

New Cabin Crew Members' Stress and Fatigue Management

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<p>This thesis aims to develop better understanding of the two occupational health risks flight attendants face in their work, stress and fatigue. As known, the work of Cabin Crew can be highly stressful with constantly varying work hours, unbalanced day rhythm and quickly changing situations that require the crew to adapt fast. These conditions make the occupation challenging while the performance of the crew is critical to both safety and security of the passengers.</p> <p>The focus of this study is on how flight attendants in the early stage of their career experience the stress and fatigue and what ways do they find efficient in order to maintain life balance. The purpose is to help new cabin crew members to adapt to their new career faster and easier. Furthermore the airline industry can utilize this research's results when composing their training entities.</p> <p>The study has been implemented as a qualitative research in autumn 2019 by interviewing five cabin crew members in the beginning of their career. Semi-structured theme interviews were used as a method for data collection. Later the data was analysed with the help of transcription of the recorded interviews. As the number of interviewees was limited, no statistical generalizations can be made from the data.</p> <p>The results show that new flight attendants have adapted their career quite well despite of the lifestyle changes it has brought. The flight attendants had suffered barely any stress and no fatigue. However, issues with sleeping arose from the results and increased need for rest was reported. Finding the most suitable sleeping pattern for oneself on layovers and reserving enough time for rest during free days could be beneficial. Yet, the cabin crew members showed to obtain knowledge about stress and fatigue and they were using multiple management strategies to mitigate the risks. This is a positive sign towards a succesful training, but it also appeared in the results that the training program was experienced stressful. Trainees' performance might suffer from too high stress levels, consequently this finding could be researched further.</p>	
Keywords Cabin crew, stress management, fatigue management, work-life balance	

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1 Introduction

In the history of aviation, after the technology advanced with big steps, human error has been left to cause the most accidents. By having a look at the research available it can be noted that stress and fatigue are significantly arising themes, as the aviation industry is safety-sensitive, and both of these factors affect the human performance remarkably. Hence the airlines are evermore committed on researching and improving their workers occupational health. However, most of the research available has been focused on the flight crew, outlining the flight attendants that are challenged by the equivalent characteristics of work. (IATA 2015, 6.)

This study's focus group are the flight attendants in the beginning of their career. The aim is to answer following questions: How are new cabin crew members (CCM) able to adapt to the lifestyle change? Do CCMs find it difficult to maintain the balance between working life, social life and rest? Will CCMs prioritize sleep and rest or rather go after new experiences? While everyday work consists of learning new, CCMs also need to discover and develop strategies to manage their stress levels and prevent fatigue. The working hours are irregular and demanding and they set challenges to find a balance in their daily life. Travelling the first time to new destinations can be thrilling and put to test how CCMs organize their time on a layover and what things do they prioritize.

These questions will be examined through a case study by interviewing 5 CCMs in the early stage of their career, when they have worked around five months. The interviewees as well as the employer airline will stay anonymous to guarantee a neutral forum for the employees to express their feelings and thoughts. The results of the study offer advice for new flight attendants that could help them adapt to their new career faster and easier. Airlines benefit from the results with information they can consider when designing their training programs. Realistic training and professional knowledge reduce stress and consequently enhance the employee wellbeing.

The thesis has been divided into six chapters, including this introduction chapter. The second chapter presents the occupational risk factors of cabin crew, stress and fatigue, and introduces some management strategies to reduce these risks. Besides that, the second chapter introduces Crew Resource Management (CRM) as one means to mitigate the effects of stress and fatigue to the aviation industry. The third chapter presents the research methods and how the study was conducted. The fourth chapter includes the data analysis and the results of the study, and the evaluation of the validity and reliability of the study. The fifth chapter presents the conclusions made from the results. In the final

chapter the conclusion is discussed and some recommendations for further studies are given. The chapter ends with the author's brief evaluation about the process of thesis writing and her own learning.

1.1 Key concepts

Cabin Crew: The Oxford dictionary defines cabin crew as "The members of an aircraft crew who attend to passengers" (Lexico). European Aviation Safety Agency (EASA) gives the following definition: "Cabin crew member" means an appropriately qualified crew member, other than flight crew or technical crew member, who is assigned by an operator to perform duties related to the safety of passengers and flight during operations" (Aircrew Regulation 290/2012/EC). In this thesis these definitions of a cabin crew member (CCM) are followed. A synonym flight attendant will be used with the same definition. Cabin crew refers to a group of flight attendants.

Stress: Hans Selye (1936) has originally defined stress as "the non-specific response of the body to any demand for change". Stress describes how a body reacts to different unfavourable environmental conditions, which are referred to as stressors. Stress is not necessarily something undesirable, as it may have performance improving effects too. (Selye 1956.) Stress is elaborated under chapter 2.1 Stress.

Fatigue: Fatigue is defined as "extreme tiredness resulting from mental or physical exertion or illness" by Oxford dictionary (Lexico). Other sources support this definition, adding that the condition is characterized by a reduced efficiency and capacity for work. Fatigue can be acute or chronic. (MedicineNet; Medical News Today.) It is body's signal indicating a need for rest and sleep. More about fatigue in chapter 2.3 Fatigue.

1.2 Characteristics of cabin crew's work

The role of flight attendant is demanding, and in addition to taking care of flight's safety it may often include pressure of meeting sales and service targets and assisting with on time performance. It is important that cabin crew observes the safety aspects and communicates to pilots any issue that happens in the cabin; hence pilots have referred to cabin crew as their eyes and ears. Accurate and clear information allows the pilots to take quick decisions if the situation so requires. (CAA 2014, 163.) Flight attendant's regular duties may include: 1. Pre-flight duties: attending a briefing, checking emergency equipment, monitoring the boarding, assisting passengers, arming doors and some paperwork. 2. In-flight duties: attend to passengers safety and comfort; distributing for example pillows and blankets, beverage and meal service, providing safety instructions

and ensuring that safety regulations are followed, collecting trays and waste, communicating with the flight crew and being available to help passengers and answer their questions. 3. Post-flight duties: door disarming, disembarkation, checking the cabin and reporting. (Nesthus, Schroeder, Connors, Rentmeister-Bryant & DeRoshia 2007). Additionally, cabin crew needs to handle medical emergencies in an efficient and rapid manner as well as assess any safety threats to the passengers and crew, including the increasing occurrence of unruly passengers (MacDonald, Deddens, Grajewski, Whelan, & Hurrell 2003, 703; EASA 2019).

Cabin crew members work in a unique environment where they face a range of different stressors. These stressors will be introduced in detail in chapter 2.1 Stress. The special working environment is described as a high-performance and safety-critical with shift work issues. Shift hours are defined as working hours that deviate from the 8 am to 5 pm Monday to Friday standard (Grosswald, 2004, 414). Shift work has multiple forms: evening shift, night shift, rotating shifts, split shifts, and irregular or standby duty both during the weekdays and on weekends (Tegelman 2018, 11). In the airline industry in particular, shift working schedules include a range of features that have a negative impact on the health and well-being of an individual. Examples are long haul flights and night shifts that often cause fatigue as covered in chapter 2.2 Fatigue. Other short-term effects may be sleep loss and decreased job performance (Van Drongelen, Boot, Hynek, Twisk, Smid & Van Der Beek 2014, 557). Problems of physical and mental health associated with shift work are mostly linked to the disruption of biological cycles followed by our circadian rhythm. These problems increase when crossing multiple time zones frequently. (The British Psychological Society 2017.) Some long-term effects of fatigue and circadian disruption include disturbed wellbeing, metabolic disturbances, gastrointestinal diseases, cardiovascular diseases and cancer (Van Drongelen & al. 2014, 557).

Nevertheless, some people are more tolerant to the irregular hours than others. Some factors that may affect one's tolerance for shift work are age, gender, circadian rhythm and personality (Nagda & Koontz 2003; Saksvik, Bjorvatn, Hetland, Sandal & Pallesen 2010; McLaughlin, Bowman, Bradley & Mistlberger 2008). It has been found that young people are more tolerant to the effects of jet lag (Lagarde, Beaumont, Batejat, Catrycke, Van Beers & French 1999). As for gender, women are more prone to have sleep related problems (Rotenberg, Portela & Duarte, 2001; Marquiè & Foret, 1999). A recent study by McNeely, Gale, Tager, Kincl, Bradley, Coull and Hecker (2014, 5) compared the employees' self-reported health data of two U.S. airlines to U.S. population. The results revealed that the female flight attendants reported diagnosed sleep problems nearly 6 times more compared to the general population while for the male flight attendants the

corresponding number was close to 4. Overall, women seem to be more intolerant to shift work than men, suffering more from psychoneurotic symptoms and chronic fatigue among other things (Megdal, Kroenke, Laden, Pukkala & Schernhammer 2005). Also the personality traits have been proven to affect one's tolerance to shift work. Extroversion, self-esteem and internal locus of control have shown to be positively linked with shift work tolerance. (McLaughlin & al. 2008; Saksvik & al. 2010.)

Fitting the work together with personal life might as well be challenging. Work-life balance can be defined as the 'fit' between multiple roles in the life of a person by having a minimum of conflicting roles and maintaining an overall sense of harmony (McCartney 2002; Clarke 2011; Clark 2000). Some research has been made about how the competing demands of work and private life are managed by people. The role scarcity hypothesis is one theory that assumes that individuals have limited and fixed amount of resources such as time and energy (Edwards & Rothbard 2000, 178). Combining different roles like being an employee, student and parent is difficult because they draw on the same scarce resources. The work-family conflict has therefore been described as a type of inter-role conflict in which role pressures from the realms of work and family are hard to fit together. (Greenhaus & Beutell 1985, 77). Indeed, pursuing free time activities, maintaining social interaction and relationships has been experienced difficult by flight attendants, with little control over the roster planning (Whitelegg 2007). One study of the work-life balance in families of Chinese airline workers revealed that female flight attendants suffered from alienation, loneliness, fears of being insufficient partners and mothers due to flight attendant's job demands, passenger demands and lack of security provided by the employer in terms of workplace exposures or aggressive passengers (Ren & Foster 2011). Imbalance between work life and personal life is one of the risk factors creating stress and so decreasing the health and wellbeing of an individual.

2 Occupational wellbeing risk factors and countermeasures

Maintaining the occupational wellbeing of cabin crew is crucial to ensure the safety and security of flights and passengers on board. This chapter studies the biggest risk factors for cabin crew's occupational wellbeing, stress and fatigue and introduces existing management strategies as well as Crew Resource Management as a way of preventing adverse events.

2.1 Stress

The most commonly accepted definition of stress by Richard S. Lazarus (Lazarus & Folkman 1984) describes stress as a condition or feeling when a person perceives that the external demands exceed the personal and social resources the individual is able to utilize. According to Hans Selye (1956), one of the founders of stress research, "Stress is not necessarily something bad - it all depends on how you take it. The stress of exhilarating, creative successful work is beneficial, while that of failure, humiliation or infection is detrimental." This theory was later on supported by Peter Nixon (1979) and his diagram called The Human Function Curve (figure1).

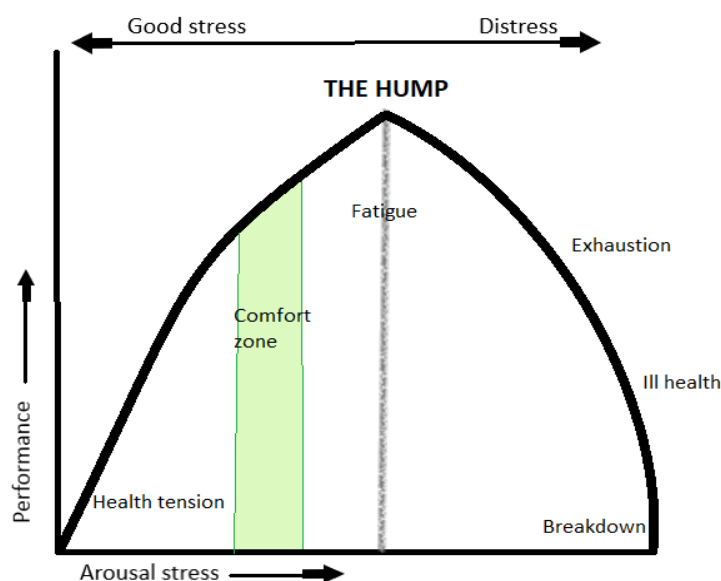


Figure 1. The Human Function Curve (adapted from Nixon, P. Practitioner 1979)

The Figure 1 above illustrates the important balance of healthy stress and distress. According to Nixon, there are different levels of stress individuals experience that effect on their level of performance. Any state where an individual is awake and reacting to stimuli,

is called an arousal state, such as being at work. The healthy stress or in other words eustress in fact improves one's performance as illustrated in the diagram. Distress on the other hand is bad stress, when the individual feels that the events are out of their control. Continuous high levels of stress, chronic stress, can impede individual's performance and make them suffer fatigue. (Portolese Dias 2012.) Healthy tension is the ideal state for best performance, sustainable success and personal wellbeing. The state of fatigue is already alarming, as the individual may be suffering of signals of tiredness such as headaches, irritability and poor concentration (Holden 2005, 295). Being aware of the signs of tiredness is essential to be able to react before falling into the state of exhaustion where one will be experiencing feelings of being over extended and depleted of one's emotional resources (Rothmann 2008, 12).

Hans Selye's (1956) General Adaption Syndrome (GAS) introduces three stages in response to acute stress. The first stage is our initial reaction when facing an alarming situation. Our body recognises the stressor and we have a fight or flight response to it. Stressor is defined as any stimulus or event that demands an individual to adapt or adjust themselves, either through their behaviour, psychologically or emotionally (Aeromedical Training for Flight Personnel 2000). With the release of hormones our heartbeat and breathing gets fast, the blood sugar level raises and digestions decelerates. Our brain starts to quickly process all information available to act at once. In the second stage called resistance the body tries to recover from the experienced stress and enables adaption to sustained or chronic stressors such as extreme cold or personal worries. The body will try to maintain the readiness stage if the stress continues over a long period of time. Exhaustion is the last stage and it affects the body parts that were involved in the earlier stage as well. Physical symptoms such as headaches and digestion problems may develop if resistance and exhaustion are suffered for a long time.

American Psychological Association divides stress in three different types. Acute stress is the most common type of stress that is experienced on a day-to-day basis. Symptoms of acute stress may be for example emotional distress such as anger, irritability and anxiety, muscular tension, headache, digestive problems, heartburn et cetera. It may also be experienced as thrilling and exciting eustress. Acute stress is suffered only short-term and it is highly treatable and manageable. In episodic acute stress the stress levels of the individual remain high as they have often absorbed stress in their lifestyle, hence they are always in a hurry and have too much to handle. Stress is constant with little relief. The symptoms of episodic acute stress are the symptoms of extended over arousal: chest pain, hypertension, migraines and heart disease. Treating stress at this stage requires often professional help and intervention on many levels, which might take months. If not

treated the individual might start to suffer from chronic stress which continues month after month and year after year. At this stage the individual has already given up on searching solutions and doesn't see a way out. This type of stress can begin with traumatic experiences or as a response to everyday stressors that are being ignored or not taken care of. (American Psychological Association)

Individuals react to stressors in different ways. For example, working under a strict timeline can be stressful for one person and normal for another. If a person has been exposed to mildly stressful situations in childhood, they are more resilient to stress later in life. The key is to find the adequate stress level that creates eustress and helps the individual when facing challenges. (Selye 1985.) Under a high load of stress, a person might face for example the following effects: inability to prioritize, rejection, inability to utilize the available information, committing errors or totally giving up or "freezing" (CAA 2014, 105-106; Aeromedical Training for Flight Personnel 2000).

Stressors can be divided generally in four different sources. First is environmental stressors that affect us physically. The aviation environment is high-risk and rich in potential stressors such as low oxygen, noise, vibration, motion sickness et cetera (Aeromedical Training for Flight Personnel 2000.) These are normal events in plane that might happen all at once. Some are directly related to inflight tasks and the stage of stress might vary from flight to flight and between different phases of flight. Second stress source is life stressors which are usually psychological. These stressors occur in mundane life events. Often factors are financial, social, emotional and domestic. Divorce, death of family member, struggle to pay bills, change of residence, lifestyle and other factors are all contributors to life stress. One known theory is the Holmes and Rahe stress scale (1967). The two psychiatrists created a social readjustment rating scale (SRRS) with a series of 43 stressful life events, which helps to measure the stress load one is carrying. Combining the life stressors with the operational stressors of work might conclude in relatively high stress. Additionally, life stress can be caused by physiological factors such as hunger, thirst and fatigue. Third source of stress is reactive. This stress is experienced in body's physical or mental response to surprising everyday life situations. For example, sudden heavy turbulence can cause our body to react with fight or flight response. (CAA 2014, 101-104.) Lastly, organizational environment can cause us stress. Anyone can become a victim of stress at work. However, generally the most stressful jobs are those where there is responsibility for people. The potential for physical danger to oneself or others contributes to a job's stressfulness. (Bryce, 2001.) Some organizational conditions such as poor communication, relationships with colleagues, workload and autonomy and lack of career development have been identified as potential stressors as well. Companies

should support their employees and proactively aim to minimize the effect of these potential stressors, those of which could ignored affect the flight safety. (CAA 2014, 101-104.)

A study about American women flight attendants' stress concluded that mental and physical demands, imbalance between free time and job demands, weak support from manager and job dissatisfaction led to distress. The study found that flight attendants with preschool aged children found it more difficult to find a life balance and therefore experienced more anger, anxiety and stress. To reduce stress, certain job stressors should be minimized and conflicts between work and private life should be decreased. (MacDonald, Deddens, Grajewski, Whelan, & Hurrell 2003, 709-710.) The involvement of social support has been found to reduce the adverse effect of certain stressors at work. Unpredictable schedule changes and extended absence from home and loved ones with the effect of long duties and irregular hours was also found to be a notable factor unbalancing life. (Desrosiers & Emlen 1997; Shellenbarger 1995.)

2.2 Stress management

Stress-coping mechanisms are cognitive and behavioural techniques for the mitigation of stressors' demands (Aeromedical Training for Flight Personnel 2000). In order to reduce stress, it is important to recognize when the stress is approaching one's limits. This personal evaluation requires understanding and knowledge of one's personality and capacity. Avoiding stress with good planning, foresight, effective time management and problem solving are the most powerful coping mechanisms. Healthy lifestyle including taking care of physical condition and eating right support stress free life. Good communication and coordination between crew also reduce stress at work. (Aeromedical Training for Flight Personnel 2000.) Once a person becomes aware of stress, their reaction is either defending or coping with it. Coping is more recommendable strategy as it involves dealing with the original stressors. Coping is a method where the stressed individual either adjusts to the situation's requirements or changes the situation itself and it can be divided in three different strategies. The first is active coping, in which the person takes an action to decrease stress either by removing the issue or changing the situation to make it less demanding. Cognitive coping, as a second strategy, can be used for situations that cannot be changed. It includes decreasing mental and physiological effect of stress and can be practiced for example through positive self-talk. In this strategy an individual strives to rationalize the situation to gain a different perspective to it. Lastly, in system directing coping an individual uses stress management technique such as physical exercise to relieve the symptoms. (CAA 2014, 107-108.)

Maintaining physical well-being can help develop stress resistance. Good techniques to manage stress in addition to healthy lifestyle include relaxation techniques, a sufficient amount of sleep and counselling. (FAA 2018, 14-28.) Learning and practicing relaxation techniques, breathing exercises and meditation and participating in a relaxing activity on a regular basis reduce stress greatly. Also, professional knowledge and being confident in the execution of duties will equally reduce stress, hence realistic training is important. (Aeromedical Training for Flight Personnel 2000.)

Whenever starting a duty, a flight attendant must evaluate their fitness to fly. This includes the physical, physiological and emotional parts of wellbeing. Clear thinking is essential for the safety of the flight and emotional, physical or psychological worries (life stress) should not disturb the work. (CAA 2014, 106-107.)

2.3 Fatigue

Mental fatigue is a subjective feeling of tiredness with a decrease in maximal cognitive performance resulting from prolonged periods of cognitive activity. It has also been shown to decrease physical performance. Mental fatigue can appear as lethargy, somnolence or directed attention fatigue or even more or less decreased level of consciousness. (Marcora, Staiano & Manning 2009, 857; Giannini 1991, 156.) The individual's sleep is impacted when experiencing fatigue, taking longer to fall asleep, sleeping for a shorter period and having a poor quality of sleep (CAA 2014, 112). Compared to well-rested individuals, people who are sleep deprived have memory difficulties, poor judgement and decision making, they move more slowly and make more mistakes. They may also lower their standards and fail to maintain a situational overview. (FAA 2018, 14-18.) For this reason, the negative effects of fatigue may and do lead to aviation errors and accidents, such as when cabin crew is performing the door arming or disarming procedure (Caldwell, Mallis, Caldwell, Paul, Miller & Neri 2009, 29). If a door is opened in armed mode by mistake, the inflating exit slide causes grave danger to the ground crew working nearby.

Fatigue is a natural result from working, overstimulation and understimulation, mental stress, jet lag and lack of sleep. It may also have chemical sources such as dehydration and low blood sugar. If fatigue lasts constantly over one month it is called prolonged fatigue and when lasting over six months chronic fatigue. Chronic fatigue may be either persistent or relapsing and is linked with many diseases and conditions such as cancer, autoimmune diseases and depression to mention few. (Fukuda, Straus, Hickie, Sharpe, Dobbins & Komaroff 1994, 953-956.) Fatigue is generally considered a more long-term condition than sleepiness, as sleepiness usually results from lack of stimulation or restful

sleep. (Shen, Barbera & Shapiro 2006, 63; Hoddes, Zarcone, Smythe, Phillips & Dement 1973, 431) Chronic fatigue is a symptom of greater medical problem in most cases. Sleepiness is often described as comfortable and inviting tiredness, whereas fatigue feels uncomfortable. (Mayou 1999, 133.)

The primary cause of fatigue is lack of sleep, which is a human necessity. The need of sleep is individual, but eight to nine hours of sleep in a day are recommended to avoid fatigue. As mentioned before, fatigue can also be caused by overworking or stress. The circadian rhythm also affects person's mental and physical state as it naturally cycles through various stages each day. Certain variables such as blood pressure, heart rate, blood chemistry, attention and alertness rise and fall in a pattern in approximately 24-hour cycle affected by light and darkness. Person's ability to work or rest is influenced by this natural cycle. Performance counter to circadian rhythm might be difficult as one may be unaware that he or she is fatigued until the point of extreme. Fatigue can be easier recognized in other person or in the results of task performance. (FAA 2018, 14-18.) This is where tools such as crosschecking colleagues work are helpful to mitigate errors.

The best remedy for fatigue is to sleep enough on a regular basis. Countermeasures such as caffeine are often used but the effectiveness does not last long and it can result making the fatigue even worse. (FAA 2018, 14-18.) It is important to seek for medical assistance in case the problems with sleep are continuous. To diagnose fatigue, the overall goal is to identify and rule out any treatable conditions. This requires information about the person's medical history, other experienced symptoms and analysing possible patterns of the fatigue itself. (Fukuda & al. 1994, 953-956.) As disrupted sleep is a significant contributor to fatigue, there is a need to consider the quality of sleep, sleep patterns, stress level and the emotional state of the person.

2.4 Fatigue management

The capabilities of the aviation industry have grown since the advent of long-range aircrafts. Travelers are able to reach their destinations faster and more conveniently than ever before, while airlines benefit from the increased revenues. However, around the clock operations set new challenges for the limits of human tolerance, which are already being tested in modern aviation. (Caldwell & Caldwell 2016, 6-7.) In aviation, fatigue produces a risk factor for occupational safety, effectiveness of performance and personal wellbeing. The characteristics of cabin crew's work, such as multiple flight legs, limited time off, early duty shifts, not optimal sleeping conditions, highly varying workshifts and jet lag pose significant challenges for humans' basic biological capabilities. As human

body was not made to operate around the clock (compared to the 24/7 operating flight industry), whether the duty consists of shorthaul or longhaul flights, the crew has challenges adapting on the demanding schedules.

Pilots have reported that fatigue, sleep loss and sleepiness have led them to commit operational errors (Rosekind, Graeber, Dinges, Connell, Rountree, Spinweber & Gillen 1994). Night operations are also known to correlate with more errors and accidents. (Dinges 1995, 4-14; Akerstedt, 1995, 15-22.) In a flight crew survey, the number of times that cabin crew members listed exhaustion as a problem was almost double the amount recorded by cockpit crew members. (Haugli, Skogstad, & Hellesoy 1994, 27-34.) In a survey made by Brown (2009) 291 CCMs and pilots were asked whether fatigue had ever affected the safe performance of their duties; 97% viewed that fatigue may affect in some degree to their ability to complete duties safely and 68% answered that fatigue could significantly affect their ability to perform their duties safely. Therefore, it may be suggested that flight attendants do suffer from fatigue and their performance in safety is threatened. According to a research by Avers, King, Nesthus, Thomas & Banks (2009, 13) most flight attendants have experienced fatigue at work and consider it as a serious risk as it has affected their ability to perform safety-related duties. Studies have also aimed to find out how long the duty can last before the tiredness sets in. In a study by Simonson (1984), the most CCMs marked the range at 6-10 hours of duty, while 21% did not feel fatigue until 11-15 hours of duty. Another study (Gaulipault 1980) presented that majority (51,1%) of participated CCMs thought 5-6 hours lengthy duty induced tiredness, while for 27,6% the length of duty was 7-9 hours and for 10% 4 hours. It was also noted that short haul flights that included beverage and snack service resulted in increased fatigue in the last part of duty. Fatigue has shown to be linked to the workload by 58% of flight attendants (Smolensky, Lee, Mott & Colligan 1982, 108). Also, the more time zones are crossed the more deterioration in sleep duration, sleep quality and performance efficiency is perceived. According to Samel, Wegmann & Vejvoda (1995, 32) fatigue levels increase to risky levels after eight hours of flight time during 9 time zones crossing flights. The quality of sleep, adaptation and days needed for recovery were significantly worse after crossing more than 10 time zones (Suvanto & Ilmarinen 1987). Also, short layovers after crossing multiple time zones create difficulties with sleep resulting in poor sleep quality and awakenings during sleep time (Lowden & Åkerstedt 1998).

All in all, no concrete figures are available of how big contributor fatigue is to aviation accidents but its presence cannot be denied (Caldwell & Caldwell 2016, 7-8). For this reason, well planned fatigue management strategies are crucial in order to manage sleep deprivation, sustained periods of wakefulness, and circadian factors that mainly cause the

fatigue related mishaps (Caldwell & al. 2009, 31). Fatigue Risk Management System (FRMS) is a data driven means to continuously monitor and manage fatigue related safety risks. FRMS should be based upon scientific principals and knowledge as well as operational experience that strives to ensure relevant personnel are performing at adequate levels of alertness. FRMS aims to ensure that the flight and cabin crew members are sufficiently alert to perform their duties to a satisfactory level. (IATA 2015.) These strategies should include regulatory considerations as well as pre-flight, in-flight and post-flight countermeasures. The benefits and risks of each technique should be evaluated and balanced. (Caldwell & al. 2009, 31.) The goal of FRMS is to achieve a realistic balance between safety, costs and productivity. It aims to proactively define opportunities in order to enhance operational procedures and decrease hazards as well as to identify adverse event efficiencies. (IATA 2015, 47.)

European Aviation Safety Agency (EASA) regulations limit the duty hours to guarantee a sufficient rest for the crew members, in order to maintain safety. EASA also requires every operator to provide fatigue management training to crew members, personnel responsible for roster planning as well as management personnel concerned. These regulations apply to all European member states operators. It is possible to deviate from these regulations with national laws or local union agreements, but only for the benefit of the crew member. All employees of EASA operators are required to have knowledge of the basic principals of flight time and duty hour limitations. Flight time is defined by the number of hours a crew member spends in the aircraft on a flight. This time can be also called block hours. Pre- or post-flight duties are not included in the flight time. A total flight time of the sectors in which an individual crew member is operating as a crew member shall not exceed 100h of flight time in any 28 consecutive days, 900h of flight time in any calendar year or 1000h of flight time in any 12 consecutive calendar month. The flight duty period (FDP) includes reporting for duty, pre-flight duty and flight duty until the engine shut down at the last sector of the duty. It shall not exceed 60h in any 7 consecutive days, 110h in any 14 consecutive days, and 190h in any 28 consecutive days spread as evenly as practicable. Maximum flight duty period is 13h but there are possible reductions and extension applicable to this time. The maximum FDP is affected by the number of sectors, reporting time, window of circadian law, flight rest, split duty and FRMS. (Commission Regulation 83/2014/EC.)

The first flight time limitations were suggested already in 1930s in attempt to mitigate aircrew fatigue. However, according to Caldwell, Mallis, Caldwell, Paul, Miller and Neri (2009, 29) as the scientific understanding of fatigue, sleep, shift work and circadian physiology has advanced with big steps over the past several decades the industry's

regulations and practices have failed to follow up. Thus fatigue has remained a growing concern within aviation operations.

As mentioned earlier, the factors for crew fatigue consist of body's internal clock and recent sleep history including time period awake since last sleep and the amount and quality of prior sleep. Modern aviation scheduling demands and human physiological needs are in conflict which can be mitigated with fatigue management. The crew needs to be educated about fatigue, so that they understand the importance of sleep and the dangers that fatigue poses and recognize the symptoms in themselves and others. (Caldwell 2004, 88-90.) Every crew member needs to develop their own strategies to obtain the maximum rest on a time zones crossing duty's layover. However, Civil Aviation Authority (2014, 113-116) provides general guidelines to follow in order to prevent and cope with jet lag. The best possible sleep should be obtained at home before the duty. If the layover is less than 24 hours one should maintain the normal cycle of eating and sleeping. 24 hours lasting layover sets hard time frame to cope with. It is too short period to sleep twice a sufficient 8-hour night rest, but it is also too long to cover with single session of sleep. The coping strategy may require a restricted period of rest upon arrival and a later longer sleep before calling for duty. On over 24 hours lasting layovers one should take care to gain enough sleep according to the planned schedule.

When flying to the East the morning light should be avoided and in the West the evening light. This helps the body clock to adapt. On a layover as much sleep should be obtained per 24 hours as one would have at home and if one feels tired, they should sleep if possible. Sleep time should be kept protected and alcohol or energy drinks (caffeine) should be avoided before intended sleep. Physical or mental relaxation techniques, as well as exercising might help falling asleep. (CAA 2014, 113-116.) Caldwell, Mallis, Caldwell, Paul, Miller and Neri (2009, 45) recommend 30 minutes of aerobic exercise for every 24 hours. However, the exercise should happen at least 2 hours before the planned bedtime so that the body has enough time to cool down. Also, heavy meals should be avoided before sleeping and crew members should emphasize a balanced diet. Sleeping environment should be dark, quiet and comfortable. During work shift, when possible napping is a highly effective means to reduce fatigue (Kilner & Cebola 2011, 40; Caldwell & al. 2009, 34). Crew rest periods are helpful in maintaining crews' alertness and performance (Caldwell 2004, 91). The duration may vary according to the length and service procedure of the flight, but the time available should be utilized to maximize rest.

2.5 Crew Resource Management countering the human factor

In the early 1950s flying accidents happened because of technical problems in the aircrafts. During the decades, airplane development has evolved fast, and planes have become technically safe and reliable. (Helmreich & Foushee 2010, 6.) Human error has been left to cause most of the accidents contributing to 85% of the crashes (Langewiesche 2014; Helmreich & Foushee 2010, 6; Rebok & Li 2001, 53). An important inspirer for the formation of Crew Resource Management was a recommendation made by National Transportation Safety Board (NTSB) after their investigation on United Airlines flight 173 crash on 1978. In 1979 NASA held a human factors conference and since then decision making, leadership and communication were implemented into the training programs of the airlines (Cooper, White, & Lauber 1980). The training was called Cockpit Resource Management, CRM.

Over its short history, CRM has evolved from cockpit resource management to crew resource management, including the cabin crew as well as the other operational contributors such as engineers and air traffic controllers (CAA 2014, 10). According to Civil Aviation Authority (2014) CRM can be generally defined as “the training of the cognitive and social skills needed to support technical training in order to optimise safe and efficient aircraft operation”. John K. Lauber (1984, 20) has defined CRM as “using all available resources - information, equipment and people – to achieve safe and efficient flight operations.” The field of human factors has changed in its scope as well, as it has become a multidisciplinary field that combines the principles and methods of the behavioural and social sciences, physiology and engineering with a view to decrease human error and optimise human performance (National Research Council, 1989). Hence Robert L. Helmreich and H. Clayton Foushee (2010, 4) viewed human factors “as the applied science of people working together with devices”.

Threat and Error Management (TEM) was implemented in the 1990s as a part of the European commission training for cabin crew. The main objective of the training is to increase the understanding of human behaviour and most importantly how human actions affect flight safety. Understanding how people react will help preventing errors from happening. One’s personality and attitude affect their performance. For instance, individual’s performance may be limited by stress and fatigue. The ideology behind TEM is the acceptance that threats will occur, and errors will be made. Important is that the crew knows how to manage them. James Reason’s (2000, 768-770) research supports this ideology called system approach. Instead of isolating errors they are generalised and

facing errors is practiced. The system is reformed accordingly. TEM and CRM are clearly linked together, even though there might be differences how the relation between these two is seen. Anyhow, evidence has been found that strong leadership skills, workload management and automation management correlate with better management of errors. Also, fewer mismanaged threats are seen with crews that have contingency management plans, such as discussing threat strategies. (CAA 2014, 12-14.)

One popular model to demonstrate the error management in aviation industry is known as Professor Reason's Swiss Cheese model (Figure 2). It is a concept of 'defences in depth' meaning that there are many stages in any system where errors can occur and similarly many stages where different defences can be developed to prevent and trap the errors from happening. These defences are for example pre-flight checks and automatic warnings. Human error can lead to an accident or incident only when all these defences are breached as demonstrated under in figure 2.

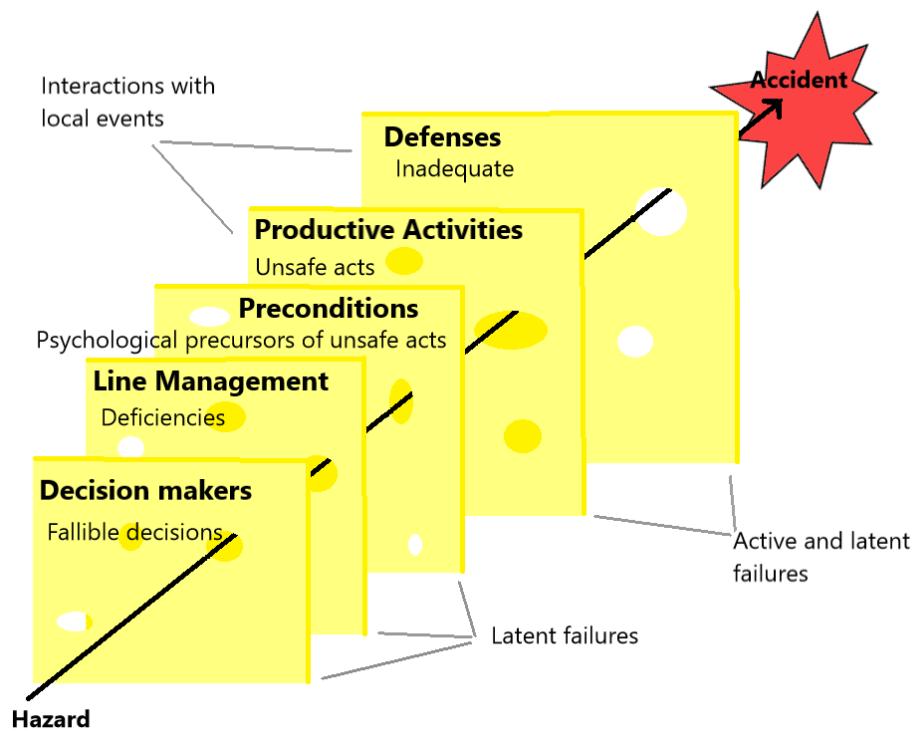


Figure 2. Professor Reason's Swiss Cheese model (adapted from Disaster Management Institute 2000)

Active failures are the unsafe acts made by people in direct contact with the system. Active failures come in different forms, such as slips, lapses and mistakes. Their impact is direct and often ephemeral on the defences. Latent failures come from decisions made by

management, designers, builders et cetera. Any strategic decision may expose the system to a latent condition, that may have been left unnoticed. Proactive risk management is important in order to identify and remove these risk factors before they combine with active failures and lead to an adverse event. The more holes there are in the system's defences, more likely it is for an error to result in an accident. However, only in certain circumstances all holes happen to line up momentarily and the error can occur. The weaknesses are inconstant as the holes open and close coincidentally and shift their locations. (Reason 2000, 768-770.) The errors are detected and handled at the latest stage by the crew and their remedial actions. In case the error breaches all stages of defence it can lead to a catastrophic situation. It is essential to remember that all humans make mistakes, thus crosschecking the work of colleagues' and not being complacent will prevent errors. (CAA 2014, 45-47.)

CRM aims to teach what leads to an error, how to find it and how to deal with the consequences of the error. Successful CRM training should include discussions of day-to-day scenarios as well as unusual and emergency situations. The learning should provide some key techniques and behaviours for the cabin crew to handle various situations such as unruly passengers. CRM should help in finding solutions outside of the standard operating procedures (SOP), as they may not prepare CCMs for real life situations. People management skills rehearsed in CRM training complement SOPs. (CAA 2014, 163.) Accidents and incidents are investigated carefully to find out the underlying reasons behind them. After the root cause has been detected, it can be affected. Encouraging an open reporting culture will enhance the information acquisition and possible threats can be managed efficiently. (CAA 2014, 53-54.) Trust is essential for reporting culture and this, in turn, requires the existence of a just culture. The development of a just culture is a necessary early step towards creating a safe culture. (Reason 2000, 768-770.)

The CRM programs have spread fast and they have shown to be valued by the crew (Helmreich and Foushee 2010, 43). CRM typically produces positive reactions, better training and desired behavioural changes in a simulated or real environment (Salas, Wilson & Burke 2006, 410). A study by Helmreich and Foushee (2010, 43) has shown that CRM does have a positive effect on the behaviour of the crew and by inference on the safety of the aviation system. However, the direct impact on the safety has not been proven yet and Salas, Wilson and Burke (2006, 410) argue that after 20 years of research some evidence should already have been found. Similarly, O'Connor, Campbell, Newon, Melton, Salas and Wilson (2008, 21) demand more robust research, resources and accessible data to evaluate the efficiency of CRM in future. Despite the lack of knowledge

about CRM's effectiveness, also other fields such as medical teams and emergency response teams have started to apply its concepts (Gross 2014, 1).

3 Case study method

This chapter includes theory of the chosen qualitative research method, theory about interview as a means for data collection, and information about conducting the study. Also, the qualities of a good interviewer are discussed.

3.1 Qualitative research method

The word qualitative originates from the Latin word *qualitas*, which refers descriptively to the primary focus on the features, qualities and distinctions in kind (Hammersley 2013, 3.) By Bryman's (2008, 366) definition qualitative research is a research strategy that usually emphasizes words in data collection and analysis rather than quantification. Sandelowski (2004, 893) has a broader view as he defines qualitative research as an umbrella term for an array of attitudes towards and strategies for conducting inquiry aimed at exposing how humans understand, experience interpret and produce the social world. Many definitions have been provided but as qualitative research is not a simple phenomenon, the definition criteria varies considerably.

Qualitative study aims to understand a detected phenomenon or a target. The question "Why (is it so)?" is used to find meanings behind the phenomena. By qualitative methods we are able to study the person's motives, feelings and thoughts through their experiences. (Puustinen 2013, 2.) Qualitative research tries to approach the phenomena from the perspective of their participants, called the emic perspective (Holloway & Wheeler, 1996; Malterud 2001, 397-400). The overall objective of qualitative research is therefore to build theory and define new variables that are tested by quantitative researchers, using rich and in-depth information from the participant's point of view (Shah & Corley 2006, 1824). Through understanding people's experiences and then describing such experiences as abstracts, qualitative researchers achieve this goal (Elliott, Fischer & Rennie 1999, 222). To sum up, qualitative research leads to an explanation rather than a generalization (Payne & Williams 2005, 295-314). In fact, this type of research has been criticized of poor or not possible generalization or replication. Other issue for qualitative research is possible researcher bias, in which the research is influenced by researcher's own predisposition. (Mays & Pope 1995, 109.)

Different statements of information, survey techniques and methods of data collection and analysis are used in qualitative research (Creswell 2003, 3). Data can be acquired through observation, interviews, documents and texts, and the researcher's reactions and impressions (Myers 2009, 146). To begin with qualitative research, a hypothesis is not

necessarily needed. Inductive data analysis is used to explain the social perceptions and experiences of researcher and participant. (Lincoln & Guba 1985, 40.) This allows the design of the study to evolve according to the outcome of interactions.

3.2 The conduction of the study

The study follows the main steps of qualitative research (Bryman 2004, 269) by first defining the research questions, conceptual and theoretical work, after selecting the interviewees, then collecting data by face-to-face interviews, then completing a data analyse, and finally giving the conclusions. The existing research findings about the flight crew support making this study, as cabin crew is facing similar characteristics of work. As there was no previous study or research available about new cabin crews' stress and fatigue the qualitative research and a semi-structured theme interview is a suitable approach in order to find out in-depth data about the topic. The focus group is the flight attendants in the early stage of their career, since supposedly they will be at the stage of discovering and learning their own strategies to find a work-life balance and there is no previous research data available. The research questions are: How are new CCMs able to adapt to the lifestyle change? Do CCMs find it difficult to maintain the balance between working life, social life and rest? Will CCMs prioritize sleep and rest or rather go after new experiences?

We live in an interview society, where an interview is a normal way of gaining information. A research interview is based on chains of questions and answers and ready set roles that speakers recognize and adopt (Silverman 1997; Gubrium & Holstein 2002; Ruusuvuori & Tiitula 2005). A semi-structured interview has a number of open-ended questions and as a method it gives freedom to the flow of the interview as the interviewer can add relevant questions according to the discussion. Theme interview is based on certain themes that the pre-set interview frame follows, and the aim is to find out the subjective experiences of the interviewee. (Hirsjärvi & Hurme 2000, 47-48.) The interview started with some background questions and continued to the deeper questions about the themes. The questionnaire can be found on Appendix 1. The same general areas of information were collected from every interviewee. The themes of this interview arose from the literature. The interviews were individual so that the interviewee could freely tell about their experiences without being affected by others' opinions. Recording gives the researcher an opportunity to return to the situation and utilize it as a memory aid or to examine the interpretations. (Ruusuvuori & Tiittula 2005.) The interviews for this study were recorded as it improves the accuracy of the reporting. A semi-structured interview was formed with a hypothesis that new flight attendants suffer some degree of stress and fatigue and have issues balancing their work with personal life.

A good interviewer asks clear and simple questions. He knows the theme and the purpose of the interview. He has to acknowledge that his behaviour affects the interviewee and keep an eye on the unspoken body language. He has to generate trust between himself and the interviewee and not to attract too much attention on himself. (Hirsjärvi & Hurme 2000, 68–69.) The interviewer has to remain neutral and calm in the interview situation and he should not bring forward his own emotions or opinions about the subject (Kuula 2006, 154–155). Interviewer has to also avoid guiding the interviewees answers to a certain direction. Therefore, the interview questions have to be carefully planned. (Kylmä & Juvakka 2007, 93.) When analysing the interviews, the whole interaction between the interviewee and the interviewer is seen as a part of the process where data is generated and therefore, the participation of the interviewer is also a subject of analysing (Ruusuvuori & Tiittula 2005). This study has been completed by only one person, the author that completed the interviews and analysed the material. The author prepared for the interviews by studying theory of conducting interviews in order to collect trustworthy data.

4 Data analysing and results

The content analysis is needed to summarize the data and describe it as an abstract. This will transform the data to a theoretical description of the phenomena where the common themes will arise. (Kylmä & Juvakka 2007: 66; Puustinen, 2013, 5-10.) According to Puustinen (2013) in the first, descriptive phase, the researcher aims to create an image for themselves of the whole data. By analysing the data, it is possible to recognize the meaningful perceptions and themes. Also, interpretations can be made from the data to find connections between different phenomena. However, it is important to remember that interviewee's viewpoint are not explanations, but the interpretations are included in their actions. Conclusions and generalizations are made on the basis of interpretations, and the limitations of the study's reliability and validity are later discussed. (Puustinen, 2013, 5-10.)

The aim of this study was to find out how new flight attendants experience stress and fatigue and do they face challenges managing their work-life balance. First this chapter will give the general information about the data collection and then continue to data analysis and the results. After the trustworthiness and the limitations of the study are discussed.

4.1 Data collection

This research has been conducted as a case study by interviewing five cabin crew members around five months after starting their career as a CCM. The study had four women participants and one male. As the majority of the flight attendants are women, only one male flight attendant was interviewed for this study. The age of the participants was between 22 – 35, with an average of 25,4 years. Four of them were Finnish and one of them was originated from another country. The interviewees were selected according to the period they have been working as a CCM. As they had graduated in no more than five months but also had some working experience acquired, they had clear memories from starting their career and had a possibility to see bigger picture looking back. All persons interviewed had gone through the same training period from the same airline where they are employed and had no previous experience from working as a CCM. All participants had a full-time contract and estimated their working hours per month to be 120-130.

The participants were reached through a group chat and private messages in autumn 2019. They were asked their willingness to take part in the interviews for a thesis study which are anonymous, completed in English and duration of about 10 to 20 minutes. They were initially told only that the interview is about few themes concerning their occupational

wellbeing, to ensure that they had not prepared for the interview in any way. From the group chat only two people expressed their willingness to take part in the study, so the researcher reached for more acquaintances in her professional network through private messages. The interviews were conducted in different locations with minimal distractions in October 2019. In the beginning of the interview the interviewees were told again that the interview will be completed in English and they were encouraged to express themselves in Finnish in case they felt a need for it. It was also mentioned that the answers will be used as a data for thesis and a permission to record was asked. They were told that the interview constructs of 8 questions, but some additional questions might be asked. After each interview the interviewees had also a chance to express their thoughts freely, in order to offer help for the researcher in deepening her understanding.

The length of the interviews was in total 51 minutes. First the interviews were transcribed from recordings. Transcription was length of nine pages with 5315 words. The questions of the interviewer were included to be able to compare possible differences in the expression of the question that could have impacted the interviewee’s answer. However, short affirmations of the interviewer, filler words and some experiences the interviewer shared with the participants were left out of the transcript. The names of the interviewees were coded in order to guarantee their anonymity: i1, i2, i3, i4, i5.

4.2 Data analysis

Since the participants have worked the same period of time and similar hours, their answers will be compared together following the themes of the questionnaire; work-life balance, stress and fatigue. The questionnaire started with three questions with the theme of work-life balance. Four participants described their work-life balance with adjectives okay, quite good, quite well and great (figure 3).

How have you experienced managing a balance with your free time rest and work?	i1	i2	i3	i4	i5
Adjectives they used:	"okay"	"quite well"	Mostly work and rest	"quite good"	"great"

Figure 3. Question 1. Work-life balance described with adjectives

Differing answer was from i3, who felt that she has concentrated mostly on work and rest, and the social life came after only if she had any time or energy. I1 had a similar point of view, telling that while before she would have gone to see her friends anytime, now she

has taken more time to rest at home and time with friends has come only afterwards. I2 in turn had had an active social life, but now looking back she admitted that rest should be prioritized as she told of having suffered lack of sleep and disruption in her sleeping routine. From this data it can be concluded that in the beginning of their career the CCMs have some difficulties to fit their work, rest and social life together, as the need for rest has increased.

Sleep and sleeping problems rose as a major theme from the answers, even though they were not asked about specifically. I1 and i2 both told that the work had been surprisingly exhausting, and it had affected their sleeping routines, i1 telling: "It's really exhausting the job, in a way that I have never been exhausted. You really need rest." Below figure 4 assembles the experienced sleeping problems.

Sleeping problems	i1	i2	i3	i4	i5
	When compromising her own schedule on a layover	Difficulty to sleep, mixed sleeping rhythm	-	Difficulties in scheduling the sleep on a layover	Difficulties in scheduling the sleep on a layover

Figure 4. Sleeping problems

I2 mentions suffering sleeping problems at layovers and also at home. Four participants mention that the work allows them to have many days off as a positive feature. However, i3 felt that the free days go to recovering from work: "I worked a lot and I then feel like even though I had also many free days those free days I was resting or at least tried to rest. So I feel like the whole summer was just work and rest." Indeed, research claims that it takes a number of days to recover from jet lag, equal to about two-thirds of the amount of time zones that have been crossed (Waterhouse, Reilly, Atkinson, Edwards 2007).

When being asked about time management on short layovers i1 and i3 expressed that they had found their own routine to follow. For example, i1 told: "- let's say some people want to go to sleep straight away, I don't. I'd rather do everything first and then go to sleep later." Nevertheless, she admitted compromising her own sleeping schedule in order to spend time with colleagues who may have a different rhythm on a layover. This had led her to suffer from sleeping problems. I2, i4 and i5 tell that they had not discovered yet the suitable sleeping pattern for themselves on short layovers and also mentioned struggling with sleep.

Examining the behaviour of CCMs on a layover, I2, i4 and i5 told that they aim at prioritizing sleep and rest, the first saying: “Of course I try to prioritize my rest and sleep and of course when it’s my first time in some destination I have never been before and I know that there’s a lot of cool places to see and do... But I try to listen to my body and if I feel tired I will prioritize the sleep and I will not stress about the destination and I will think that I will return here many times more, so if I don’t go see all the cool places right away I can do it later.” I2 also mentioned that a healthy diet is important for her. Figure 5 below demonstrates the priorities on layovers of all interviewees, except for i3 who left the question unanswered.

Have you faced any challenges in deciding what to prioritize? (On short layovers)	i1	i2	i3	i4	i5
What they prioritized:	Own rest or socializing with colleagues	Sleep and healthy food	-	Sleep	Sleep

Figure 5. Question 2. Priorities on layovers

Interestingly, i3 was the only participant that did not mention sleeping problems at all. She told that she had found her own sleeping pattern to follow and it was working well for her: “So for the one night I don’t go to sleep. I stay up until the next evening. So it’s a lot of time awake. And sometimes – ‘cause I tried to sleep first, but I realized that if I try to sleep and I still wanna see something, I cannot do anything for the rest of the day. I feel like a truck ran over me, you know? So, I don’t go to sleep, I just keep myself awake until the evening.” However, she also mentioned being sometimes very exhausted when using this strategy and that it is hard to stay awake until the evening. Her phrase “-if I try to sleep and I still wanna see something, I cannot do anything for the rest of the day” might suggest that to experience the destination she is willing to force herself to remain awake until the evening. The same interviewee said that she is willing to stray from her diet in order to try the local food. Still, this respondent prioritized sleep at home before the social relationships and also reported no stress. This data suggests that even though the CCMs have a chance to visit new destinations with only limited time, they still do prioritize their own wellbeing instead of gaining new experiences.

I2 mentions that westbound trans meridian flights were easier to adapt compared to the eastbound flights: “Well I have noticed already that I sleep a lot better in USA, in West than in Asia. Because it’s really natural to me also in Finland that I like to stay up really late and sleep later so maybe because it’s my natural sleeping routine it’s suiting better to

West.” In both cases sleep must be scheduled at abnormal times, but the studies have confirmed the westbound travelling easier adjustable (Takahashi, Nakata & Arito 2002).

Looking into the new lifestyle the participants had absorbed and the changes it had required, different kinds of answers arose (figure 6).

Has the start of your career as a CCM required you to change something in your lifestyle?	i1	i2	i3	i4	i5
	Moving to Finland, more time to rest	More exercise, healthier diet, more time to rest	Less time to exercise and harder to follow a diet	Moving to Finland, more time away from home	More time to rest, changed sleeping habits

Figure 6. Question 3. Changes in lifestyle

For two participants starting their work as a CCM required them to move from another country. I1, i2 and i5 told that they have been taking more time to rest than before. I5 said: “I used to be a morning person, but I don’t know what happened, I’m not anymore. I’m just like sleeping sleeping sleeping all the time.” The frequent crossing of the time zones and disruptive sleeping schedules may explain the increased need for rest. For i1 and i3 the need to rest took time away from social life. I2 told that she had started to exercise more and in general she took now more time to take care of herself, but on the contrary i3 expressed difficulties following her regular workout routines and diet. For i4 that had earlier experience of shift work the biggest lifestyle change had been spending longer periods of time away from home. The responds were dispersed but again personal wellbeing rose as a theme. How the new lifestyle is experienced depends certainly on what the person is accustomed to in their earlier life. All respondents still had some points to tell without hesitation, which shows that the work has required a certain level of adaption.

The interview continued with questions of stress and fatigue. These themes are analysed together, as they are closely linked to each other. In general view, the interviewees had seemed to suffer from very little to no stress and no fatigue. The attitudes towards stress and fatigue were asked. Overall, interviewees found it difficult to answer to the question of attitudes, three of them starting to tell whether they had suffered stress or fatigue. I1 seemed to take stress the most seriously: “I take it [stress] very seriously, I think stress can kill you.” I1 seemed also to be the most conscious about stress, whereas i4 thought stress should not be taken too seriously: “Maybe I don’t know I’m the kind of person that doesn’t stress too much ‘cause I always say like whatever”, “Yeah I think these people

that really stress like take everything seriously, I try not to". I1 told that it is stressful to start a new job and i2 stated the same. I2 also mentioned that new situations such as new position or in general hurry at work can make her feel nervous or stressed. However, all the interviewees had a common opinion that the work has not been very stressful, as i1 said: "-but it's not been that stressful, it's been quite alright." Below figure 7 presents the answers of all interviewees.

Have you experienced any stress in this job so far?	i1	i2	i3	i4	i5
	Not that stressful, "quite alright", (except for stressful training period)	Some stress as a new employee, (stressful training period)	At the beginning stress about not being able to follow exercise routines	No stress (except for stressful training period)	No stress

Figure 7. Question 5. Experienced stress

I3, i4 and i5 felt that they had not experienced stress at all. On the other hand, i3 also told that she felt stressed at the beginning for not being able to follow her exercise routines. I5 felt that her previous job was more stressful with work that followed her home, telling: "- you do your job, you go to work and then at home you can be very, like, you don't have to stress anything. Like you don't have to take the job things to home at all." "On my previous job I had [stress]. I was in customer service and you had like your own customers and cases that you needed to handle. And I think that was the thing, because then I needed to take those things home, so they were always there, and I needed to think what to do tomorrow with this". I4 mentioned that not having other responsibilities helps him to avoid stress and fatigue: "-if I'm home and I'm tired I just sleep, so let's say I have the kind of freedom, so when I'm tired and I'm off I try to sleep and gain some strength back." I1, i2 and i4 told that they suffered the most stress during the training period. I4 told: "I think the job is easier than the training. So, during training I was stressing a lot about everything. But then when you actually started doing the job and you actually do things hands on it gets easier." This is an interesting finding as three interviewees mentioned the training period to be very stressful. However, I2 thought that stressful training period might have been beneficial: "I guess it's also thanks to the course -- I think that I can manage my nervousness and stress quite well."

The interviewees were asked if they had experienced any fatigue. All respondents answered not to have experienced any fatigue so far. Nevertheless, they showed to obtain good general knowledge and understanding about fatigue. I2, i3 and i4 told that they had

sometimes been extremely tired, but as the feeling was erased by a good long sleep, they did not consider it as fatigue. I1 said: “No fatigue so far. I think that comes maybe a bit later if you don’t sleep enough and don’t take care of yourself.” I4 also mentioned the accumulative nature of fatigue: “Well tiredness of course but I think fatigue is something more severe so... Not yet I would say... Maybe after years of flying it all accumulates and then I might experience that but it’s still okay.”

As the participants had not experienced a lot of stress nor fatigue, they could not tell what strategies they would use to recover from these risks. However, they were asked how they can avoid stress and fatigue. Figure 8 below assembles all responses.

What helps you to avoid stress and fatigue?	i1	i2	i3	i4	i5
	Sleep, exercise, not overplanning, listening to own body, routines	Sleep, exercise, speaking with colleagues, not overplanning, listening to own body	Sleep, exercise, speaking with colleagues	Sleep, exercise	Sleep, exercise, routines

Figure 8. Question 7. a) How to avoid stress and fatigue

I2 and i5 said straightforward that they feel that they are good at stress handling. All participants noted the importance of sleep as well as exercise. I2 and i3 had found it helpful speaking with the colleagues, the latter explained: “I think it’s also good to speak to other co-workers ‘cause they understand in a different level that other people might understand so I think that’s good. To like compare your feelings and emotions”. I2 also explained: “When I started, maybe the first months or first weeks, I always mentioned in the briefing room to my colleagues that “hey I’m really new, I’ve only been working for one week and please don’t hesitate to tell me if I’m doing something wrong or don’t wonder if I don’t know everything.” She told that it had helped her when the colleagues knew she was not experienced yet. This information is also available for the whole crew in the flight information list and limits the possible working positions of the inexperienced worker. I1 and i5 stated that it is important to take your own time and i1 and i2 shed a light on the importance of not making too many plans, the latter telling: “-when I started in June my whole schedule was really full, I had a full roster but also my free time - I always planned everything to my free time, go to see my friends or other cities and festivals and... It was summer so I wanted to do everything, but maybe when I think now I could have taken it more easy and not to fill my calendar and all my free time with something. So maybe when you start it’s really challenging cause everything is so new you will get tired so don’t fill your calendar with everything and when you have free time just rest and take time for

your sleep and for yourself.” Indeed, one should aim at keeping the number of stressors bearable. The SRRS for example scores the change to a different work with 36 stress scores out of hundred, which might result in relatively high stress levels combined with other sources of stress (Holmes & Rahe 1967). I1 and i2 also concluded that it is important to listen to your own body. Personal evaluation might be the key in managing one’s own stress, as it might enable the person to react before crossing their limit. I1 and i5 told that routines help them to recover from stress but admitted that in flight attendant’s job they might be hard to follow. The interviewees were asked how they discovered their ways to cope with stress. I1, i3 and i4 told that they have learned their methods through life. I2 and i5 also mentioned having earlier experience of stressful work.

The purpose of the final question was to find out what could have been useful to know when starting the career. All answers are gathered together in the figure 9 below.

If you had the chance to go back and advice yourself starting the career, what would you tell yourself?	i1	i2	i3	i4	i5
	No need to stress so much, trust yourself	Do not stress, focus on learning, do not overplan your time outside work	Prioritize sleep	Do not stress	Be brave and positive, trust yourself

Figure 9. Question 8. Advices to new CCMs

I1, i2 and i4 said that one should not stress. I1 told that during the training she felt pressure from the high standards of the company and of the safety responsibilities she would have, but later on she realized she was good at the job. I2 said that one should focus on learning. I1 and i5 said that it is important to trust yourself. I5 encouraged brave and positive attitude: “-always be brave and positive and you can... Just to say to myself that you can always ask people that know things and you don ‘t have to be afraid and just trust yourself in every situation.” I3 advised to prioritize sleep.

4.3 Validity and reliability

The purpose of the study is to provide as reliable data as possible. Often in quantitative studies the reliability and validity of the study are assessed. However, in qualitative studies the methods are different from quantitative methods and hence require different approach when evaluating the rigour (Sandelowski 1993). There is no universally accepted terminology or standards to evaluate qualitative studies, but the trustworthiness

of this study is evaluated by the alternative criteria gathered by Noble & Smith (2015): 1) taking account the personal bias that may have affected the results, 2) critical reflection of the methods, 3) ensuring that the interpretations of the data are consistent and transparent and demonstrating how decisions were made, 4) including the explanations of interviewees to support findings, 5) comparing the answers and presenting different perspectives, and 6) showing clarity in the thinking processes during data analysis and later interpretations.

The interviewees of the study did meet the requirements of the focus group and so present well the desired category. All the interviewees worked for the same company and had gone through the same training period and had similar workload. The results might have been different if other companies' employees had been interviewed as well, as different companies have different training programs and the amount of work may vary depending on the airline. All except one interviewee were Finnish so wider group of different nationalities would be desirable. Also, the gender distribution was not equal, justified by the fact that the minority of flight attendants are men. The interviews were carried out in English and as this is the required working language of cabin crew it can be assumed that the interviewees' competences in English were good. Yet, it might have an effect on their self-expression when they could not use their mother tongue. However, it was stated in the beginning of the interview that they can express themselves also in Finnish if needed, and many of them did in case they forgot a word, expression et cetera. This should minimize the impact of the foreign language. This does not apply for the foreign interviewee, as he did not know Finnish and English was not his native language. English language might have affected also the data analysis as it is not the mother language of the author.

Also, the fact that the interviewer knew most of the interviewees professionally might affect the results. It might have a positive effect as the relationship and trust was already created but the interviewee might have wanted to please the researcher or leave something untold. The questions were designed open and the interviewer took care that she did not lead the answers of the interviewees successfully. Also, when analysing the results, the author tried to stay objective and open to different kinds of interpretations. The group of interviewees was small, and in order to get wider and more generalizable understanding of the experiences of new CCMs more research would be required.

This study had its limitations due to time and resources. The author was working full and part-time while writing the thesis which slowed down the process and made it more fragmentary. In order to obtain a complete insight more theoretical research would have

been needed and more time should have been reserved for planning and completing the interviews. The number of interviewees was small, all were working for the same company, and the interviews could have included more questions. As this was the first time the author was making a qualitative research with interviews, the lack of experience was visible. Some warmup questions could have been designed for the beginning of the interviews, as it seemed that some interviewees had longer answers towards the end of the interview perhaps due to relaxing. More follow-up questions could have been asked during the interview or the interviewees could have been asked to specify their answers more often.

5 Conclusion

New flight attendants have to face whole new working characteristics compared to other common on-ground occupations. The recent development of the airline industry towards around the clock operations and ever longer flights requires the flight attendants to adapt the challenging job demands. Stress, fatigue and issues in balancing of work and private life have been detected as issues affecting flight attendants' wellbeing. This study aimed to gain a perspective from CCMs in the beginning of their career on these issues in the field.

The research questions were: How are new CCMs able to adapt to the lifestyle change? Do CCMs find it difficult to maintain the balance between working life, social life and rest? Will CCMs prioritize sleep and rest or rather go after new experiences? The results show that overall new CCMs have been able to adapt to their new lifestyle quite well. They have not suffered much stress nor fatigue yet but sleeping problems have been present. All participants expressed that the work has affected their lifestyle to some degree. For some, working life and rest have taken time away from the social life. Still, their obtained work-life balance was described with positive adjectives apart from one interviewee.

The work has been experienced quite tiring due to the time zone crossings and sleeping problems and tiredness had been present on the layovers. It seems that finding the most suitable sleeping pattern for yourself might help reducing the sleeping difficulties on a layover. The research of Lowden and Åkerstedt (1998) supported the idea of strategic sleeping as a countermeasure to fatigue and tiredness. Yet, after five months of work three interviewees were still struggling with their sleeping patterns on a short layover which indicates that the most fitting sleeping pattern might be difficult to find. One CCM told that even though she had found the most suitable sleeping pattern for herself on a short layover, she might sacrifice it in order to spend time with colleagues and consequently suffer sleeping problems. This finding might allude towards the problem of loneliness flight attendants have reported to experience on layovers (Ren & Foster 2011). It is important to take into account, that the interviewees were relatively young, the average of their age being 25,4. The research has shown that the jet lag grows more severe with the age (Monk 2005). Hence, the symptoms of jet lag might worsen as the employee ages.

All the participants showed to understand the importance of rest and prioritized sleep over new experiences on layovers. The attitudes towards stress varied; where one interviewee took it very seriously another one thought that one should not take stress too gravely.

One's personal attitude may affect the person's respond to stress and denial is common in attempt to protect one's self-esteem (CAA 2014, 104). Research has shown that viewing stress as a helpful part of life rather than something harmful may in fact improve one's health, emotional wellbeing and working efficiency (Stanford News 2015). No signs of denying the problems were perceptible. Participants were rather conscious about the risks of stress and fatigue and showed knowledge about the issues. This could be a positive indication of a successful training. They had each discovered multiple ways to manage their stress levels and avoid fatigue. Anyhow, it should be noted that none of the interviewees had children, which has eased them from the work-family conflict that has been identified as a major source of flight attendants' stress in many studies (Greenhaus & Beutell, 1985, 77; MacDonald & al. 2003, 709-710; Ren & Foster 2011).

When being asked whether they had experienced any stress after starting their career three interviewees stated that their training had been very stressful. If the CCMs in the training suffer too much stress, it might affect their performance negatively (Portolese Dias 2012). With an adequate stress level, the training would create eustress which would help the trainees to reach their best performance (Selye 1985). New CCMs were advised to not take stress, trust themselves, not over plan their schedule, prioritize sleep and obtain positive and brave attitude.

6 Discussion

Out of the results of this study it can be concluded that new flight attendants are able to adapt to their job quite well. Sleeping problems arose as the major issue. In the long run, lack of sleep is a possible provoking factor for stress and fatigue. It could be further researched how much time it takes until the effects of lack of sleep start to show on the CCMs. Time zone crossing and disrupted sleeping schedules are characteristic for the occupation, but the companies need to take care that the employees have enough time for recovery after a challenging pairing, even if EASA regulates the general rules inside Europe. The experience of a very stressful training period arose from the results as something unexpected. The airlines should aim at a training program that generates eustress for the trainees that allows them to go through their training with the best possible performance. Of course, the experienced stress level is individual, but this is something the airlines could further research. However, one should keep in mind the limitations of this study. To confirm the findings, the topic of this thesis would need further research in future.

The thesis process advanced slowly in the beginning as the author was working full time. Starting a part time contract allowed the author to focus more on the thesis and the process to move forward more smoothly. There were times, that the author did not know what the next step is and how to advance. For that more continuous guidance would have been helpful, but with the time limitations and distant location from the campus it felt difficult to achieve. While writing the theoretical part, the author gained some new information about the topics, especially about the main health issues cabin crew suffers. Having studied psychology, many concepts and researchers were already familiar to the author, but it was a good chance to deepen the knowledge. The theory was interesting which motivated the writing process, but sometimes the professional language was difficult to understand, and even more difficult was to rephrase some complicated sentences. The part with the interviews was the most intriguing one, as the conversations with the interviewees were interesting and collecting the data felt exciting. Still, as mentioned before, the lack of experience as an interviewer was evident. Overall, working long time for one document felt challenging and even stressful at times. It demanded certain determination and resilience. It was a learning experience, and if the author was to make more research in future, she would now have more knowledge on how to success.

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Appendices

Appendix 1. Interview sheet

General background information:

Age:

Gender:

Nationality:

How long have you been working as a CCM?:

How many hours of work have you had approximately per month?

Questions:

1. How have you experienced managing a balance with your free time, rest and work?
(when working as a CCM)

2. How do you manage your time on a short (one night) layover? Have you faced challenges in deciding what to prioritize?

3. Has the start of your career as a CCM required you to change something in your lifestyle? What?

4. What is your own attitude towards stress and fatigue?

5. Have you experienced stress after starting your career as a CCM?

IF YES: What would you think caused the stress?

6. Have you experienced fatigue after starting your career as a CCM?

IF YES: What would you think caused the fatigue?

7. a) What helps you to avoid stress and fatigue?

b) What are your tools to recover from stress and fatigue?

c) What way did you discover these strategies?

8. If you had the chance to go back and advise yourself starting the career, what would you tell yourself?

Is there anything you would like to add?