. Faheed, S.K., (1998), "An investigation of airline service Quality passenger satisfaction and loyalty: The case of Royal Jordanian Airline," Ph.D., Thesis submitted at submitted at sheffield University Management school.

9. Geraldine, U and Chikwendu, D.V., (2013), "Effects of airline service quality on airline image and passengers' loyalty : Findings from Arik Air Nigeria Passengers," **Journal of hospitality and Management tourism,** 4(2), pp. 19-28.

10. Hanum, N. A., (2013), "Price, service Quality and customer loyalty: A case of Air Asia," **South East Asia Journal of Contemporary, business, Economics and Law,** 2(1), pp. 34-40.

11. Kalthom, A, Noor, H.A and Kamariah, M.N., (2007), "Measuring service quality of airlines services in Malaysia," **IIUM Journal of Economics and Management,**15(1), pp. 1-29.

12. Jin-Woo, P, Rodger, R and Cheng - Lung, W., (2005), " Investigating the effects of airline service quality on airline image and passengers' future behavioural intentions: Findings from Australian international air passengers," **The Journal of Tourism studies,** 16(1), pp. 1-10.

13. Ghazal, M and Suchita, J., (2014), "Assessing customer perception of service quality: Comparative study of Airlines in UAE," **World Review of business research,** 4 (2), pp. 291-303.

14. Palmer, A., (2011), Principles of services marketing Maindenhead: Mc Graw - Hill.

15. Ghylin, M., (2008), "Improving service quality: Achieving high performance in the public and private sectors, Delray Beach, FC: st: Lucie Press.

16. Landrum, H, Prybutok, V.R., Kappelman, L.A and Zhang, X., (2008), "services: A parsimonious instrument to measure service quality and information system success," **The Quality Management, Journal,** 15(3), pp. 17-25.

17. Alotaibai, M.M.,(2015), "Evaluation of 'AIRQUAL' scale for measuring airlines service quality and its effect on customer satisfaction and loyalty," **https:// depace lib. cranfield. ac. Uk/handle/1826/9651.**

18. Nedumchezhian, V.R and Thirunavukarasu, A.,(2018), "Validation of airline service Quality scale: Evidence form Indian and European passengers," **Academy of marketing studies Journal,** 22(1), pp. 1-14.

19. Bezerra, G.L.L and Gomes, C.F., (2015), "The effect of service quality dimensions and passengers, overall satisfaction with an airport," **Journal of air transport Management,** 44(45), pp. 69-82.

20. Clemes, M.D, Gan, C, Kao, J and Choong, M., (2008),"An empirical analysis of customer satisfaction in international air travel," **Innovative Marketing,** 4(2), pp. 49-62.

21. Hau, S., Hans, S., Yang, I and Bocek, S., (2012)," Passengers, perceptions of airline lounges: Importance of attributes that determine usage and service quality measurement," **Tourism Management,** 33(1), pp. 1103-1111.

22. Huang, Y., (2010)," The effect of airline service quality on passenger's behavioural intentions using SERVQUAL cores: A Taiwan case study," **Journal of Eastern Asia society for transpiration studies,** 8(1), pp. 2330-2343.

23. Hussain, R., Nasser, A.A and Hussain, Y.K., (2015),"Service Quality and customer satisfaction of a UAE - based airline: An empirical investigation," **Journal of air transport Management,** 42(1), pp. 167-175.

24. Namukasa, J., (2013), "The influence of airline service on passenger satisfaction and loyalty: The case of Uganda airline industry," **The TQM Journal,** 25(5), pp. 520-532.

25. Kandampully, J and Suhastanbo, D., (2003), "The role of customer satisfaction and image in gaining customer loyalty in the hotel industry," **Journal of hospitality and leisure marketing,** 10(1 & 2), pp. 3-25.

26. Wong, A and sohal, A., (2003), "Service Quality and customer loyal perspectives on two levels of retail relationships, " **Journal of services marketing,** 17(5), pp. 493-513.

27. Chaudhuri, A and Holbrook, M.B., (2001)," The chain of effect from brand trust and brand affect to brand performance," **The role of brand loyalty Journal of marketing,** 65(2), pp.

28. An, M and Noh, Y.,(2009),"Airline customer satisfaction and loyalty: impact of in - flight service quality," **service business,** 3(3), pp. 293-307.

29. Nadiri, H., Hussain, K . Ekiz, E. Hard Erdogan, S., (2008), "An investigation on the factors influencing passengers loyalty in the north cyprus, national airline," **TQM Journal,** 20 (3), pp. 265-280.

30. Hamsa, S.K.,(2013),"Airline image and service quality effects on traveling customers' behavioural intentions in Jordon," **European Journal of business and Management,** 5(22), pp. 20-33.

31. Nor, S.N.M, Yunus, J and Wan, EWR (2013),"Service quality towards customer loyalty in Malaysia's domestic low cost airline services," **International Journal of Education, E-business, E-Management and E-learning,** 3(4), pp. 333-336.

32. Yu, Kai, H., (2009)," The effect of airline service quality on passengers' behavioural intentions using SERVQUAL scores: A Taiwan case study," **Journal of the Eastern Asia society for transportation studies,** 8(1), pp. 1-7.

33. Gures, N, Asslan, S and Tun, S.,(2014), "Customer expectation, satisfaction and loyalty relationship in Tinkish Airline industry," **International Journal of Marketing studies,** 6(1), pp. 66-74.

34. Yang, K.C, Hsich, T.C, Li, H and Yang, C., (2011),"Assessing how service quality, airline image and customer value affect the intention of passengers regarding low cost carriers," **Journal of air transport Management,** 4(1), pp .22-27.

35. Co-oper, D.R and Schindler, P.S., (2011),Business research methods, 11th edition, New York: Mc ----- Hill-Hill/Irwin.

36. Hair, J., Black, W., Babin, B and Anderson, R., (2010), "Multivariate data analysis: A global perspective (7thed., ) New Jersey: Pearson Prentice Hall.

37. Nunnally, J and Bernstein, H., (1994),"Psychometric theory, 3rd edition, Irwin Mc Graw Hill New York.

38. Howell, D.C., (2007), "Statistical methods for psychology, 6th edition, Belmont CA: Thompson Waldsworth.

39. Nesset, E and Helgesen, Q., (2014), "Effects of switching costs on consumer attitude loyalty to an airport in a multi-airport region," **Transportation Research part A: policy and Practice,** 67(1), pp. 240-253.

40. Saha, G.L and Theingi, (2009), "service quality, satisfaction, and behavioural intentions: a study of low - cost airline carriers in Thailand, " **Managing service Quality,** 19(3), pp. 350-372.