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Millennials' perceived concerns on air travel post COVID-19

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Abstract

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Due to COVID-19 pandemic, air travel came to a total standstill as different travel restrictions came into force. This may have left some concerns on how safe flying is and whether it is even worth it anymore. In order to restart the aviation industry, it is important to recognize these concerns and try to minimize them to make people feel comfortable to fly again.

This thesis aims to find out how safe Millennials perceive flying to be after COVID-19 and how willing they are to fly again international flights for leisure. The objective is to recognize possible factors regarding COVID-19 that Millennials perceive as risks when flying for leisure in a post pandemic world. The subobjective is to define the safety measures that are most important for Millennials and that would make them more willing to fly again. The focus group of the research is Millennials living in Finland who have not taken any international flights for leisure during the COVID-19 pandemic.

The theoretical framework consists of three chapters. The first chapter focuses on Millennial generation, their characteristics and traveling habits. The second chapter of the framework provides information of the ongoing pandemic COVID-19 and its impact on aviation and travel risk perception. The last chapter addresses different health issues of air travel and in-flight transmission of viruses. Also, different health and safety measures that have been taken in use against COVID-19 during a flight are presented.

The thesis is conducted as a quantitative research. The chosen quantitative method was a survey questionnaire implemented through an online platform Webropol. The survey was published on the author's social media channels which were Instagram, Facebook and LinkedIn. The link to the survey was open for a week. All together 132 answers were gathered during one week with 105 participants fitting into the focus group.

The results show that overall Millennials do not seem to be very concerned of catching the virus on their next flight after the pandemic. To be seated next to an infected person would make Millennials the most concerned. On the other hand, crew moving around in the cabin wouldn't make Millennials very concerned. Safety measure making Millennials feel the safest and thus more willing to fly would be that the crew and passengers would be vaccinated. Other safety measures Millennials would value are everyone wearing a mask during a flight, everyone having a negative COVID-19 test and controlled boarding and exiting of aircraft to ensure safety distances. Overall, Millennials are willing to fly but different safety measures are still valued even after the pandemic.

The recommendations for further research would be to research whether other generations are more concerned or whether the concerns differ between the generations. Also, it would be recommended to research whether the concerns and willingness to fly change once Millennials have taken their first flight after the pandemic.

Keywords
Millennial Generation, COVID-19, Air travel

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1 Introduction

The on-going pandemic COVID-19 has affected aviation industry severely. Due to different travel restrictions and fear of catching the virus, the demand for air travel has dropped dramatically. (Abu-Rayash & Dincer 2020.) The pandemic may have left some concerns on many people on how safe flying is (Blue Wings 2021) and whether it is even worth it anymore. In order to restart the aviation industry, it is crucial to make flying as safe as possible, so that people feel comfortable to fly again. Now that the vaccination coverage increases around the world, there might be a possibility for air travel to start to recover (Ketola 2021). That is why it is important now to identify the concerns people may have on air travel and try to minimize the concerns to attract the travelers.

This thesis is a research on how safe flying is perceived to be after COVID-19 by Millennials living in Finland and how willing they are to fly again international flights for leisure. The objective is to recognize the possible factors that Millennials perceive as risks regarding COVID-19 when flying for leisure in a post pandemic world. The subobjective is to define the safety measures that are most important for Millennials and that would make them more willing to fly again. Once the objectives are met there should be answers to these research questions:

1. What are the main concerns regarding COVID-19 when flying post-COVID-19?
2. What safety measures would make millennials more willing to fly post-COVID-19?

The research was conducted using quantitative method which was implemented in form of an online survey questionnaire. The survey was created using on online platform called Webropol and shared in the author's social media channels. Social media channels are easily reached by the focus group which is Millennial generation. They are kept as the consumer market of the future and thus also suitable generation for the research (Barton, Beauchump & Koslow 2014). Millennial generation is comprised of anyone born between the years 1981 and 1996 (Dimock 2019). The delimitation of the research is also set on Millennials that have not taken international flights for leisure during the pandemic. The focus country of the research is set on Finland. The delimitations of research were made by setting precise and concise objective for the work and keeping in mind the time constraint.

The interest to the topic came as the author saw that International Air Transport Association (IATA) has conducted few public opinion researches on the impact of the pandemic on travelers' perceptions towards flying and the industry all in all. They aimed to understand the concerns of the passengers and thus help the industry to recover. Those

researches were conducted in Australia, Canada, Chile, France, Germany, India, Japan, Singapore, UAE, UK and USA. (IATA 2021a; IATA 2021b.) No research on travelers perceived concerns after the pandemic has been conducted in Finland for the specific focus group of Millennials.

The author herself is working as a cabin crew member so it is her delight to research a topic close to her interest and to do her part to help the industry to recover. Working as a cabin crew member and having done specialization in Aviation management, she has gained some expertise on the topic. The author can utilize the results of the research in her career and enhance the travel experience after the pandemic when taking into consideration the possible concerns of a Millennial traveler.

It is useful for the airline industry as well to recognize the concerns. It is their benefit to understand how to make customers feel at ease when traveling again and make the flying experience as normal as possible. Thus, the results of the research can also be utilized by airlines especially operating in Finland to adjust their operations so that the concerns are taken into consideration.

The thesis is constructed of the framework, research process itself and the analysis of the results. Framework is divided into the three first chapters and consists of literature review on Millennial generation, COVID-19 and Health issues of Air Travel. After the framework the research process is presented thoroughly by justifying the focus group as well as the methods used and describing the implementation of it. The results are then presented and analyzed with the help of statistics. Lastly, there's discussion on key findings, validity and reliability of the research, recommendation for further research and reflection on learning.

2 From Silent Generation to Generation Z

Dividing people into generations is a great way to measure differences and attitudes between certain demographic groups (Pew Research Center 2015). Generations are defined by birth year and are usually comprised of people within the same 15–20-year spam (Pew Research Center 2015; Kasasa 2021). The characteristics and behaviours of a certain generation are formed during those years as they go through some key formative experiences. Factors and experiences effecting the way certain generation views life can be for example popular culture of that time or some historical events like wars. At the moment, people are divided into five generation that are Silent Generation, Baby Boomers, Generation X, Millennials and Generation Z. (Pew Research Center 2015.)

There are different sources defining the demographic groups, thus the boundaries between the generations are not arbitrary (Dimock 2019). For instance, Ron Alsop (2009, 1) defines Millennial generation to be comprised from people born between 1980 and 2001. There are also different names for the generations. For example, when referring to Millennial Generation also names like Generation Y, Generation Next and Echo Boomers are used. (Benkendorff, Moscardo & Pendergast 2009, x.) In this thesis the Pew Research Center's definition for Millennials is used meaning people born between 1981-1996 (Dimock, 2019).

The cutoff points for each generation defined by Pew Research Center (2019) can be seen in figure 1. The oldest generation living is the Silent generation as they were born during the years 1928-1945. This means Silent Generation has grown up during the Great Depression and World War II. (Pew Research Center 2015.) Having lived in an economic and political uncertainty, the generation has been characterized as cautious (Smith 2020). Once the World War II ended, the fertility rates peaked. That is where the name of the following generation comes as they are called the Baby Boomers. Baby boomers are defined to be anyone born between the years 1946 and 1964. (Pew Research Center 2015.)

After the Baby Boomers, the fertility rates went down since the use of birth controllers became more common and fever babies were born. The smaller generation following Baby Boomers is known as Generation X which comprises people born during the years 1965-1980. (Pew Research Center 2015.) Millennials are then again a bigger cohort as there are quarter more Millennials worldwide compared to Generation X (MSCI 2020, 5). Millennials have also overtaken the Baby Boomers and are in fact the biggest generation

living (Kane 2019). Millennial generation is comprised of everyone born between 1981 and 1996 (Dimock 2019). Most of Millennials are the children of Baby Boomers (Pew Research Center 2015). The youngest generation and the following generation after Millennials are known as Generation Z. Generation Z includes then people born after 1996 and thus the oldest of the generation are just turning 25 this year. (Dimock 2019.)

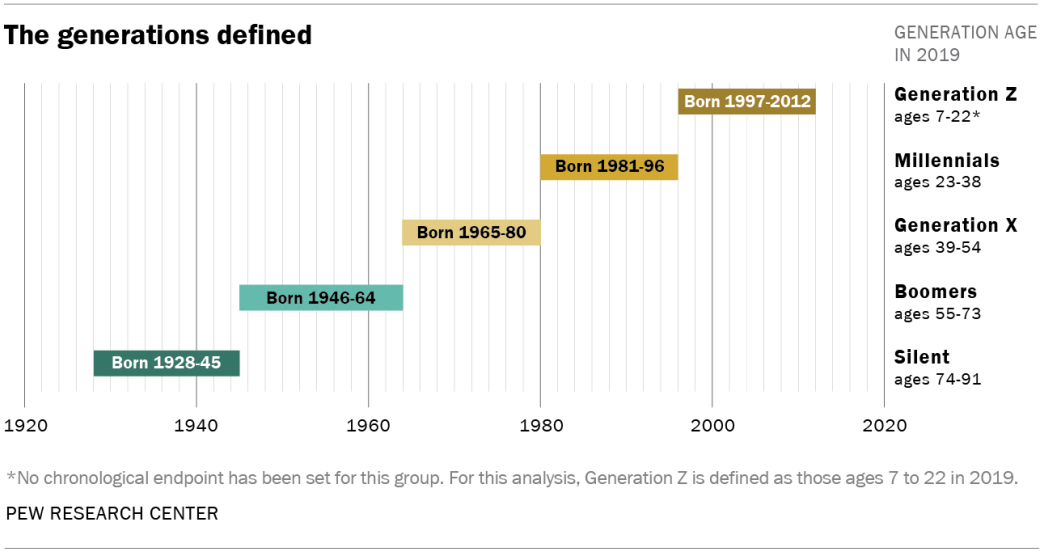

Figure 1. Cutoff points for generations (Pew Research Center 2019)

2.1 Millennials as the largest generation

The year 1996 is justified to be an important cutoff point for Millennial generation as they have experienced some key occurrences during their formative years. These political, economic and social occurrences such as 9/11 attack, wars in Iraq and Afghanistan, economic recession and rapid digitalization have shaped the generation as it is. (Dimock 2019.) Especially, being the first digitally native generation has changed dramatically the way this generation communicates and interacts compared to previous generations (Dimock 2019; Solomon 2018; Expedia 2016, 2). All of these have had on impact on the characteristics of the Millennials.

According to MSCI (2020, 5) Millennials are the biggest adult cohort with 1.8 billion people and covering 23% of the population worldwide in 2020. As it can be expected from their age, they are also the biggest workforce at the moment (Kane 2019). As many of them are fully in work life they are hitting their prime spending years and making them very powerful consumers (Mullen 2020; Solomon 2018). Their estimated spending power during their lifetimes is worth 10 trillion dollars. The size of the generation, their spending power and their unique characteristics are making the Millennial generations as a key object for many stakeholders and investors. (Solomon 2018).

2.2 Characteristics of Millennials

Rather than being just simple caricatures, generations are diverse groups (Dimock 2019). Different generations can be separated from each other by certain characteristics. These characteristics are heavily affected by the culture and world the generation has grew up in (Kane 2019). According to Sally Kane (2019) there are six characteristics that are common for Millennial Generation. These are being Tech-savvy, Family-centric, Achievement-oriented, Feedback seeking, Team-oriented and Job-hopping.

Millennial generation grew up during a rapid digitalization and are used to live in a technological environment (Dimock 2019). It is a significant part of millennials daily life as they are surrounded by smartphones, laptops and tablets. These gadgets enable them to communicate more effectively and stay constantly connected. However, digital devices are not only used for communication but basically for everything in a day-to-day life. (Kane 2019; Generation Y 2021.) Smart phones and other devices offer an easy access to entertainment, shopping, education, information and much more. Millennials are also highly active on different social media platforms such as Instagram, Facebook, Snapchat. (Solomon 2018.)

As family-centric, Millennials are said to prioritize family over work. Overall, they value better work-life balance and flexible schedules. On the contrary, previous generations were more prone to working long-shifts and prioritizing work and success. As Millennials have different expectation and attitude towards work, older generations may easily see it as laziness or lack of discipline and drive. (Kane 2019; Generation Y 2021.) However, Millennials are far from being lazy as they have the highest level of education compared to any other adult generation (MSCI 2020, 8). More suitable characterization for Millennials would be achievement-oriented and ambitious as they are thrilled for new challenges and wish for meaningful work (Kane 2019).

Millennials can be characterized as particularly social group and thus they put high value on teamwork (Solomon 2018; Kane 2019). They grew up participating in different team sports which left them wanting to feel involved and included. In a team they are committed and loyal to other members and expect to get frequent reassurance and feedback. Feedback and guidance within the group is essential for them to develop and thrive in their work. (Kane 2019; Generation Y 2021.) Millennials see teamwork more effective and an easier way to face new challenges (Emma 2019).

What is different with Millennials compared to preceding generations is that they tend not to stay in one workplace for eternity. Millennials are open for new challenges and experiences and may switch from firm to firm in few years. As being achievement-oriented, they are not afraid to leave a workplace for a better position or even create a start-up. This can be seen as a disadvantage from employer's point of view. However, they bring variety of experiences with them and will work hard and efficiently wherever they work. (Kane 2019.)

2.3 Millennials as travellers

Millennials are very unique and significantly different generation in many ways compared to preceding generations. That is no different when it comes to traveling habits. The behaviour and expectations have changed throughout the whole travel journey starting from the inspiration to the holiday experience itself. The difference compared to other generations can be seen in the holiday destinations, activities, travel companion and where they choose to spend their money. Previous generations may see traveling as something luxurious but for Millennials it is more of a necessity and an opportunity to learn and develop different skills. (Global Blue & Ronald Berger 2018, 9.) Generation is never a cohesive group and there are significant differences also within the generation (Expedia 2016, 3). Especially since Millennials are the largest generation living with multitude of nationalities and ages from 25 to 40 (Expedia 2016, 1; Global Blue & Ronald Berger 2018, 9).

Out of every other generation Millennials are clearly more eager to spend money and travel around the world. According to Mueller (2019), Millennials took an average of five trips and their average travel expenditure was 5 700 dollars in 2018. They are more willing to put money on travelling compared to their predecessors as they put more value on experiences rather than material things. (Mueller 2019; Expedia 2016, 2.) Millennials are in a good age as travellers since they are entering their prime years of spending but don't have certain financial burdens like mortgages (Expedia 2016, 1). This makes Millennials very influential and a key target for different travel industry stakeholders. Many tourism players may have even totally changed their model to match Millennial's expectations. (Global Blue & Ronald Berger 2018, 7-9.)

However, millennials are also critical consumers and careful with their money. While being eager to spend money on traveling they expect to get the best worth for their money. When booking a holiday, in-depth research is done starting from their flights, accommodation and different activities. Thus, cost and value are key factors when

deciding on a destination. For instance, Millennials may not put so much value on airline loyalty but rather bargain for cheap flights. (Global Blue & Ronald Berger 2018, 11-12.)

Having lived in a digitalized world, it has also become a significant part of Millennials' travel journey. Digitalization and technology have become more of a standard in traveling as pretty much everything can be done via mobile phones. Starting already from the decision-making, millennials seek for inspiration and destination choices from social media. (Global Blue & Ronald Berger 2018, 6, 9, 13; Expedia 2016, 8.) Social media has become an essential part of the whole travel journey as they are active on sharing and posting their holiday photos. Sharing the holiday pics on social media can also be a way to seek for social validation. (Expedia 2016, 2.) Common social media channels are Instagram, Snapchat, Facebook and WeChat (Global Blue & Ronald Berger 2018, 9).

In addition to social media, smartphones are used for managing different kind of reservations like flights and accommodations as well as for searching for information (Global Blue & Ronald Berger 2018, 9). Also, other kind of technology is getting more common such as GoPro cameras, drones and smartwatches when travelling (Mueller 2019). Even advanced technology is starting to be a part of the travel journey when artificial intelligence (AI) can be helpful when booking online while augmented reality and virtual reality can offer some immersive re-views before deciding on a destination. Hotels have also taken advantage of the concept of smart homes including automation in lighting, heating and much more. However, it is important that the digitalization does not replace the real guest interaction. (Global Blue & Ronald Berger 2018, 12-13.)

For millennials it is not just traveling anymore but it is more about getting deeper and enlightening experience. Pre-planned holiday tours have changed to personalized services and authentic experiences. The reason for their travels is to get new, extraordinary adventures while still getting in touch with the local culture. (Global Blue & Ronald Berger 2018, 6, 9, 25-26.) The holiday is about finding some hidden gems, mingling with locals and even homestays (Global Blue & Ronald Berger 2018, 9, 25; Expedia 2016, 4). Traveling style is more informal and relaxed rather than very stiff. However, even though their traveling style is more relaxed, they still value excellent service and to get what they are expecting. (Global Blue & Ronald Berger 2018, 7, 13.) Personalized services are kept in high value as they give the whole holiday a unique feel (Global Blue & Ronald Berger 2018, 7, 13; Expedia 2016, 34-35).

Airbnb has done a great job taking into consideration these varied demands of a Millennial traveller. Airbnb offers accommodation possibilities starting from home-sharing options to

whole apartments. In addition, they offer different experiences arranged by the locals as well as a platform including some local insights and recommended places to visit. (Airbnb 2019; Global Blue & Ronald Berger 2018, 25.) These all ensure the authentic experience that Millennials crave for. Their website is also mobile optimized which means everything from browsing, booking, keeping in touch and leaving a feedback can be done via smartphone (Samuely 2017). Some airlines have also taken into account this generation and adjusted their offering just to meet Millennial's expectations. For instance, KLM launched an airline in 2017 called Joon which offers destinations and services to serve the needs of Millennial traveller. (Global Blue & Ronald Berger 2018, 12.)

3 COVID-19 impacts on Travel and Tourism

Travel and tourism industry is a significant part of the global economy (Chikodzi, Dube & Nhamo 2020, vii). It brings a huge contribution to the global gross domestic product as in 2019 it was counted to be 10.3%. In addition, it is a huge player in creating employment hence in 2019 one out of ten jobs around the world were related to travel and tourism industry. (World Travel and Tourism Council 2021.) The number of international tourist arrivals has only been increasing as it rose 5% in 2018 compared to 2017 (Chikodzi, Dube & Nhamo 2020, 5). Even though the industry has seen a huge growth in recent years it has also been vulnerable to different disasters over the years causing economic uncertainty (F. Theobald 2004, 10).

In December 2019 the first SARS-CoV-2 infections were reported in Wuhan, China. SARS-CoV-2 is a new coronavirus that is causing infectious respiratory disease that is also known as COVID-19. (World Health Organization 2020a; WHO 2021a.) COVID-19 has rapidly spread across the world infecting people and causing deaths ever since January 2020. Therefore, it was announced first as Public Health Emergency of International Concern (PHEIC) in the end of January 2020 and as a pandemic on 11 March 2020. (WHO 2020b.)

The economic and financial impacts of the pandemic are greatly seen across the world within all industries (International Civil Aviation Organization 2021a). Tourism and travel industry was one of the worst hit industries because of all the restrictions on movement and mass-gatherings in addition to lockdowns, port closures, and quarantines (Chikodzi, Dube & Nhamo 2020, vii, 6). The impacts are clearly shown throughout the whole value chain segment of tourism and travel (Chikodzi, Dube & Nhamo 2020, vii, 3,6). For example, hotel occupancy rates fell dramatically and cruise ships business as well as airlines encountered cancellations. Also, different events were either cancelled or postponed such the Japan Olympics 2020. (Chikodzi, Dube & Nhamo 2020,6.) Thus, it is clear that the COVID-19 pandemic has left and will continue leaving devastating burdens for the industry (Chikodzi, Dube & Nhamo 2020, vii).

3.1 COVID-19 in general

SARS-CoV-2 is very similar to other known pathogenic and lethal coronaviruses SARS (Severe Acute Respiratory Syndrome) and MERS (Middle East Respiratory Syndrome). Common for all of these are the infections of respiratory track, high case fatality ratio and the relation to animal hosts. Especially SARS and SARS-CoV-2 are known to be related

to the interaction between animals and humans in the wet markets in China. (Zhu, Lian, Su, Wu, A. Marraro & Zeng 2020, 1-3.)

COVID-19 spreads primarily through aerosols or droplets of an infected person when they sneeze or cough. In other words, the aerosols can be transmitted when being in a close proximity with an infected person and also when they speak or breathe. When an infected person sneezes, the aerosols can be directly inhaled by another person or first land on surface and then from the surface infect another person. (European Centre for Disease Prevention and Control 2021a; WHO 2020a; WHO 2021a.)

In order to reduce the transmission and prevent the infection, certain safety measures should be taken. Safety precautions include for example taking care of good hygiene with washing hand regularly, covering mouth when coughing or sneezing and avoid touching your face. Other important ways to prevent the infection are to use a mask, keep a distance to other people and avoid big crowds. (WHO 2020a; WHO 2021a.)

COVID-19 can cause mild to moderate respiratory illness which in most cases does not require special treatment (WHO 2021a). Common symptoms of COVID-19 are very similar to normal flu that are dry cough, fever, fatigue, sore throat and headache. Other symptoms such as loss of taste and smell, nausea and muscle pain may also occur. In case of more severe coronavirus disease the symptoms can be confusion, shortness of breath and even persistent pain in chest area. (WHO 2020a; WHO 2021a.) COVID-19 infected people can also suffer from long-term effects with respiratory symptoms (European Centre for Disease Prevention and Control 2021a).

There are several vaccines against COVID-19 in various stages of development and four of them are already in use and authorized by certain national regulatory authorities. At such early stages of the COVID-19 vaccination there are aspects that are still unknown for example how long will it protect and what effect will it have on transmission. However, the vaccine has already proven to be effective on not catching the virus or if catching the virus then protecting from the severe disease. The aim of the vaccine at this point is to minimize the impact of the virus and ensure the public health. Even though, more information is needed on how effective the vaccine is, it is still expected to have a huge role in controlling the pandemic by slowing it down and that way ease up the healthcare systems. (European Centre for Disease Prevention and Control 2021b.)

The vaccine offers a possibility for a herd immunity and that is the goal to be accomplished. Herd immunity or population immunity offers protection form the virus and

it is reached when a significant proportion of population is immune for the virus. The immunity can be achieved by the vaccine or through previous infection. (WHO 2020c.) In order to reach the herd immunity a certain percentage of the population should be vaccinated, and it differs with each disease. For SARS-CoV-2 it is yet unknown what the percentage is and whether the herd immunity is possible to be achieved. (European Centre for Disease Prevention and Control 2021b; WHO 2020c.)

Typical for different viruses are that they evolve and mutate over time and that is no different with SARS-CoV-2 (Finnish Institute of Health and Welfare 2021; WHO 2021b). As the virus replicates and circulates among people the original genome changes and mutations occur. These viruses that have one or more mutations but originate from the original virus are called variants. (WHO 2021b.) A few virus variants that originate from SARS-CoV-2 have been identified already that are coming from Britain, Brazil and South Africa. Some of these variants are known to be more easily to spread than SARS-CoV-2. (Finnish Institute for Health and Welfare 2021.) There are still studies and research going whether the current vaccine offer protection against the variants but at the time is expected that they offer at least some protection (Finnish Institute for Health and Welfare 2021; WHO 2021b).

3.2 COVID-19 outbreak in Finland

In Finland, the first COVID-19 case was confirmed by the Finnish Institute for Health and Welfare on 29.1.2020. At the time it was held very unlikely for the virus to spread in Finland. Even the manager of Finnish Institute for Health and Welfare Mika Salminen said not to worry as he estimated that the risk of the virus spreading is still very small. The second COVID-19 case was confirmed only in the end of February. (Koponen 2021.) As COVID-19 was announced as a pandemic on March 2020 also the Finnish Government decided to take additional measurements to fight against the spread of the virus. The aim of these measurements is always to secure and protect the population and ensure the functioning of the society and economy. (Finnish Government 2020.)

On 16 March 2020 the Finnish Government declared in cooperation with the President of Finland Sauli Niinistö that Finland is in a state of emergency and on 17 March the government submitted an Emergency Powers Act to Parliament (Finnish Government 2020). On the 23.3.2020 was the first time during the pandemic that the movement of people was restricted when the government closed the borders of the region of Uusimaa and it lasted until 15 of April (Koponen 2021; Finnish Government 2021a). Other than that,

the movement haven't been restricted. However, leisure traveling also within Finland was heavily recommended to be avoided (Finnish Government 2021a).

The first vaccinations started in the end of December in Finland. However, the vaccination pace was very slow at the start since there were not enough vaccines just yet. Even though the vaccination started, the situation in Finland got even worse mostly because of the virus variants. Due to the worsen situation in Finland new restrictions had to be set once again in the start of 2021. (Koponen 2021.) In March 2021, the COVID-19 cases were substantially higher than before, despite the restrictions. The Finnish Government declared the state of emergency in Finland once again due to the worsen situation on 1.3.2021 and the Emergency Powers Act was taken into use again. The decrees under Emergency Powers Act were entered into force on 11 March 2021. (Finnish Government 2021b.)

3.3 COVID-19 impacts on aviation industry

Aviation industry has been vulnerable to different global disasters over the years causing huge economical losses. Such disasters have been for example the eruption of Iceland volcano in 2010, SARS pandemic in 2003 and especially the 9/11 terrorist attack in 2001 (Chikodzi, Dhube & Nhamo 2020, 89-90; Ronalds-Hannon 2009; Monschauer & Sung 2020). The impacts of COVID-19 pandemic are one of the biggest compared to any other pandemic or disaster ever in aviation industry (see figure 2) (Chikodzi, Dhube & Nhamo 2020, 90; Monschauer & Sung 2020). World Health Organization announced COVID-19 to be a pandemic on 11 March 2020 and by the end of March 2020 the whole world was basically in a lockdown. Movement was restricted only to necessities as different restrictions came into force like isolations, quarantines and border closures. This meant devastating losses from grounded aircrafts, passenger and cargo revenues, ticket refunds along with many other factors. (Chikodzi, Dhube & Nhamo 2020, vii, 3, 89-91.)

The expenses of aviation industry consist of fixed and semi-fixed costs which are ordinarily 49 % and variable costs that are 51% of the expenses. These variable costs are related to for example fuel and passengers. Fixed costs on the other hand include insurances, leases, aircraft maintenance, depreciation and much more. Even though the aviation industry has been grounded due to all the restrictions, they still have to cover those fixed expenses. This has of course influenced the revenue and operation of airlines as well as the share price and financial performance. In order for the airline industry players to survive through his pandemic, they needed assistance for liquidity from governments and corporates. Some airlines received a relief package from government

and some state-owned airlines were promised a state bailout to cover the fixed costs. These were given as a loans or loan guarantees. (Nhamo, Dhube & Chikodzi 2020, 89-104.)

Demand for air travel came to a total standstill due to quarantine measures and border closures but also due to passengers' fear of contracting the virus (Monschauer & Sung 2020). The demand in air travel is measured with revenue passenger kilometres (RPK) which is calculated by multiplying the total distance flown with the number of revenue passengers (AirlineGeeks 2016). Compared to 2019 figures, the RPK fell 65,9% in 2020 including both domestic and international demand. Especially international demand hit hard as the RPK dropped 75,6% while domestic demand declined 48,8%. (Airlines 2021a.) During April 2020 the most dramatic impacts of the travel restrictions was seen as the RPK dropped to 94% compared to the rates in April 2019. It was a time that most countries either closed their borders completely or put on very strict quarantine measurements. The air travel came to a total stop and such dramatic decline in the demand has not been in the history of aviation before. (IATA 2020a.) Figure 2 shows how dramatic the decline is compared to other crises in the history of aviation industry.

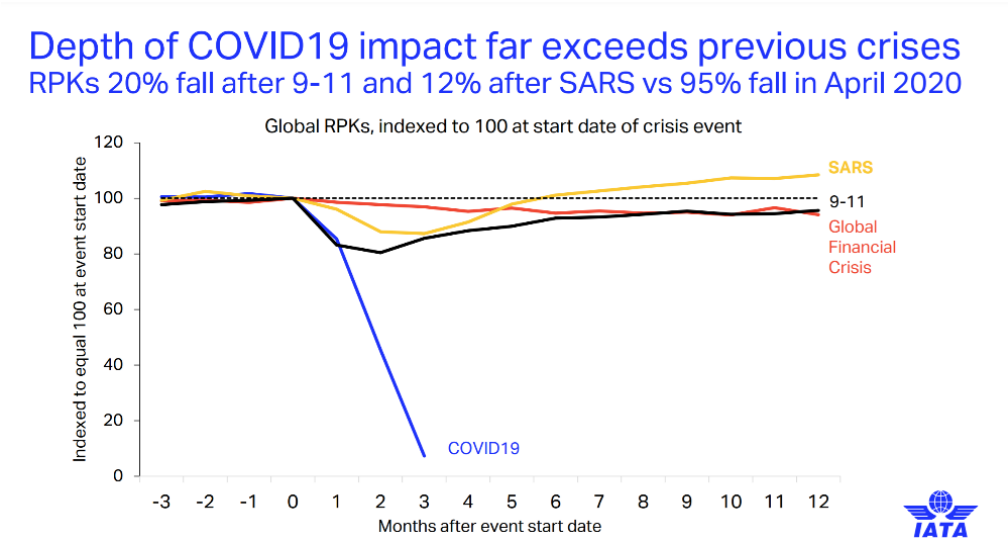

Figure 2. COVID-19 impact on RPK compared to previous crises (IATA 2020b)

The significant decline in the flights in April 2020 also caused grounding of the aircrafts and most of airlines had 90% of their fleet grounded. This created an unusual problem as it led to shortage of parking spaces and increased expenses in parking fees. As a consequence of the fleet being grounded and the whole industry being halted also the people working in the aviation sector were impacted. Before the pandemic aviation industry employed 165 million people around the world but now there are job losses along

the whole value chain. The projected losses due to the pandemic were amounting to 25 million jobs. (Nhamo, Dhube & Chikodzi 2020, 89-104.)

Aviation industry has been forced to adjust to new measurements and people traveling must make extra effort looking up the destination country's possible restrictions. This results also in the future bookings as they were down to 70% in January 2021 compared to same time a year ago (Airlines 2021a). In order to restart the industry, the rapid testing for COVID-19 and vaccination coverage is essential (Airlines 2021b). International Air Transport Association (IATA) has already initiated an IATA Travel Pass which should ease up return to travel and ensure the safety of it. The digital platform would include information about COVID-19 testing and vaccination requirements, and guidance to find the testing centers. Also, the certificates of the COVID-19 tests and vaccinations could be found from the Travel Pass. All in all, the IATA Travel Pass would work then as an authorized passport that would include all the required certificates for the travel. (IATA 2021c.)

It is crucial for the recovery of the industry to also understand the concerns of the passengers. To recognize the concerns IATA has conducted a few surveys to understand the passengers' perceptions of returning to travel. IATA COVID-19 Passenger Survey was initiated in February 2020 and was continued every 2 months after to find out the public perception and feelings regarding returning to travel. (IATA 2021a.) Another survey was COVID-19 Traveler Personas which was done to identify the concerns of specific travel profiles (IATA 2021b). The survey participants were selected on a random basis from panel members counting 4700 people. The panel members were from Australia, Canada, Chile, France, Germany, India, Japan, Singapore, UAE, UK and USA. (IATA 2021a; IATA 2021b.)

3.4 COVID-19 impact on travel risk perception

By this time, most people are very familiar with COVID-19 since it has impacted on individuals' daily life with different safety measures like wearing a mask and keeping a social distance. People have had different approaches to these measures as some are carefully following the instructions given and some are completely neglecting them. Thus, the perceived risk of the virus differs from person to person and people are then making different decisions regarding the virus. (Anthoj, Bianchi, Cadum & Cori 2020, 2.) People who feel at risk of contracting the virus, take preventive measures also related to traveling. However, during the COVID-19 the decision not to travel does not only depend on individual's fear of contracting the virus but is also driven by public opinion and media

coverage as well as different travel restriction and border closures. (Egger & Neuburger 2020, 1005; Anthoj et al. 2020, 2.)

Risk itself can be defined as a possibility to encounter some negative occurrence that could cause danger or harm. People have different perceptions about those negative occurrences and the probability of them. On other words risk perception is persons' own subjective judgement about the possible harm. Unpredictable nature of risks brings uncertainty to people which can in same cases also make them question the severity of it. (Paek & Hove 2017.) COVID-19 being an involuntary and uncontrollable harm by any individual, the risk is perceived higher compared to some risk that would be taken voluntarily (Anthoj et al. 2020, 3).

Each individual defines how they perceive risks, and it is affected by several factors. These factors can be different socio-political factors like gender and race as well as cultural, institutional, social and psychological factors. (Slovic 2010, xxv, 128.) All in all, individuals' own risk perception determines the decisions they make related to whether they accept or reject a certain risk (Paek & Hove 2017). In travel risk perception, the risks can be related to for example natural disasters, health concerns and crimes (Egger & Neuburger 2020, 1005). Now of course with COVID-19 it has bring a new risk influencing the travel risk perception. Travelers evaluate the risks and make then the decision whether to travel at all or whether to travel to a specific destination (Egger & Neuburger 2020, 1005).

The perception of risk can be divided into two dimensions which are cognitive and emotional. Cognitive dimension of risk perception refers to the understanding of the risk and to the previous knowledge about it. It is based on assessing the disadvantages and benefits of the possible outcome. Especially experts and professionals are more common to evaluate the risk based on their knowledge and scientific information and make their decisions also based on it. (Paek & Hove 2017.)

On the contrary non-professionals may not have access to the information or do not have the knowledge and that way base their decisions and judgments of the risk according to their emotions. Thus, the emotional dimension covers the feelings of people. For example, if an individual feels fear in a specific situation, they are also more prone to assess the risk more threatening. Not having enough information and relying to own feelings may lead to overestimation of the severity of the risk. Also, an over optimistic bias of an individual may lead to misperceiving the severity of the risk. (Paek & Hove 2017.) With COVID-19 being

a completely new virus, it is increasing the feeling of fear and thus can be perceived more frightening (Anthoj et al. 2020, 3).

Media plays a huge role in how people perceive risks and how they are formed. The ways media can affect the perception are quite extensive. It can depend on how much media brings the certain topic up and the way it is presented. In most cases media aims to arouse different feelings and emotions on people. This may lead to excess dramatization of the topic and even left behind some relevant information such as statistical data. Also, the media usually brings up the negative or more dramatic side and leaves behind the reassuring side. It can be seen especially in entertainment media compared to traditional news. (Paek & Hove 2017.) The COVID-19 has been all over the media and the number of infected people and the number of deaths are updated daily. It might increase the fear towards the risk even more. (Anthoj et al. 2020, 3.) Thus, travellers are then more likely to avoid traveling at all or decide not to travel to a specific destination (Egger & Neuburger 2020, 1005).

4 Health issues of air travel

As discussed before, COVID-19 can cause symptoms like cough, fever and difficulties in breathing. Also, similar symptoms can be a sign of another disease or illness. (Centers for Disease Control and Prevention 2020.) During the pandemic, airline carriers have been advised to pay extra attention on detecting these symptoms before letting a passenger onboard (EASA 2020, 18, 23). Carrying an infected passenger in aircraft would enable the transmission of the virus but it can be also harmful for the ill passenger if the symptoms are severe. (Centers for Disease Control and Prevention 2019). All in all, airlines are very strict on not carrying any passengers with medical conditions that could get worse as aircraft is not a favourable environment for an ill passenger (FitForTravel 2021).

The aircraft environment is very different from what normal human body is used to on the ground level (Australian Government 2009, 1). The normal cruising altitude for aircraft is 35 000 feet or more (Australian Government 2009, 1; L. DeHart 2002, 135). Already above 10 000 feet altitude human starts to suffer from hypoxia (Australian Government 2009, 5). Hypoxia is a condition where there is not enough oxygen in the body. The symptoms of hypoxia can be for example nausea, confusion, headache, shortness of breath, colour changes in the skin. (Australian Government 2009, 5; DerSarkissian 2020.) This is why the cabin needs to be pressurized in order to maintain the suitable environment for human to function. The pressurization is usually set to equivalent altitude of 8000 ft. At this cabin altitude the level of available oxygen is still mildly lower than in ground level. (L. DeHart 2002, 135.) For a healthy passenger it shouldn't cause any problems but passenger with pre-existing conditions like respiratory or cardiac diseases may suffer from different symptoms. (FitForTravel 2021).

In addition to the lower level of oxygen available and the reduced atmospheric pressure in the aircraft, the air quality in the cabin is not very optimal. 50% of the air is fresh air from outside and other 50% is recirculated. However, before the air can be let in cabin, it needs to be compressed, heated and conditioned. This whole process lowers the humidity of the air and makes it very dry. (L. DeHart 2002, 136.) The dry air causes dryness in lips, skin, eyes and nose. In addition to the dry air, many passengers may also consume alcohol and caffeine products during the flight which can easily lead to dehydration. (FitForTravel 2021.) In addition to these, the passengers are exposed to continuous noise and vibration causing physical stress (L. DeHart 2002, 133-134).

The cabin environment is very cramped especially in the economy class where the passengers are seated side-by-side. Passengers may be seated for many hours straight

with their seat-belt on and be inactive for a long period of time. The poor air quality and low oxygen level combined with the immobility can even lead to life-threatening situations. (Evans 2018; FitForTravel 2021& L. DeHart 2002, 137-138.) Especially in long-haul flights there is an increased risk of having Deep Vein Thrombosis (DVP) or other words blood clot (Evans 2018). The clotting of the vein is in most cases in the lower body but in worst case it could move to the passenger's lungs. (FitForTravel 2021; Evans 2018.) Regular stretching or moving around in a cabin during a long fight is recommended to reduce the risk of DVP (Evans 2018).

All in all, the artificial environment of the cabin is quite demanding for a human body (L. DeHart 2002, 136; Australian Government 2009, 1). That is why passengers with pre-existing medical conditions are advised to contact a doctor prior flight to ensure it is safe to fly. Some airlines may even require a medical clearance from a doctor before being allowed to the flight. (FitForTravel 2021.) However, most commercial aircrafts have medical kits onboard as well as defibrillators in case of a medical emergency (L. DeHart 2002, 133). The cabin crew are well trained in the use of the automatic external defibrillators as well as first-aid and certain medical situations. However, cabin crew members are not qualified for all medical situations and a trained physician would be needed in those cases. (SkyBrary 2020.)

4.1 In-flight transmission of viruses

Aviation industry has been criticized for being a significant part in the transmission of different viruses and diseases (Chikodzi, Dube & Nhamo 2020, 90). With 2 billion passengers annually flying across the world, it is evident that there is a risk of different viruses spreading. Several cabin transmissions of viruses have already been documented over the years including tuberculosis, influenza and SARS. (Hertzberg & Weiss 2016, 819-823; A.Gendreau & 2005, 989-996.) As an environment aircraft is a favourable place for a transmission of different diseases as it is a confined space with multiple people in a close proximity (A. Gendreau & Mangili 2005, 989-996). However, the risk of contracting a virus within the aircraft are still largely unknown and also hard to determine. (Hertzberg & Weiss 2016, 819-823; A. Gendreau & Mangili 2005, 989-996).

During the flight, the virus can be transmitted for example directly through a droplet of an infectious passenger or indirectly from a contaminated surface such as tray table. Public health agencies have guided that the transmission of viruses would be associated with sitting two rows from an infected passenger on a flight which is over 8 hours. However, there has been variations on the 2-row rule as in some cases people from 7 rows from the

infectious person were affected. Other factors influencing the spread of the virus other than seating in the cabin is the movement of crew and passenger and the aircraft ventilation. (Hertzberg & Weiss 2016, 819-823; A. Gendreau & Mangili 2005, 989-996.) The crew moves around the cabin when serving the passengers. Also, the passenger may leave their seat during the flight to stretch, go to toilet or take something from overhead bin. These all adds the risk of contracting a virus as it adds up the contacts between people. (McKeever 2020.) The ventilation and air flow are effective in the cabin, however there might be times when the ventilation is inoperative for example while the aircraft is grounded (A. Gendreau & Mangili 2005, 989-996).

The chance to catch a virus inside of an aircraft is similar to other spaces where being the same amount of time in such close contact with other people. However, most commercial aircrafts have so called High Efficiency Particulate Air (HEPA) filters that keeps the air clean with trapping 99% of the microbes. Similar filters are used for example in hospital operating rooms. (IATA 2018,1.) The ventilation all in all in the cabin is very effective as 50% of the air inside the cabin is filtered through these HEPA filters while the other 50% is fresh air from outside (IATA 2021d). The outside air is considered to be sterile due to the altitude the aircraft is cruising (A. Gendreau & Mangili 2005, 989-996). Other factors lowering the risk of contracting the virus is that the air in the cabin flows from bottom to top (figure 3) rather than front-to-back. As seen in the figure 3, the mixed air coming from outside and from HEPA filters are entering above the cabin, then circulating around the cabin and finally the way out is in the floor area. (A. Gendreau & Mangili 2005, 989-996; IATA 2021d). The airflow is also very effective since the cabin air is renewed every 2-3 minutes (IATA 2021d).

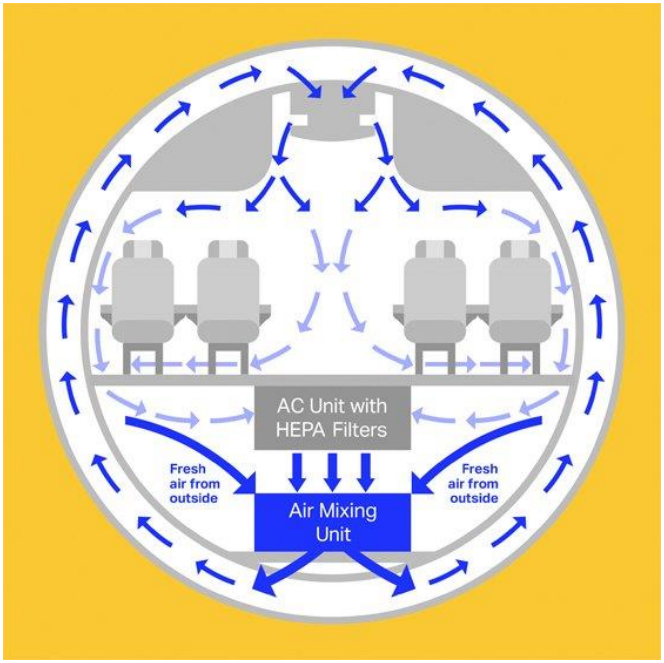

Figure 3. Cabin air circulation (IATA 2021c)

4.2 In-flight health and safety measures against COVID-19

Due to COVID-19 pandemic aviation industry was forced to make some adjustments to their operations in order to ensure the safe travel and reduce the transmission of the virus (European Aviation Safety Agency & European Center for Disease Prevention and Control 2020, 3-4). Different aviation sector organizations have developed a set of guidelines to assist the smooth recovery of the industry while minimizing any health issues (International Civil Aviation Organization 2021b). These health and safety measures will ensure the health of both the passengers and the industry workers. This is crucial for the recovery of the industry as it will also possibly add more confidence among the passengers and thus speed up the demand. The aim all in all is to increase the passenger numbers while at the same time ensure efficient air transport and minimize the spread of the disease. (ICAO 2021b; EASA &ECDC 2020, 3-4.)

The safety measures set in the guidelines are related to keeping a physical distance, taking care of good hygiene, keeping surfaces clean and restricting unnecessary movement. (ICAO 2021c.) There is detailed information on how the cabin should be disinfected and cleaned properly and frequently (ICAO 2021d). Keeping in mind the recommended physical distancing of 1,5m the airlines should make adjustments starting from the boarding to the exiting of the aircraft to avoid the congestion in the cabin. In the cabin, the airlines should make seating adjustments so that the distances could be kept between passengers whenever possible. The interaction all in all within the cabin should be kept in minimum so that the service including food and beverage and tax-free sales is limited. Also, separate toilets should be reserved for crew and the passengers and the queues to the toilets should be avoided. Passengers are advised to travel light and check-in their luggage rather than taking it to the cabin as it adds more possibilities for contamination. (EASA & ECDC2020, 5, 15-17; ICAO 2021c.) Face masks are highly recommended during the whole air travel for both crew and passengers and of course, they should take a good care of hygiene and coughing etiquette. (EASA & ECDC 2020, 5, 16-17.)

Different airlines have adjusted these guidelines to their operations. For instance, Finnish airline Finnair has put on mask requirement for all their flights and the mask should be worn during the whole flight. The boarding order has been changed so that the passengers seating in the rear of the aircraft goes first. Finnair advices to travel light and the possible hand luggage is recommended to place underneath the seat in front. Each passenger will also receive so called Clean Kit including wipes to clean the surfaces as well as hand sanitizer. In addition, Finnair has increased the cleaning of the aircrafts as

disinfecting cleaning agent is used daily and the aircraft is cleaned in every turn. To minimize unnecessary contacts the in-flight service is limited as there is no tax-free sales. Also, the food and beverage services are modified. (Blue Wings 2020; Finnair 2021.)

5 Research on perceived safety of air travel post-COVID-19

This is a research on how safe flying is perceived to be after COVID-19 by Millennials living in Finland and how willing they are to fly again international flights for leisure. The objective is to recognize the possible factors that Millennials perceive as risks regarding COVID-19 when flying for leisure in a post pandemic world. The subobjective is to define the safety measures that are most important for the focus group and that would make them more willing to fly again. Once the objectives are met there should be answers to these research questions:

1. What are the main concerns regarding COVID-19 when flying post-COVID-19?
2. What safety measures would make millennials more willing to fly post-COVID-19?

This chapter focuses on justifying and introducing the focus group of the research as well as the methods used. The implementation of the survey is described and the results are then presented with the help of statistics.

5.1 Delimitations of the target group

The focus group of the research are Millennials living in Finland that have not been flying international flights for leisure during the COVID-19 outbreak. World Health Organization (WHO) declared the COVID-19 disease as a pandemic on 11 March 2020 (WHO 2020b) so that will be also kept as the starting date of the pandemic throughout the research.

The chosen focus group was Millennial generation since they are seen to be the consumer market of the future (Barton, Beauchump & Koslow 2014). Millennials are defined to be anyone born between 1981 and 1996 (Dimock 2019). Thus, it includes both young adults and the oldest of them are already well in the adulthood. People born after 1996 are named as Generation Z. (Dimock 2019.) This means that the oldest among this generation are just 25 years old. That is why Generation Z was not the chosen generation since most of that generation are just in their teens and probably aren't traveling by themselves just yet. In this research the author wanted to concentrate on a young generation but who are still old enough to have a stable financial status in order to travel.

The focus country of the research is Finland. Finland was chosen because Finland was not part of the countries participating in the surveys conducted by International Air Transport Association. This research would then enable to get data to the research questions, particularly in Finland. The author herself is living in Finland so it was also the easiest to conduct.

The topic was also narrowed down to international flights done for leisure. International flights were chosen as the focus over domestic flights since in Finland domestic flights have been possible during the pandemic. Only once during the pandemic the movement of people has been restricted in Finland when the borders of the Uusimaa region were closed. The borders were closed on 23.3.2020 and the restrictions were lifted on 15.4.2020. Despite that period of time, travel within Finland has been allowed. (Finnish Government 2021a; Koponen 2021.) Unlike domestic traveling, international traveling has been restricted at times during the pandemic and different countries have had different travel restrictions.

Leisure traveling was chosen over business traveling since flying for business purposes is usually mandatory but flying for leisure is voluntary. If people have been flying for leisure, they are not probably so concerned about flying during the pandemic in the first place. All leisure traveling has been highly recommended to be avoided during the pandemic. (Finnish Government 2021a).

This research will concentrate only on what happens onboard the aircraft and during the flight rather than during the whole customer journey of air travel. The perception of safety during the flight can be related to the actions of the crew and to the aircraft itself. Other dimensions that the research focuses on are risks of contracting the virus and ways the risks of catching the virus could be reduced.

5.2 Research methodology

The choice of a research method is dependent on the research problem being investigated and determined by the research questions (D.Boukidis & Rutberg 2018, 209; Ahmed, Akotia & Opoku 2016, 32). This means that the method chosen should provide the required data for the research problem to meet the objectives. A suitable choice of method is then made keeping in mind the research questions and aims and objectives of the research. (Ahmed, Akotia & Opoku 2016, 32.) There are two methods for conducting an empirical research and those are qualitative and quantitative method. These research methods can also be combined and mixed. (Heikkilä 2014, 6.)

Qualitative method concentrates on deeper understanding of the research problem (Almeida, Faria & Queiros 2017, 370). The focus can be in for example motives, beliefs and values and such factors that cannot be quantified (Almeida, Faria & Queiros 2017, 370; Ahmed, Akotia & Opoku 2016, 33). It is usually conducted in a longer range and the

aim is then to produce in-depth information. Interviews and observations are examples of how qualitative research can be conducted. (Almeida, Faria & Queiros 2017, 370-371, 375.) The sample is usually rather small and carefully picked (Heikkilä 2014, 7). It takes time to analyse the data since it is in narrative form and that is why the sample is usually smaller (D.Boukidis & Rutberg 2018, 211).

On the other hand, quantitative method is based on measuring and describing the phenomena through quantified measures (Almeida, Faria & Queiros 2017, 370; Heikkilä 2014, 7). Thus, the aim is to collect accurate and reliable data which is presented in numerical form (Almeida, Faria & Queiros 2017, 369). The numerical data gathered is finally analysed through different statistics. In quantitative method the sample is usually larger and thus the results can be then generalized over an entire population. (Almeida, Faria & Queiros 2017, 370.) There are multiple ways of implementing a quantitative research such as surveys, field experiments and correlations studies. The most commonly used quantitative technique is survey. (Almeida, Faria & Queiros 2017, 380-381.)

In this research the sample needed was rather large since the research problem focuses on Millennials. Qualitative research method such as interview wouldn't have given overall generalized result of Millennials. The aim was also to get statistical data to analyse. Thus, a suitable choice for this research was quantitative method. Keeping in mind the time constraint of the research and the large sample needed, the chosen tool to conduct the quantitative research was survey questionnaire.

Questionnaire is a way to gather the desired information required to solve the research problem (Brotherton 2008, 132). It is a rather quick and easy method to gather the data (Brotherton 2008, 113). However, it should be designed carefully so that it will give reliable and right answers for the research problem. (Brotherton 2008, 113, 136). When gathering quantitative data, the questionnaire is structured with predetermined closed-questions. It is usually implemented indirectly for example via internet (Brotherton 2008, 115, 134). Such questionnaire is preferred choice when a large sample is needed (Brotherton 2008, 134).

5.3 Survey questionnaire as a method

The questionnaire was created using tool called Webropol. Webropol was chosen as a tool as it was easy to use and a quick way to collect the data. Main reason was also that the link could be shared online. In addition to be able to create the survey it also gave full reports of the results which could be then used in analysing them.

The survey was created keeping in mind the literature review and the objectives of the research. The questionnaire includes all in all eight questions including structured closed questions and as well as two free text fields. These eight questions ensure that the survey isn't too long to fill but also enables to get enough data. With these eight questions the survey takes approximately five minutes to fill. It is then short enough to keep the participant's interest without getting bored. The aim was to get 100 responses. According to Heikkilä (2014), the sample size of 100 is enough if the results are examined on an overall level.

The published questionnaire can be seen in appendix 2. The first two questions of the questionnaire aimed to ensure that the participant really fits into the focus group of the research. This meant being a Millennial living in Finland who haven't taken any international flights during the pandemic.

First question concentrated on the demographics of the participant meaning their age and place of residence. Instead of asking how old the participants are and where they live, the question was formed only to ask whether they live in Finland and were born between 1981-1996. The options for this question were either yes or no. If the participant answered 'no' the survey was to be finished and the participant was guided to the thank you-page. If the answer was 'yes' the survey could be continued.

The second question ensured that any international flights weren't taken during the pandemic. The options for this were also 'yes' or 'no. If the participant answered 'yes' the survey ended and the participant was guided to the thank you- page. If the answer was 'no' the survey could be continued to the rest of the questions.

The last six questions were then only available to the people fitting into the focus group. These questions were to examine their willingness to fly and their concerns of air travel after the pandemic. Third question was clearly just to figure out has the pandemic had an impact on participants' willingness to fly. In addition to having options 'yes' and 'no' also options 'a little bit' and 'I'm not sure' were available.

In the fourth question, the participants were able to indicate how concerned they are of catching COVID-19 during a flight. The scale was from one to four. Choosing one meant not at all concerned, two was not very concerned, three somewhat concerned and four meant very concerned.

Fifth question was a bit broader than the previous questions. Based on the literature review, there were ten possible scenarios where the virus could be transmitted such as seating next to infected person and the crew moving around. The participants could then choose from scale one-to-four how concerned would the ten different scenarios make them feel when flying again. One meant not at all concerned, two was not very concerned, three somewhat concerned and four meant very concerned.

Sixth question was to determine Millennials' willingness to fly again after the pandemic. There were four different statements describing the possible willingness and a free text field where the participant could describe in own words their willingness if none of the predetermined statements weren't suitable. The predetermined statements were to be fly as soon as possible, to fly again only after being vaccinated, not wanting to take unnecessary flights anymore and to only fly when not having to take any extra efforts like COVID-19 tests.

Seventh question was again broader including eleven statements referring to different safety measures based on the literature review. The participants were asked to determine how much safer each safety measure would make them feel when flying again. The scale was from one to four. One meant not at all safer, two was not much safer, three was somewhat safer and four meant a lot safer. The statements included for example having the middle seat empty to ensure physical distance, each passenger and crew member being vaccinated and reduced service limiting the interaction with the crew.

Eight and the last question included again eight different safety measurements and the participants were asked to choose one or more statements that the participants would be willing to make themselves when flying again. This question included also an option for free text field where the participant could write another safety measure that weren't in the predetermined list and that they would be willing to make themself. After the last question, the participant was guided to the thank you-page.

5.4 Implementation of the research

A pilot test of the survey was done on three people before publishing the final version of the survey. Piloting a test means that is shared with a test audience before collecting the actual data. They are asked to fill it and see whether there are some errors and improvements to be made. Thus, the aim is to make sure that there are no problems and that the questionnaire is easy to follow. (Brotherton 2008, 150.) Also, it should be ensured that the questions are understood in a way they were intended (Brotherton 2008, 113). A

few improvements were made to the survey based on the recommendations given by the test audience. The recommendations included for example adding a few answer options and deleting not relevant options. Some options were put in other words, so it is clearer and easier to understand. An improvement was also made to the number of pages so it was easier to scroll through the survey.

In this research, the questionnaire was shared indirectly via different social media channels which were Instagram, Facebook and LinkedIn. As the survey questionnaire was published on social media, the sample was based on self-selection. Self-selection sampling allows the participant to take part in the survey voluntarily on their own decision. Self-selection is a fast way conduct the survey as there is no need to use time to search for the participants. (Sharma 2017, 752.) Social media was chosen as the platform to publish the survey since it is a quick way and it enables to reach many people. As mentioned in the theoretical framework, Millennials are digitally native generation and social media is an essential part of their everyday life. That is also why social media was used to reach the focus group.

In order to generate interest and motivate people to complete a survey it should include an introduction text. The aim is to inform about the purpose of the survey and to engage to participate. If the introduction text is written successfully more people will participate and thus it increases the response rate. (Brotherton 2008, 138.) As the survey in this research was published in social media, the introduction text was written in the social media post. The introduction text for the social media post can be seen in appendix 1. Also, the survey itself included a foreword (see appendix 2). The introduction text as well as the foreword included the target group of the research, the aim of the survey, the time it takes to fill the survey and that it is anonymous.

In the social media post (see appendix 1) the interest was tried to arouse with questions which were connected to the research. The questions were as follows: Do you miss the feeling of aircraft taking off and seeing the view above the clouds? Are you willing to catch a flight as soon as possible or has the COVID-19 pandemic left some concerns on the safety of air travel? Emojis were added to make it more visual and to generate interest. The post also mentioned that it could be shared. A few of author's friends shared the post in their own social media.

The link for the survey was open for a week during 22 April to 29 April. After four days of sharing the survey, a new post was made to remind people to answer. Most of the

answers were gathered during the first three days and a few more after the reminder post. During the whole week all in all 132 responses were gathered.

5.5 Results in Millennials perceived concerns on air travel

The results of the survey were analysed with the help of Webropol and Excel. These both tools enabled to get statistical data that could be summarized. Participants' answers for each question were then showing in numbers and percentages. The numbers and percentages were transferred into visual from with the help of charts.

The survey was answered by 132 people during the one week. 120 of the people answered that they live in Finland and were born between 1981-1996 (91%) and 12 weren't (9%). This left then 120 participants for the next question as the 12 didn't fit the focus group. 105 of the 120 participants answered that they have not taken any international flights during the pandemic (88%) while 15 had taken a flight (12%). This meant that the rest of the questions were answered by 105 participants as the 15 who had taken a flight didn't fit to the focus group.

5.5.1 Millennials' willingness to fly after the pandemic

The questions 3 and 6 aimed to determine millennials willingness to fly after the pandemic. Question 3 asked whether the pandemic has influenced the participant's willingness to travel after the pandemic. Figure 4 shows how the answers were distributed over the four answer options. 23 answered that the pandemic has affected their willingness to fly (21.9%) while 54 answered it hasn't affected at all (51.4%). 23 participants felt like it has affected a little bit (21.9%) and 5 of the participants weren't quite sure (4.8%).

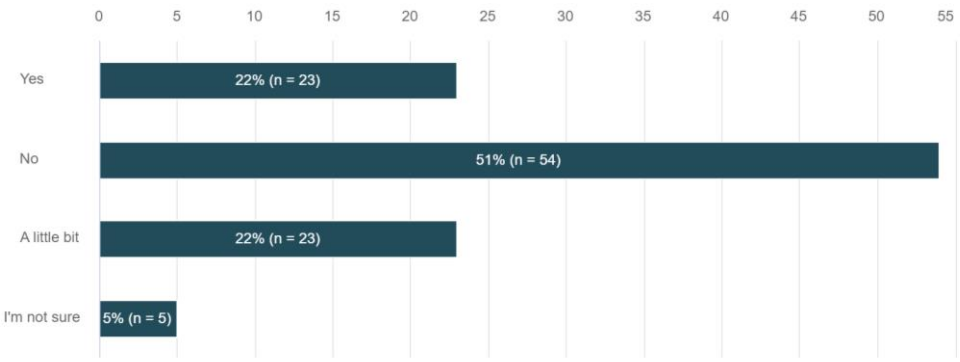

Figure 4. Millennials' willingness to fly in the future (n=105)

Sixth question described the willingness of the participants to fly again. 26 of the participants are ready to fly as soon as possible (25 %), 39 will wait until they are vaccinated (37%). 7 answered that they do not want to take unnecessary flights anymore (7%) and 22 will fly only if they don't have to take any extra measurements like COVID-19 test or quarantines (21%). 11 of the participants answered that something else describes their willingness better and wrote them to the free text field (11%).

The comments written in free text field were mostly positive in a way that people are still willing to fly and want to do it as soon as possible but only when it is easy again. The vaccination was mentioned by several participants as they were only to fly after being vaccinated themselves as well as when most of the population has been vaccinated. One mentioned also wanting to have some research on how safe the vaccinations will be. Also, the vaccination certificate was mentioned. A few commented that their willingness to fly wasn't related or impacted by COVID-19 but one is more concentrated on the climate aspect and one just doesn't enjoy flying in the first place. Also, the negative social pressure caused by the pandemic had a negative impact on the willingness of one participant. The destination choice was also brought up as few said to be considering the COVID-19 and vaccination status of the destination before flying.

5.5.2 Millennials' concerns when flying after the pandemic

In the fourth question, the participant determined from scale one to four how concerned they are of catching COVID-19 in a plane. The average answer was 2 which meant not being very concerned. The answers were scattered so that 29 answered that they are not concerned at all, 44 answered not to be very concerned, 28 were to be somewhat concerned and only 4 would be very concerned.

In the fifth question there were ten scenarios where the virus could be transmitted in the cabin and the participants were asked how concerned those scenarios would make them feel when flying again after the pandemic in a scale from one to four. Figure 5 shows the overall result for each scenario and the number of answers for each answer options from not being at all concerned to being very concerned. All in all, the scenarios wouldn't make most of the participants very concerned or even somewhat concerned.

Out of all the scenarios seating next to an infected person got the most answers (n=47) on making the participants very concerned. That would also make 43 somewhat concerned. Only one participant answered not to be at all concerned of seating next to infected person. Other scenarios making millennials either very concerned or somewhat

concerned would be not having enough physical distance to other passenger with altogether 61 participants and congesting in the cabin with 53 participants.

The crew moving around (n= 84), eating the airplane food (n= 70) and breathing the cabin air (n= 52) got the most answers on not making the participant at all concerned. Also, the crew moving around in the cabin wouldn't make any of the participants very concerned while eating the airplane would make only 2 participants very concerned. Using a toilet, possibly contaminated hard surfaces as well as possibly contaminated soft surfaces divided the answers quite equally regarding being not at all concerned or not very concerned. Using toilet wouldn't make altogether 84 participants either at all concerned or very concerned, possibly contaminated hard surfaces also 84 participants and possibly contaminated soft surfaces altogether 80 participants.

Possibly contaminated hard surfaces as well as soft surfaces seemed to cause similar feelings on the concerns. They would make most of the participants either not at all concerned or not very concerned. Hard surfaces would make 2 of the participants very concerned and soft surfaces 6 participants. Passengers rushing to get up and congesting in the cabin would divide the opinion quite half between being not at all concerned or not very concerned (altogether n=52) and being very concerned or somewhat concerned (altogether 53). When comparing crew moving around in the cabin and other passenger moving around in the cabin the answers differ surprisingly much. Crew moving around wouldn't make 70 participants at all concerned while other passenger wouldn't make 31 participants at all concerned. Also, other passenger moving around would make altogether 31 participants either very concerned or somewhat meanwhile the crew would only make altogether 8.

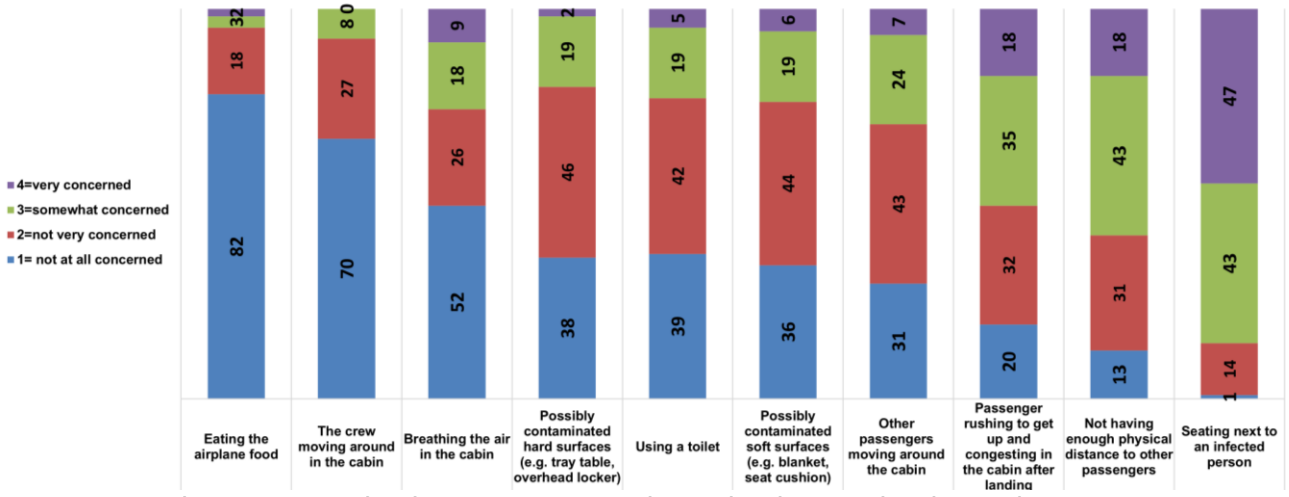

Figure 5. Perceived concerns on predetermined scenarios (n=105)

5.5.3 Millennials valued safety measures against COVID-19

Figure 6 shows in percentages how the participants have answered on how much safer would each of the safety measure make them feel. Most of the safety measures would make the participants feel either a lot safer or somewhat safer. Only restricted amount of cabin luggage and reduced service wouldn't make most of the participants either at all safer or not much safer. Altogether 68% of the participants wouldn't feel at all safer or not much safer about restricted amount of cabin luggage and with reduced service it is altogether 67% of the participants. With the least answers of making the participants not at all safer would be everyone being vaccinated with 4%.

Each passenger and crew member being vaccinated is a safety measure that has the most answers on making the participants feel a lot safer with 68%. Only altogether 10% wouldn't feel at all safer or not much safer when everyone would be vaccinated. Another highest 'a lot safer' answers got each passenger and crew member having negative COVD-19 test result with 46% feeling a lot safer and 37% would feel somewhat safer. Other valued safety measures that would make participants either a lot safer or somewhat safer would be controlled boarding and exiting with altogether 78%, each passenger wearing a mask with 77% and having enough physical distance with 71%.

With almost half of the participants (49%) answered seeing the crew making extra effort on cleaning the cabin and toilets during the flight making them somewhat safer. Having the middle seat empty would make altogether 71% feel either somewhat safer or a lot safer compared to having the whole row empty would make altogether 64%. The safety measures related to keeping surfaces clean such as seeing the aircraft disinfected (altogether 35%), seeing the crew make extra effort on cleaning the cabin (altogether 31%) and passenger cleaning their own seating area (altogether 35%) have divided the answers similarly between feeling not at all safer and not much safer.

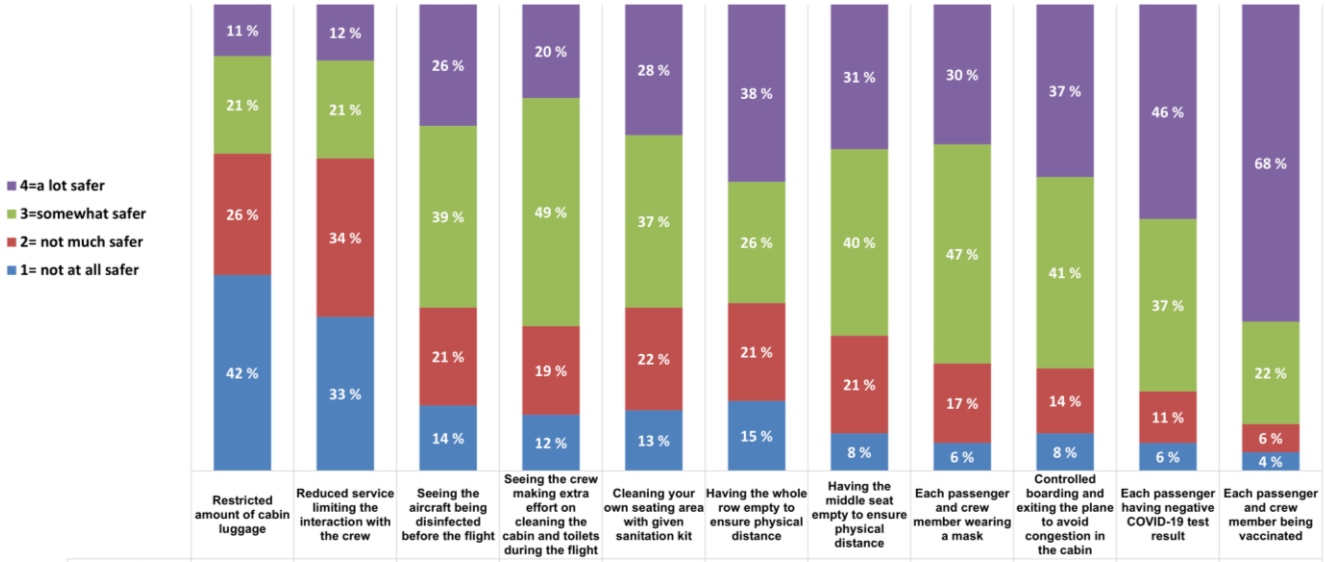

Figure 6. In-flight health and safety measures against COVID-19 (n=105)

The last question considered the safety measures the particpants would be willing to make themselves on their next flight. In figure 7 can be seen how the answers were distributed among the predetermined options. The most answers got washing hands often (97%), wearing a mask during the whole flight (89%) and avoiding unnecessary moving in the cabin (75%). The least anwers got not bringing any luggage to cabin (6%), buying two seats to ensure the physical distance (6%) and buying business class seat to ensure physical distance (9%). 61% would be willing to get a COVID-19 test and 59% would be willing to disinfect their seating area. Also the option ‘something else, what?’ got 9 answers (9%) and thus also 9 people wrote to the free text field what other safety measures they would be willing to make.

Five of the answers given in the free text field mentioned to be willing to get vaccinated before their next leisure flight. One mentioned to be willing to pay extra for safety distances. Also the health aspect was brought up as one would be travelling only when healthy and one would be willing to avoid couhging and sneezing. Based on one comment left in the free text field, one of the participant might have understood the question incorrectly.

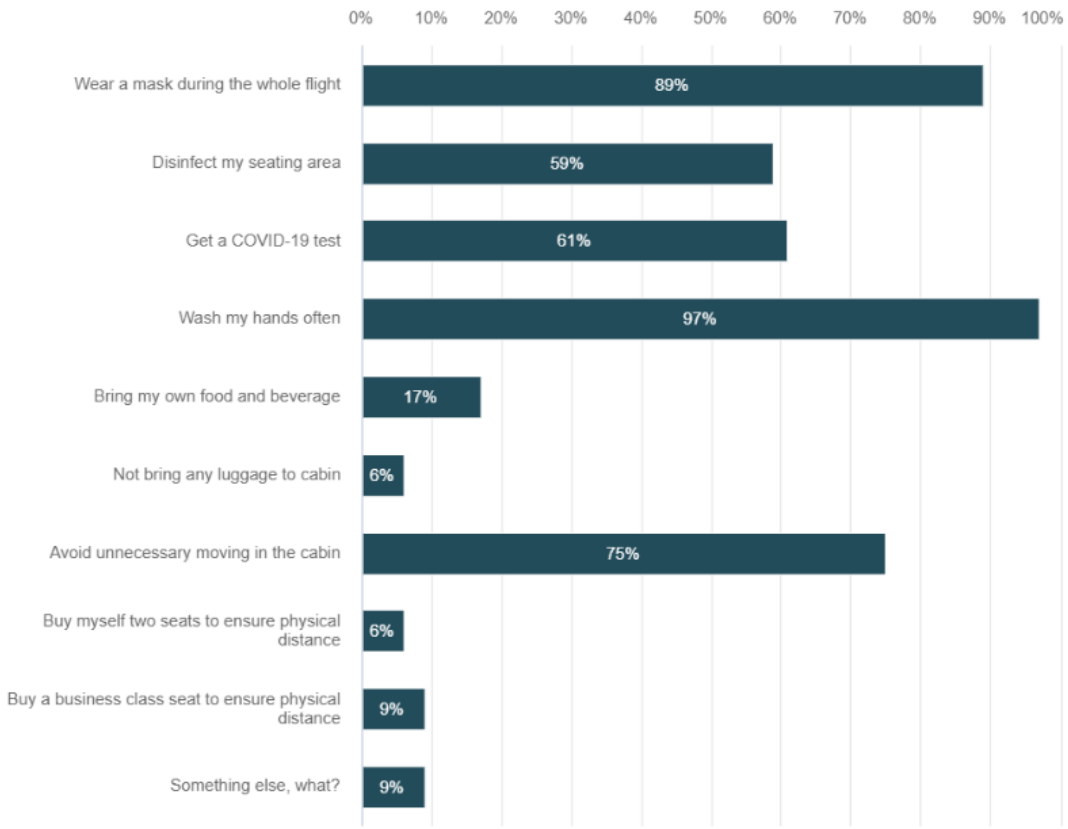

Figure 7. Safety measures participants would be willing to make (n=105)

6 Discussion and key findings based on the results

The research was about how safe flying is perceived to be after COVID-19 by Millennials living in Finland and how willing they are to fly again international flights for leisure. The objective is to recognize the possible factors that Millennials perceive as risks regarding COVID-19 when flying for leisure in a post pandemic world. The subobjective was to define the safety measures that are most important for Millennials and that would make them more willing to fly again. Once the objectives are met there should be answers to these research questions:

1. What are the main concerns regarding COVID-19 when flying post-COVID-19?
2. What safety measures would make millennials more willing to fly post-COVID-19?

The results are analyzed and discussed in this chapter to introduce the key findings of the research. Validity and reliability of the research are presented and discussed as well as recommendations for further research and the learning outcomes.

6.1 Millennials concerns on air travel and valued safety measures

As mentioned in the framework every individual defines how they perceive risks and it is impacted by several factors. This leads to different approaches to the safety measures as well as different decision regarding the virus. This can also be seen in the results of the survey as the answers related to perceived concerns were distributed among the answer options.

The main objective of the work as well as the first research question aimed to get answer to Millennials main concerns regarding COVID-19 when flying again after the pandemic. Overall, most of the scenarios would not make Millennials very concerned. When it comes to catching the virus during a flight, Millennials do not seem to be extremely concerned about it. All in all, 73 of the participants are not concerned at all or aren't very much concerned of catching the virus.

However, based on the results of the research the highest risk when flying in post-pandemic world is perceived to be seated next to an infected person. Another factor that would concern Millennials would be the lack of physical distance to other passenger and congesting in the cabin. Also, as a safety measure ensuring the physical distance with having seats empty and controlled boarding would make most of the Millennials either a lot safer or somewhat safer. All of the mentioned scenarios imply that the pandemic has clearly left a concern related to physical distance and that Millennials would still value

having enough physical distance also after the pandemic. However, most of Millennials wouldn't be willing to pay extra for example for another seat to ensure it. Thus, the aviation industry workers should take this into consideration to offer enough physical distance also after the pandemic whenever possible.

As mentioned in the theoretical framework the airflow in the cabin is very good and with the help of HEPA-filter most of the microbes can be filtered. As 49% participants are not at all concerned of breathing the cabin air and 25% are not very concerned it is also not seen as a huge risk among Millennials. One of the safety measures taken into use in a cabin has been to controll the use of toilets as mentioned in the framework. Based on the results the use of toilets wouldn't concern most of Millennials which means that after the pandemic the use of toilets could be continued quite normally without Millennials being concerned.

The crew working in the cabin does not seem to concern Millennials as 67% feels like the crew moving around in the cabin wouldn't make them at all concerned. Also, eating the airplane food as well as soft surfaces like blankets wouldn't make Millennials very concerned. Meanwhile reduced service as a safety measure wouldn't make 33% at all safer and 34% not much safer. Conclusion can be made that the crew working normally and offering normal service after the pandemic wouldn't concern Millennials. This is valuable information for the aviation industry workers as after the pandemic the service should be able to be kept quite normal without Millennials being concerned. The cabin crew members do not need to worry that Millennial customers would be concerned of them working.

The subobjective of the research and the second research question aimed to define the safety measures that are most important for Millennials and that would make them more willing to fly again. What stands out is the meaning of vaccination to Millennials. 38% will fly again only after being vaccinated and out of every safety measure vaccinated passenger and crew member would make millennials feel the safest. Other safety measures that would make Millennials feel safer and thus more willing to fly are related to the safety precautions that are effective on reducing the transmission of virus mentioned also in the theoretical framework. These are everyone having negative COVID-19 test result, everyone wearing a mask and keeping safety distances by controlling the boarding and exiting. These make most of the participant feel either a lot safer a somewhat safer.

Comments left on free text field also implies that Millennials are themselves willing to take the vaccination before flying again. Other safety measures that most Millennials would be

willing to make themselves are wear a mask during the flight, take care of good hand hygiene and avoid unnecessary moving in the cabin. This is a good sign that they are willing to make these themselves thus those are also the safety measures that would make them feel more safer and willing to fly.

As 51% have said the pandemic hasn't affected their willingness to fly and 22% have said it has affected only a little bit, it seems like Millennials are still willing to fly after the pandemic. 24% also wish to catch a flight as soon as possible. Also, most of the safety measures would make Millennials either somewhat safer or a lot safer. A conclusion can be drawn that Millennials will fly after the pandemic but different safety measures are still valued.

6.2 Validity and reliability of the research

Validity and reliability of a research should be assessed to ensure the quality of the research. Validity refers to the accuracy of the research while reliability concentrates on the consistency of the research. The research can be reliable without being valid but if it is valid, it is usually also reliable. Both validity and reliability depends on the careful planning and conducting of the research and choosing the suitable methods and sample. (Middleton, 2019.)

According to Heikkilä (2014, 11), research is valid if it gives on average right results, measures the thing it was intended to and does not include any systematic failures. In order to ensure the validity of the research, it should be carefully planned (Brotherton 2008, 113). When planning the research, the attention should be paid to methods used. The questions should ensure that they measure the right thing and that they allow to give answer to the research problem. Other factors ensuring the validity of a research is that the population is defined clearly and that the sample is large enough and representative of the population. (Heikkilä 2014, 11; Middleton 2019.) The response rate should also be high enough (Heikkilä 2014, 11).

Reliability of a research means that the research gives precise results and that it can be replicated under the same conditions with same results. In order to give precise and reproducible results, data should be collected and analysed carefully and with the help of right tools. (Heikkilä 2014, 12; Middelton 2019.) In order to ensure that the research is reliable, the sample should be large enough and presentable (Heikkilä 2008, 12).

Survey was a suitable method chosen for this research as it allowed to give statistical data for the research questions. It was planned in accordance with the framework and keeping in mind the research questions. A tool used to collect the data was Webropol which was a very easy and quick for both the author and participants. Webropol together with Excel were used to analyse the data to get the statistical data needed. The author thinks that the method and tools used were suitable and allowed to give right answers.

Survey is in a way an artificial environment as the answers and options are predetermined and the participants can only answer to the questions asked (Brotherton 2008, 113). In this research the survey also included predetermined questions but there were also a few free text fields where the participants were allowed to give answer of their own. The predetermined questions could have guided the participant to a certain way and not tell exactly how they feel. There is also no guarantee that the participants have answered truthfully. Based on one of the comments left on free- text field it seemed like one of the participant understood the question differently than it was intended. This might have happened to other participants as well in different questions.

The population of the research was defined clearly as they were Millennials living in Finland who hadn't taken any international flights for leisure during the pandemic. This was also mentioned in the introduction text as well as in the foreword of the survey. The survey itself included two questions which aimed to exclude all the participant who didn't fit the focus group. The survey should have then been answered by only the intended focus group. However, it can't be guaranteed as the participant may not have been honest. The survey was answered all in all by 132 people and 105 of them fell into the right focus group. Thus, the goal of 100 participant was reached. 105 participant ensures that the research can be analysed on an overall level. However, the sample was quite small compared to the population of the research.

6.3 Recommendations for further research

Because of the pandemic, people haven't been able to fly in a while or at least it has been suggested to avoid leisure traveling. According to the results of the research, Millennials are still willing to fly and want to do it even as soon as possible. It would be interesting to see a further research on whether their concerns and attitudes have changed once they have taken their first flight after the pandemic.

Millennials as a generation is very different compared to other generations. Thus, it would be also recommended to research whether other generations would be more concerned

or whether the concerns differ between the generations. This way, the airline industry workers can take into account also the concerns of other generations and make them more comfortable with flying again.

As mentioned in the framework Millennials as travellers value authentic experiences and seek for excitement. For example, home stays are a way for them to get the authentic and local experience. The results show that millennials are not very concerned of catching the virus inside aircraft but are they more concerned of catching it during their future adventures? Thus, it would be interesting to have a research whether they are more concerned of catching the virus while traveling and whether their mind have changed towards adventure-seeking travels in a fear of catching the virus.

6.4 Reflection on learning

The thesis process has been quite challenging but meantime also very educational. The time constraint of the whole process and the lack of motivation made it challenging. There were times during the process where the author doubted whether the work would be finished in time. Because of the time constraint of the thesis process and the lack of motivation the whole research was not made as successfully and ambitiously as the author would have wanted. However, as the author is very passionate about aviation and the topic was very interesting, it was all in all a pleasure to research it.

The thesis process has taught how an empirical research should be conducted. Writing the thesis help to improve the academic writing skills of the author. The author got acquainted with the use of Webropol platform when making the questionnaire which she hadn’t used before.

It was good that certain deadlines were agreed hence otherwise it would have been harder to get the whole project done in agreed timeframe. However, no strict timetable was made for each day so some of the days were quite long while on some days not much progress was made. The whole process would have been more efficient and probably finished with greater success if there would have been a strict timetable for each day. All in all, the project was finished in time and during the process the agreed deadlines with the thesis supervisor kept. This helped to improve the author’s time-management skills.

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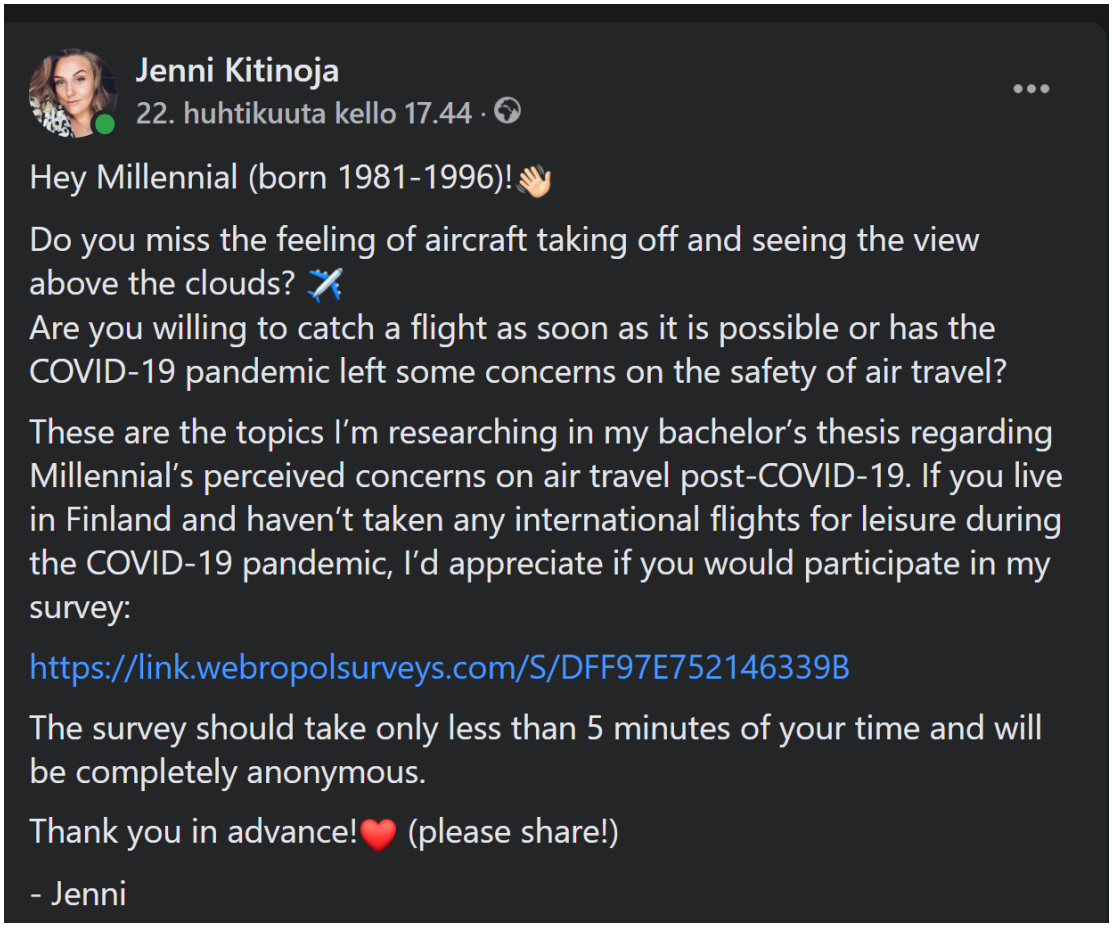
Appendices

Appendix 1. Social media post for the questionnaire



Appendix 2. Survey questionnaire

Millennial's perceived concerns on air travel post-COVID-19

Mandatory fields are marked with an asterisk (*) and must be filled in to complete the form.

Hello there! Are you a Millennial (1981-1996) living in Finland and haven't taken any international flights for leisure during the COVID-19 pandemic? If the answer is yes, you've come to the right place!

This survey is conducted as a part of my Bachelor's thesis in Haaga-Helia University of Applied Sciences. The answers of the survey will be used in a research discovering Millennial's perceived concerns on air travel post-COVID-19. The aim is to recognize the concerns Millennials may have when catching a flight again and to identify the safety measures that would make them more willing to fly.

The survey will take approximately 5 minutes to complete and it will be completely anonymous. Thank you in advance!

1. Do you live in Finland and were you born between 1981-1996? *

- ◯ Yes
- ◯ No

2. Have you taken any international flights for leisure during the COVID-19 pandemic since March 2020 to this day? *

- ◯ Yes
- ◯ No

3. Has the pandemic influenced your willingness to catch a flight in the future? *

- ◯ Yes
- ◯ No
- ◯ A little bit
- ◯ I'm not sure

4. Are you concerned of catching COVID-19 while being on a plane? *

1= Not at all concerned, 2= Not very concerned, 3= Somewhat concerned, 4= Very concerned

5. Once it has been declared it is safe to fly again, how concerned would the following make you? *

1=Not at all concerned, 2=Not very concerned, 3= Somewhat concerned, 4= Very concerned

	1	2	3	4
Possibly contaminated hard surfaces (e.g. tray table, overhead locker)	◯	◯	◯	◯
Possibly contaminated soft surfaces (e.g. blanket, seat cushion)	◯	◯	◯	◯
Not having enough physical distance to other passengers	◯	◯	◯	◯
Seating next to an infected person	◯	◯	◯	◯
Using a toilet	◯	◯	◯	◯
The crew moving around in the cabin	◯	◯	◯	◯
Other passengers moving around the cabin	◯	◯	◯	◯
Breathing the air in the cabin	◯	◯	◯	◯
Eating the airplane food	◯	◯	◯	◯
Passenger rushing to get up and congesting in the cabin after landing	◯	◯	◯	◯

6. Which of the following describes most your willingness to fly? *

- ◯ I will catch a flight as soon as possible
- ◯ I will fly again after being vaccinated
- ◯ I don't want to take unnecessary flights anymore

- ◯ I will fly only if I don't have to take any extra efforts such as COVID-19 test or quarantine measurements
- ◯ Something else, what? _____

7. How much safer would the following safety measures make you feel when taking a flight post-COVID-19? *

1= Not at all safer, 2= Not much safer, 3= Somewhat safer, 4= A lot safer

	1	2	3	4
Each passenger and crew member wearing a mask	◯	◯	◯	◯
Each passenger and crew member being vaccinated	◯	◯	◯	◯
Each passenger having negative COVID-19 test result	◯	◯	◯	◯
Having the middle seat empty to ensure physical distance	◯	◯	◯	◯
Having the whole row empty to ensure physical distance	◯	◯	◯	◯
Reduced service limiting the interaction with the crew	◯	◯	◯	◯
Seeing the aircraft being disinfected before the flight	◯	◯	◯	◯
Cleaning your own seating area with given sanitation kit	◯	◯	◯	◯
Seeing the crew making extra effort on cleaning the cabin and toilets during the flight	◯	◯	◯	◯
Restricted amount of cabin luggage	◯	◯	◯	◯
Controlled boarding and exiting the plane to avoid congestion in the cabin	◯	◯	◯	◯

8. Which of the following safety measures would you make yourself on your next leisure flight? *

You may choose multiple options

- [ ] Wear a mask during the whole flight
- [ ] Disinfect my seating area
- [ ] Get a COVID-19 test
- [ ] Wash my hands often
- [ ] Bring my own food and beverage
- [ ] Not bring any luggage to cabin
- [ ] Avoid unnecessary moving in the cabin
- [ ] Buy myself two seats to ensure physical distance
- [ ] Buy a business class seat to ensure physical distance
- [ ] Something else, what? _____