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Self-Reported Seat Discomfort amongst Economy Class Aircraft Passenger

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Air travel is becoming increasingly more accessible to people both through the availability of cheap flights and because the airlines are now able to cater for individuals of all ages and disabilities. Health problems may arise due to anxiety and unfamiliarity with airport departure procedures prior to flying, whilst during the flight, problems may arise as a result of the food served on board, differences in the environmental conditions inside the cabin (pressure, ventilation, relative humidity, noise and vibration), the risk of cross-infection from fellow passengers, seat position, posture adopted and duration of the flight. These can be further compounded by changes in time zones and meal times, which may continue to affect an individual's health long after arrival at the final destination [1]. Travel by air, especially long distance, is not a natural activity for human. Many people experience some degree of physiological and psychological discomfort and even stress during flying. Excessive stress may cause passenger to become aggressive, over-reaction, and even endanger the passenger's health [2,3]. A number of health problems can affect flying passengers.

Comfort is an attribute that today's passenger demand more and more. The aircraft passenger comfort depends on different features and the environment during air travel. Seat discomfort is a subjective issue because it is the customer who makes the final determination and customer evaluations are based on their opinions having experienced the seat [4]. The aircraft passenger seat has an important role to play in fulfilling the passenger comfort expectations. The seat is one of the important features of the vehicle and is the place where the passenger spends most of time during air travel. The aviation industry is highly competitive and therefore airlines try to maximize the number of seats [5]. Often this results in a very limited amount of seating space for passengers, especially in economy class.

This questionnaire study set out to examine the relationship between body part discomfort and travel time factors for economy class aircraft passenger to help prioritize action aimed at discomfort reduction. One hundred and four anonymous self administered surveys were completed at Schipol Airport, the Netherlands from October through November 2008.

After one hour of air travel, fifty five percent of economy class aircraft passengers feel uncomfortable at the neck section, 56% feel uncomfortable at shoulder area, 56% feel uncomfortable at buttock, and about 56% feel uncomfortable at lower leg section. For the air travel more than five hours, there are 63% of passengers feel uncomfortable at head, 83% of people feel uncomfortable at neck section, 80% feel uncomfortable at shoulder, 81% feel uncomfortable at buttock, and around 81% passenger feel uncomfortable at lower leg. Most of the respondent (56%) reported uncomfortable at shoulder, buttock and lower leg. After 5 hours of air travel, most of the respondent (83%) complaints about uncomfortable at neck section. From the analysis result, the strongest negative correlation, which would be considered a large effect size, was between height and lower leg test scores, $r(101) = -.313$, $p < .001$. This means that passengers who relatively height higher were likely to have more sitting uncomfortable during air travel.

Long haul economy class aircraft passengers are at risk uncomfortable for long hour sitting and experience significant uncomfortable at different body back parts such as neck and lower leg. Further studies concerning how to best provide comfort to long haul economy class aircraft passenger are needed. In this paper, we also describe an adaptive seat system that can improve the sitting during air travel.

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