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Fatigue has been named as a major factor for accidents in a wide range of transportation settings such as Aviation, rail and maritime setting. Fatigue has several forms, these forms, including mental and physical fatigue depending on the nature of its causes.

Different signs of fatigue, such slow response and lack of attention have been identified in many accidents (Mitler et al., 1988). Fatigue is considered as a risk factor in the air transportation system because it impairs memory, concentration, decision making, reaction time, and eye fixation (Jackson & Earl, 2006). Aviation is one of the safest and fastest transportation systems.

According to Evan (2003), the expansion of the air travel, operational demands and the higher-level aviation technology have all advanced and they maybe result in increased levels of pilot fatigue and error rates (Evans, 2003). Fatigue may build up slowly over several working days. Or, quickly after hard physical or mental works. One of the major factors in air transportation systems accident causation is the effects of fatigue on pilots, but the contribution of fatigue to accidents is often underestimated in official reporting.

Fatigue has been found as a cause in many air transportation accidents and is a continuing problem affecting pilot's performance (Jackson & Earl, 2006). The critical factor, yet is not what causes the fatigue, but rather the negative effect of fatigue on the pilot ability to perform tasks. Several studies in the aviation context have revealed that fatigue has diverse and complex causes (e. g., insufficient or irregular sleep time, irregular work/rest cycles, crossing time zones) (Petrilli et al., 2006). The National Transportation Safety Board

(NTSB) reports showed increasing concern over the long hours flight. NTSB found that fatigued pilots with up to 20 hours, awakening time are more likely to make errors (Ariznavarreta et al.

, 2002). National Aeronautics and Space Administration (NASA's) reports also showed that 21% of reported aviation incidents were fatigue related (Jackson& Earl, 2006). Confidential Human Factors Incident Reporting Programmed (CHFIR) reports showed that 30 % of the problems which have a negative impact on flight safety attributed to pilot fatigue (Ariznavarreta et al., 2002). To date, fatigue still one of the major factors which impair the physical and cognitive pilot performance. According to Goode (2003), the number of accidents per pilot is highly correlated to the length of duty periods and fatigue level. According to Caldwell (2005), the costs associated with fatigue are tremendous, both in terms of money and the loss of life. The estimated cost of a single major flight accident can exceed \$500 million.

Furthermore, using official data, Caldwell (2005) discovered that in at least 8% of aviation accidents, fatigue was involved. Caldwell (2005) found that fatigue was negatively affected the pilot's ability to concentrate and make appropriate decisions and the capacity to analyze complex processes (Avers and Johnson, 2011). Several studies have also identified fatigue related factors as major causes of aviation accidents. Considering the direct relation between pilot fatigue and accidents, the U. S. Federal Aviation Administration (FAA) was introduced and enforcing strict rules about flight pilot duty and rest requirements and regulations (FAA, 2011). The objective of the study is to assess and compare fatigue during the single flight segment and a multi flight segment (takeoffs and landings).

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Specifically, this study will detail the factors associated with fatigue among pilots. In more details, this investigation is to understand the relationship between fatigue level and flight segments. The main purpose is to address this issue by analyzing collected data from six pilots during perform their tasks. The data will be obtained using the Karolinska Sleepiness Scale (KSS), the Samn- Perelli (SP). Subjective Fatigue Check and a 10-minute Psycho Motor Vigilance Test (PVT) and OSPAN might provide reliable and valid measurement of fatigue.