AGE-FRIENDLY AIRPORTS: A QUALITATIVE STUDY OF OLDER ADULTS AGED 55

AND OLDER

by

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THESIS

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ABSTRACT

Age-friendly airports: A qualitative study of older adults aged 55 and older

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As baby boomers are increasing in numbers and living longer, many older adults are continuing activities that bring pleasure and promote independence in their lives. Extant literature suggests an increase in air travel among older adults as well as benefits related to traveling in later life. However, their literature also reports a lack of "age-friendliness" at airports across the U.S. and the world. As older adults begin to travel more frequently, the age-friendliness of airports is important to understand because older adults want to continue to travel. For older adults to continue to do so, the age-friendliness of airports needs to be examined to determine if airports promote autonomy, dignity, and health benefits for older adults. This study explored the age-friendliness of air travel for older adults and examines the current problems and potential solutions that airports may provide. Qualitative interviews were conducted with 16 older adults who were over the age of 55 and who had recently traveled or planned on traveling in a one-year time span.

A semi-structured interview guide was used to gain knowledge of the experiences of age-friendliness of airports, experiences with technology in airports, and recommendations for improving age-friendliness from the perspective of older adults. The results of the study suggested that most participants felt that the airport did not promote an age-friendly environment. Results also showed that participants felt that technological advances could increase age-friendliness in airports. Three themes related to the age-friendliness of airports included mobility, Transportation Security Administration (TSA), and the built environment. Three themes related to experiences with technology at airports included apps, kiosks, and face scanners. Finally, three themes related to recommendations for improvement related to the age-friendliness of airports included TSA policy changes, training for TSA agents, and access to electric carts.

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DEDICATIONS

In honor of my parents, who have continuously supported me to achieve the highest of possibilities.

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CHAPTER 1

INTRODUCTION

The "Baby Boomers" (born between 1946-1964), will all reach age 65 by 2030. Currently, the youngest baby boomer will be 56 and the oldest will be 74 by the end of 2020. By the year 2060, older adults will take up almost a quarter of the entire U.S. population (Desjardins, 2017). Not only is America expected to see the continued trend of an increasing number of older adults, these older adults are projected to live longer. According to the U.S. Census Bureau, life expectancy for the year 2020 is 77.9 for males and 82.44 for females. At the age of 55, males can expect to live an additional 26.61 years and 29.92 years for females. By 2050, life expectancy for males will increase to 82.64 years and females will increase to 86.22 years. At age 55, life expectancy for males increases to 29.67 and 32.77 for females (United States Census Bureau, 2020).

In addition to living longer lives, many older adults are engaged in social and leisure activities that lower their risk for some health problems (National Institute on Aging 2018). Traveling is one type of social and leisure activity that has received greater attention in the literature related to active and healthy aging (Balderas-Cejudo & Leeson, 2017). Studies report several health and wellness benefits of traveling in later life (Ferrer et. al., 2015; Ferri, Durá, & Garcés, 2013; Global Coalition on Aging, 2018; U.S. Travel Association, 2018). For example, research suggests that women who traveled at least once every 6 years, had a decreased risk of developing a heart attack (U.S. Travel Association, 2018). Further, the researchers found that men who did not take a vacation once a year had a 20% increase risk of death and a 30% increase risk of death due to heart disease (U.S. Travel Association, 2018). Studies also suggest that older adults who travel report that they are more satisfied with their "physical health and

well-being than non-travelers" (Global Coalition on Aging, 2018). One study reported that older adults who traveled frequently went to the doctor for illness-related visits less often than those who did not travel (Ferri et al., 2013).

Not only are there the physical benefits of traveling for older adults, but research suggests that there are mental benefits. Older adults who traveled scored higher on mental health questionnaires than those who did not travel (Ferri et al., 2013). Other research suggests "...(travel) is an important behavior that promotes brain health and builds resilience across the lifespan" (Global Coalition on Aging, pg. 11, 2018). Moreover, the brain stimulation linked to traveling may be beneficial for older adults who are diagnosed with Alzheimer's disease (Global Coalition on Aging, 2018). For those with Alzheimer's, the stimulation may improve the connection between brain cells to strengthen and create new nerve cells (Global Coalition on Aging, 2018). The social benefits of traveling may also decrease the risk of developing Alzheimer's (Global Coalition on Aging, 2018). Overall, research suggests that social participation, that is part of travelling, may have a positive impact on older adults (U.S. Travel Association, 2018).

The American Association of Retired Persons (AARP) reports travel statistics surveying Baby Boomers (54-72) (AARP, 2019), to better understand how older adults travel and factors that influence barriers to travel. According to the AARP (2019), 66% and 87% of older adults travel by plane both domestically and internationally respectively. Given that many older adults are travelling by plane and the population continues to age, it is important to consider the experience of travelling in later life. In particular, an understanding of the age-friendliness of the airport environment is a largely unexplored area of research. An age-friendly environment is defined as an environment designed to "enable older people to; age safely in a place that is right

for them…continue to develop personally and to contribute to their communities while retaining autonomy, health and dignity" (World Health Organization, n.d.).

Limited research examines the ways in which airports can become more age-friendly both in the U.S. and internationally (Bonilla, n.d.; Fowler, 2017; World Health Organization, n.d.). Although cities around the world are developing strategies to promote age-friendliness, the airline industry, including airports, remains behind (Bonilla, n.d.). However, some airports have been examining the role of technology as a way to improve the passenger experience (Carlisle, 2015).

Technology may become one of the key features of a passenger's airport experience, regardless of age. As technology has increasingly been integrated into airports, it has become a key driving factor for improvements and changes within the airport (Carlisle, 2015). Technological advances may positively benefit airports and passengers such as older adults through the creation of apps, audio changes, and new wayfinding techniques. These advances may encourage increased travel among older adults and may offer benefits to the airline industry and older adults as well.

In spite of the potential health and wellness benefits associated with travelling in later life and the use of new technologies to enhance travelers' experiences at the airport, there remains a lack of understanding about the experiences of older travelers. In particular, there is a need to understand the age-friendliness of airports in order to inform strategies to support older travelers. Thus, this research fills a gap in the literature and offers a unique approach to this topic by incorporating a social work lens.

Purpose of the Study

The purpose of this study is to look at the age-friendliness of airports for older adults and to explore the current problems and potential solutions that airports could provide for travelers in later life. Although the literature has shown examples of the benefits of travel for older adults (Ferrer et al., 2015; Ferri et al., 2013; Global Coalition on Aging, 2018; U.S. Travel Association, 2018) along with an increase of travel among older adults, airports may remain largely aging unfriendly. This qualitative study explored how older adults perceived the age-friendless of airports and what improvements they suggested for the air travel industry. A qualitative approach not only allowed older travelers the opportunity to have their voices heard, but their experiences may offer insight that will benefit future older travelers so that they also can experience the physical, mental, and social benefits of travel. By exploring the airport experiences of older adults, the travel industry has an increased opportunity to create additional resources or to reconstruct current resources or programs in airports both nationally and internationally to become more age-friendly for older travelers.

CHAPTER 2

LITERATURE REVIEW

Response from the Airline Industry

With the increasing number of Baby Boomers in the U.S. wanting to travel, it is imparative that the airline industry become more age-friendly. Currently, the literature provides limited suggestions that can improve the ease of travel for older adults. Examples (Haughney, 2012; Karimi, n.d.) include "wear loose clothing", "put medication in carry-on bag", "arrange for transportation in advance" and "arrive at the airport early" (Haughney, 2012; Karimi, n.d.). While some of these examples may be helpful for older travelers, this asks older adults to conform to current airport design rather than enhance the airport environment for older adults. For example, older travelers can become fatigued walking long distances on airport property (National Academies of Sciences, Engineering, 2014). This should mean that leaving earlier should help with that solution. However, it is unclear if leaving earlier solves this problem. Older adults may not be able to leave early, due to some older adults relying on others or transportation services to get to the airport.

One response that comes from the airline industry are the services provided by TSA. Passengers who have difficulty standing in line or who require additional time to go through security, need to inform TSA agents, and they will be able to assist these passengers through a different screening process (Hill, 2017). TSA also offers a program called TSA Cares (Transportation Security Administration, n.d.). This program allows persons with disabilities, travelers who have certain medical conditions, or other circumstances to contact TSA 72 hours before traveling to obtain specific information regarding the security screening process. TSA

Cares also provides passenger support specialist for those who request it. These passenger support specialists can walk with travelers, regardless of age, through the airport until the traveler boards the plane. While these programs can certainly benefit older travelers if needed, the literature does not specify if older travelers are aware of and utilize these services.

Another response from the airline industry is seen by some airports changing their built environment and architectural design to be more accommodating to older travelers (Weed, 2019). Corgan, an architecture firm based out of Dallas, TX, is dedicated to creating an airport atmosphere that is comfortable for older adults (Bunch, 2016). For example, Corgan recommends that restrooms are placed in areas away from high traffic areas in order to allow older adults to get in and out easier. Another design implemented by Corgan is placing rest stops in high traffic areas to allow older adults a chance to rest before they continue walking to their airport destination. Corgan also takes into to account the potential changes in vision in later life by choosing colors for airport signs that are better for persons with visual impairment (Bunch, 2016).

Corgan has designed and improved serval airports throughout the U.S. One example is their work at the Dallas-Ft. Worth (DFW) International Airport. Originally, Corgan created and designed terminal D, which is the international terminal at DFW. The project started in 2000 and was completed in 2005, making it the largest airport expansion post 9/11 (DFW International Airport, 2005). Some of the age-friendly components that were included in the project included wayfinding and "automated people mover stations." (DFW International Airport, 2005; Corgan, n.d.). Because of the success associated with this project, Corgan continued their partnership with DFW and was contracted to remodel terminals A, B, and E along with adding terminal C. Using inspiration from their previous work in terminal D, the new and remaining terminals were

designed to promote the traveler's experience and a complete redesign of the built environment within each terminal (Corgan, n.d.-c).

Corgan' most recent airport project is the creation of Delta Airlines Terminal C at LaGuardia Airport in New York (Corgan, n.d.-a). This terminal will replace two former terminals at LaGuardia. Although the project does not specifically mention age-friendliness, Corgan is implementing some age-friendly aspects that may benefit older travelers. For example, Terminal C will have increased seating, larger holdrooms, direct access between parking garages and the terminal, and improved drop off areas. A holdroom is Corgan's solution to lounge seating at gates (Corgan, n.d.-d). These holdrooms will include technology that will allow provide comfortable seating, allow travelers to see information about their flight without having to get up, and order food without leaving your seat. These upgraded gates will include biometric face scanners and floors with luminous arrows, directing travelers to the jet bridge.

Finally, airlines have begun working with airports to make the air travel experience for older adults less stressful. One of these ways is by offering wheelchairs to those who have mobility issues or disabilities. Travelers can request a wheelchair through the airline's website and the airport will ensure that the travelers individual wheelchair is ready when they arrive at the airport. Some airports and airlines offer electric motorized carts for those who need them (Weed, 2019). One airline offers a service that will provide private service for passengers from the time they arrive at the airport to the time they get on the plane. However, this can cost $125 for one person and $200 for two people (Haughney, 2012).

Technological Advances

There are several technological advances that can benefit older adults in an airport environment. One is a mobile application dedicated to aiding wayfinding in airports for those who have poor or limited vision (Bosch & Gharaveis, 2017). In a pilot study, the researchers developed and implemented an app that alerts a user's phone once the user is near their chosen destination such as a gate, restaurant, or restroom. These alerts come from beacons placed throughout the airport. As the user passed one of these beacons, the app sent alerts notifying the user if they were close to their destination or provide directions to get to their destination (Bosch & Gharaveis, 2017).

Another technological advance that may benefit older adults is through a hearing loop. Hearing loops are a sound system that works with hearing aids or hearing implants to create clear sound. Cooper wire is connected to an amplifying device, like a microphone, to create a magnetic field. The hearing aid or implant has a telecoil within the device and can pick up the magnetic field. Once sound waves hit the magnetic field, the telecoil can pick this up, and the hearing device can tune the sound to what the individual needs to hear, instead of background noise. This is becoming very popular, (Ecklund, 2015; Frazier, 2019; Lipp, 2015), and will be able to relay information about gate changes, flight delays, or emergency information. One airport completed a study testing how well individuals with hearing devices could hear announcements. Before placing the loops in only 16.8% of respondents were able to hear every word or almost every word. Upon installing the hearing loop 83.4% of respondents were able to hear every word or almost every word (Ecklund, 2015). In Rochester, New York, there are over four dozen loops throughout various portions of the airport (Frazier, 2019). Other airports that

have implemented hearing loops include Gerald Ford International Airport, Minneapolis Saint Paul International Airport, Fort Wayne International Airport, and the Santa Barbara Airport.

Finally, another technological advance that is being tested currently is biometrics (Vora, 2020). Biometrics is designed to improve the identification of travelers at a faster pace. For example, in one of Singapore's airports, instead of scanning a boarding pass or a passport to check for identity, travelers would allow a machine to scan their faces (Vora, 2020). The purpose of this is to hopefully stop people from using fake passports or boarding passes to enter into flights and to detain people who are trying to get out of the country. An added age-friendly benefit may be that older adults do not have to wait as long to have their identification verified. While this is a very promising innovation some older adults may have a difficult time adapting to the technology. However, it is important to note that older adults are willing to learn new technology, as long as they have the support and understanding of instructions to do so (Vaportzis, Clausen, & Gow, 2017). These different examples of technological advances that are emerging are positive signs that airports are beginning to become an age-friendly environment.

Current Challenges in the Built Environment

There are some aspects of the built environment of the airport that older adult travelers may experience as challenging. One of these issues is older adults becoming fatigued when walking around in an airport (National Academies of Sciences, Engineering, and Medicine 2014). Even though there are firms like Corgan, who are working on making this change in some airports (Bunch, 2016), not all airports are built in the way to promote age-friendliness. The solutions offered by Corgan is a great example of promoting age-friendliness in the airline industry, however, it is unclear if other firms or airports prioritize the creation of an age-friendly environment. Another problem that older adults face in an airport, especially larger ones, can be

difficulty with wayfinding. To address wayfinding issues in large airports like Chicago O'Hare, Atlanta International Airport, and DFW International Airport is to address certain components of wayfinding. One of these components includes understanding current signage that is supposed to be directing travelers to the right terminal or understanding verbiage used on signs that could be difficult for older adults (Skift, 2014). This is also an issue Corgan is working to address, but is currently not seen in many airports (Bunch, 2016). Wheelchair services or other transportation services within the airport itself that can be easily accessible to older adults is also a step toward improving age-friendliness. However, it has been reported that some wheelchair assistants have made users feel awkward and degraded (Guerreiro et al., 2019). There have also been reports of older adults being unable to locate wheelchair assistants or who have felt awkward asking an assistant for help (Guerreiro et al., 2019).

Gaps in the Research

Overall, the extant literature bolsters support for age-friendly airport research, particularly that includes the voices of older adults themselves. While accessibility and wayfinding are important aspects of previous research, the question that remains unanswered is whether airports are missing additional environmental or service aspects that may promote age-friendliness.

One of the gaps that is if older travelers know what services are offered to them. If older travelers are aware of services, the literature does not describe if the services provided benefit older travelers or if they could be inhibiting and degrading of older travelers. Research suggests that some services have made older adults feel uncomfortable (Guerreiro et al., 2019), but the literature is lacking information on how travelers feel about the other current services that are offered to older travelers, outside of wheelchair assistance. However, the literature does indicate

new services and technological advances that could benefit travelers in the future (Liu, Harrington, Melgen, & Sanford, 2016; Weed, 2019), which does give some indications that older travelers may not be satisfied with the services that are currently in place. (Department of Transportation, 2019).

Finally, the literature is largely lacking recommendations on what services or accommodations should be made available to improve their travel experience from the perspective of older adults themselves. These recommendations may include new technological services, better ways of relaying information to travelers, changes in layout of airports, or even changes in transportation in and around airport property. However, is it crucial that end-users (i.e. older adults) are given the opportunity to share their experiences and recommendations for age-friendly airports.

CHAPTER 3

METHOD

The aim of this research was to explore the age-friendliness of air travel for older adults and to examine potential solutions that the airport and airline industry could provide for older travelers. Previous research suggest that there are multiple benefits for older adults who choose to travel. However it remains unknown to what extent current services and policies promote the age-friendliness of air-travel for older adults. By exploring the perspectives of older adults and the age-friendliness of airports, we may better understand the services that are needed to enhance their travel experiece and potentially encourage air travel in later life.

Research Design

This qualitative study aimed to explore the current air travel experience of older adults, specifically looking at the age-friendliness of airports. The following research questions were included as part of this study:

Research question 1: What are the experiences of older adults related to the age-friendliness of airports?

Research question 2: What are the experiences of older adults with technology as it relates to the airport experience?

Research question 3: What recommendations do older adults have for age-friendly airport design?

Recruitment and Sampling

Approval by the University of Texas at Arlington Institional Review Board (IRB) was obtained prior to any participant recruitment (#2020-0781.1). A total of 17 participants were recruited for the study. However, one participant dropped from the study due to scheduling conflicts. A final sample of sixteen older adutls participated in the study (N = 16). Recruitment occurred during July 2020. At this time, the spread of the Cornoavirus (COVID-19) was growing in the U.S. Due to the pandemic, many older adults were staying at home to protect their health. In order to protect the health of participants, all study recruitment and study procedures occurred online. IRB approved flyers about the research study were emailed out to the administrators of two Facebook groups with predominantly older members. For one of the Facebook groups, the researcher presented information about the study in a Zoom meeting with the administrator and members. Members of both groups were encouraged to reach out to the researcher if they were interested in the study. Some participants also contacted friends or other Facebook members to promote the study.

Included in the flyer was information regarding inclusion criteria and a brief description of the study. Inclusion criteria included; 1) age 55 and older; 2) have traveled or planning on traveling by plane in a year time span; 3) has a cellphone or computer that can be used to complete interviews through Microsoft Teams; 4) does not have any cognitive limitations; and 5) has English proficiency. As participants expressed interest, the researcher contacted potential participants over the phone to verify that they qualified in the study. Potential participants were cognitively screened by using Callahan's six-item cognitive screener to determine i the presence of any cognitive limitations (Callahan, Unverzagt, Hui, Perkins, & Hendrie, 2002).

Data Collection

Data were collected by completing verbal interviews through Zoom. Participants had the option of accessing Zoom with a computer or phone. Before the interview, participants were sent a QuestionPro link that included the consent form and demographic questionnaire. Participants first read and checked to acknowledging and consenting to be a participant in the study. If a participant checked "yes" then the survey continued to a brief demographic questionnaire. Participants were informed that the demographic questionnaire was optional. See Appendix A for demographic questions. Once participants notified the researcher regarding completion of the consent form and answered demographic questions if desired, the interview was scheduled by the researcher.

Participants were asked if they were in a comfortable place to discuss questions related to the age-friendliness of airports along with their experience at airports. The researcher reminded the participants of the study procedures related to confidentiality and privacy. Participants were informed that the interview should take no more than an hour. Participants were reminded that the interview would be voice recorded and explained how the transcription process would involve the use of a professional transcriptionist through rev.com. A semi-structured interview guide was used to ask participants to discuss their preceptions of the age friendliness of airports along with their experience in airports. See Appendix B for the IRB approved interview guide. Probing questions were also used to gather more specific details. At the end of each interview, particpants were reminded that the researcher would make a follow up call for member checking.

Data Analysis

Upon receiving the final product from rev.com, the researcher began a six-step thematic process (Braun & Clarke, 2012). The rationale of using a six-step thematic process is to allow the researcher to analyze data to broader conceptual issues such as age-friendliness (Braun & Clarke, 2012). This process first began by reviewing transcriptions and recordings of the interviews to gain familiarity with the data. This included going back and listening to recordings to ensure that the transcription was accurate. Next, codes were generated based on the research questions followed by categorizing the codes into themes. Next, the researcher further defined themes and named them to appropriately go with the correct research questions and to ensure that the themes corresponded with the thoughts of participants. The initial themes were reviewed by a faculty advisor for accuracy. The faculty advisor and researcher met to discuss and reach consensus on the final themes.

Trustworthiness of the Research

To ensure the validity of this study member checking occurred individually for all participants (Creswell & Miller, 2000). The purpose of member checking is to provide participants an opportunity to review findings and to determine if an answer provided by the researcher could have been negatively misinterpreted by the researcher (Creswell & Miller, 2000). Upon completion of the thematic analysis, the researcher reached out to participants to discuss the findings. Participants received a copy of their transcription, along with findings from the analysis. Participants were asked to reach out to the researcher with additional comments about their interview and/or thoughts about the study findings. There were no differences between the participants' and researcher's conclusions.

CHAPTER 4

RESULTS

Amon the 16 participants, 87.5% of them were white and 93.75% were females. Ages of participants ranged from 59-79 years-old with a mean of 71.00 (SD =5.00). While education ranged from high school education to graduate degree, the majority of participants had at least a college degree, with a mean of 4.62 (SD=2.50). More than one third of the participants were married/cohabitating (37.5%) or were divorced (37.5%). More than half, (56.25%) reported that they lived alone. 43.75% of participants took 3-5 domestic trips per year and 46.67% of participants reported that they took 1 international trip per year. Since recruitment for this study occurred during the Coronavirus pandemic, there was only one participant who was actively traveling during the time this study took place.See Table 1 for demographics.

The thematic results were divided up by three sections to answer the main research questions as presented in Chapter 3. These three sections include: experiences of age-friendliness in airports, experiences of technology in airports, and recommendations for improvement of airports.

Table 1

Demographic inforamtion of the participants (N =16)

Variables	Mean (SD)	Percentage (%)	Range
Age	71.00(5.00)		59-79
Sex			
Male		6.25	
Female		93.75	
Race			
White		87.50	
Hispanic, Other		6.25	
Other		6.25	
Education	4.62(2.50)		2-6
Marital Status			
Never Married		12.50	
Married/Cohabitating		37.50	
Widowed		12.50	
Divorced		37.50	
Living Arrangement			
Live Alone		56.25	
Live with Spouse/Partner		37.50	
Live with Children, Without		6.25	
Spouse/Partner			
Frequency of Domestic Travel Annually			
1-2 Times A Year		18.75	
2-3 Times A Year		25.00	
3-5 Times A Year		43.75	
5+ Times A Year		12.50	
Frequency of International Travel Annually			
0 Times A Year		20.00	
Once A Year		46.67	
2-3 Times A Year		20.00	
More than 3 Times a Year		13.34	

Experiences of Age-Friendliness of Airports

The experiences of older adults related to the age-friendliness of airports were the primary focus of this study. Participants shared their individual, unique experiences in various airports in cities across the world, including Dallas, Atlanta, and London. Thematic analysis yielded three themes: mobility, TSA, and the built environment. Although most of the participants shared negative experiences, participants did report some positive experiences related to the age-friendless of the airport.

Mobility

Mobility included walking long distances, access to wheelchair assistance, and walking through the jet bridge to board a plane. Participants noted that having access to wheelchair assistance did promote an age-friendly environment. However, there were differences between participants regarding how well wheelchair services appropriately meet the needs of travelers. Some participants reported that the wheelchair assistance program was adequate and recommended no changes. For example, one participant spoke about a time she witnessed a man who needed wheelchair services:

> "I saw a gentleman the other day when I was coming, that was in a wheelchair. He was much older than me, which I don't feel like I'm that old anymore, but he had to have been in his eighties and he did have a wheelchair. They got him down, they did everything they should have done and it was perfect. It was, I could just see that they were. – P11, 68-year-old, female

Other participants shared that it was a good program but needed improvement. One participant noted that her friend was left alone, grouped with other travelers with wheelchairs for hours while waiting on a flight:

"They put all the wheelchair people together in an enclosed circle area and they can't leave. So she can't like run around and shop and look at all the interesting stores. It isolates some, you know, make some stand out. I think it's stupid. So I love Heathrow because there's so many restaurants and so many shops, but if you're in a wheelchair or on crutches, disabled of any type, you're stuck with all the other people, you know what I'm saying? It's bad." - P7, 71-year-old, female

One aspect of mobility that did not promote age-friendliness was the long distances participants reported that they had to walk in the airport. Some participants explained how they struggled with walking long distance:

"I think it's Charlotte. It's just God awful. They don't have carts and trains to lug people from one place to another, you know, Atlanta in doubt, DFW, once you learn the train system, you can get from any terminal to another super fast. And sometimes their rolling walkways are not working. Gatwick in England is like that and Charlotte, you walk forever to get from, even for me, it is difficult." - P7, 71-year-old female

Another participant shared that even though she didn't have any issues walking the long distances, she reported understanding why others would: "The distance can be a problem if, if you have to walk slow or you not allowed enough time, but flights that yeah. That can be a big issue." -P6 77-year-old, female. Participants who reported struggling with walking long distances

expressed a desire for services that could help with transporting travelers around, particularly in large airports like Atlanta International Airport and some international airports:

"Some of, some of these airports in big cities that were built a long, long time ago and have very little land, you know, it's impossible really to figure them out. I described the Atlanta airport where you, it's so big that you have to ride this train to go to another terminal. You couldn't walk. And you know, unless you had over an hour to make a connection. So that's, that's a real problem. And I don't know how you could fix that either, unless if they had more of those electric carts available, that, you know, a whole lot more so that you could come across them easily and say, please take me. I won't catch my plane otherwise." -P10, 79-year-old, female

Similarly, another participant shared:

"Some of the international flights were really long distance to walk from when you're, when you're changing planes at the airport where you're just doing a stop over to change planes that, that the distance from where your gate is where you come in and the gate where you're going to be flying out of can be really, really far away...I would say that that's probably the biggest deterrent for older people to travel. I mean really, really long distances. I mean, some of them, the airports have signs up that say, you know, it's like a 15-minute or a 20-minute walk to these gates. And most of the time I've had to walk it... I think it was in Amsterdam. I came down the escalator and there was an employee there in a little electric cart. And she said, 'Would you like a ride to your gate?' So which I, I really appreciated cause it was a long way." -P3, 75-year-old, female.

Some participants also noted their difficulty came from the unevenness of the floors. For example, one participant who shared her perspectives about potential falls at the airport:

"It's, one of the problems with DFW and really, and truly it's the only airport we've been in that has that issue is that in a couple of the terminals, they have slight grading of the walkway and it goes downhill or uphill. And it's like a little slope and you don't find that anywhere else. You're not, I mean, Reagan, O'Hare, California, you don't find it anywhere else. And that grading of the floor makes it very hard. If a person is using a cane, if a person is using a walker, if a person is using anything because you're thrown off balance. And that grading should not be there. It should be a flat floor." -P5, 73-year-old, female

Finally, several participants noted that many additional shops or restaurants made it difficult to navigate through if they are using a wheelchair, making it difficult to have access to certain amenities at the airport:

"There are a lot of shops in airports. They frequently are not wide enough for anyone in a chair or a with a walker. And they are very tight and it's sometimes if there's if we're hungry or something, we have, I have to look and see if I can get it in. I have to look and see if I will fit...I just think that the you've got to look at mobility. You've got to look at ease of understanding what's coming across.   -P5, 73-year-old, female

TSA

Concerns with TSA included: standing in long lines, feeling rushed by TSA agents and other travelers, and both negative and positive treatment of older travelers from TSA agents. Participants discussed the difficulties they faced while standing in line to pass through TSA. One

participant noted how she purposefully chose TSA Pre-Check to avoid standing for long periods due to an injury she obtained in the past. "Standing in line at the regular TSA line is a challenge for me. So that's why I like pre-check for the convenience." -P1 70-year-old, female.

Some participants also noted that they have felt rushed by TSA agents and other travelers. One participant described that she felt "jostled" by other travelers while going through TSA.

"That's a lot for a senior citizen you, because you're being jostled and pushed by families with children and businessmen are in a hurry with their briefcases and you're struggling and not able to balance well on one foot while you're trying to take a shoe off. And people are losing patience with you because you're holding up the line."-P4, 69-year-old, female.

One participant reported that she and her husband were rushed by TSA agents as they tried to make a connecting flight for an international travel.

"You come from international flights and you have to go through, first you have to, you know, get out of the plane and end up down in the past control and that can take forever to wander through there and they're not really helpful. They are, most of them, they are *clap clap clap* it's just like that". -P12 68-year-old, female.

Finally, there were reported differences regarding how older travelers were treated by TSA agents. Some participants felt that TSA agents were very accommodating to them by allowing them to take their time while in line. One participant shared how a TSA agent allowed her to go through security even with her shoes on:

"I had a different pair of sandals on, and I go through the, just the walkthrough thing because I have global entry and it, and it beeped and they said, my, I thought my buckles were plastic. No, they're metal…the TSA people rather than go get me a chair and make me sit in and everything said, oh just walk over here through x-ray." – P7 71-year-old, female.

However, despite this, several participants reported that TSA agents were very rude toward them and they expressed that the TSA were also rude toward other older travelers. One participant shared that she felt targeted by TSA agents because she was an older traveler.

"It's like they want to pick on the senior citizen. It's like, everybody else is 45-50, they go through fine and as soon as the senior shows up, TSA picks on you. I've seen it happen more times, you know, it's just like, well, they don't know what they're doing. Maybe they don't have to go on that flight." – P5, 73-year-old, female.

Built Environment

The built environment included: different experiences with understanding signage, difficulty hearing announcements, having plenty of restrooms, and different experiences with seating at gates. Some participants expressed that they had difficulty understanding the signage or where to go, particualary, in larger airports and international airports. One participant shared her personal experience of trying to understand the signage she has seen in airports. "Signage is confusing. I have not signage that says, you know, in so far as East, West, South or North it boggles, my mind signage that is geared for technology is challenging." -P15, 68-year-old, female. However, despite some participants described their difficulties with signage, other participants noted that the signs appropriately met their needs. Many of these participants

specifically spoke about the electronic boards seen throughout airports in the U.S. and internationally. One participant spoke about her thoughts on the signage she came across while traveling.

> "Actually, DFW was a pretty good airport. I don't mind it at all. It's well signed and, you know, it's, it's logical, but some of, some of these airports in big cities that were built a long, long time ago and have very little land, you know, it's impossible really to figure them out." -P10, 79-year-old, female

Participants spoke about their difficulties understanding announcements made by gate staff and by the airport. One participant described how her mother almost missed her flight because she didn't hear the gate change.

> "And they made an announcement, but my mom's hard of hearing...She almost missed the flight. It just so happens some gate agents are sitting there and in court and, you know, and she was, you know, so old, so elderly. And they asked her, and that's when the gate agent said, oh no, no, that's been moved"- P1 70-year-old female

Some participants spoke about their difficulty locating appropriate seating, particualary by the gates. One participant described that she frequently had to sit on the floor because she couldn't always find seating.

> "I don't always find that there is enough seating at the waiting areas out at the gate side. And I guess, you know, some people are young enough that they sit on the floor. I've been known to do that. I can get down just fine. Getting up is not quite as easy. I think I can do it, but the body says, no. So the seating, even if it were just a bench, not a real chair, but a bench to sit on would be helpful".-P6 77-year-old, female.

However, some participants felt that airports provided appropriate seating throughout the airport and at the gates. One participant explained how she could always find seating in pretty much any airport she went to.

"There always seems to be plenty of seating around in the gates and all most places also have special seating set aside for handicap. I mean, I don't need that. I don't use it, but they do and a lot of places at the gates, they have seats that are specifically set aside for handicap people." -P3 75-year-old, female

Finally, some participants noted that they had difficulty finding restrooms and explained that the current number of restrooms was not enough. One participant explained that she chose to walk further to find a restroom that wasn't always crowded with other travelers.

"You get off of every flight and the very first bathroom, you know, there's going to be a line. Well, now I learned a long time ago. I just keep walking till I find the next bathroom. But I don't know if your app, if there was a way that you could literally set it up so that you knew where there were stalls open instead of 30 women standing in for 12 stalls"-P8 66-year old, female.

Experiences with Technology in Airports

The experiences of older adults related to technology in airports was a secondary focus of this study. Participants shared their individual, unique experiences with different types of technology within airports and expressed their thoughts of using additional technology that may emerge in airports. Thematic analysis yielded three themes: apps, kiosks, face scanner

Apps

Participants shared their experiences of using apps on their phones, particularly airline apps like American Airlines, Southwest, and, United. One participant shared how comfortable she was with the Southwest app. "I do use a Southwest app and I have used the United app cause I've tried, I've traveled United a couple of times recently and I have used not so much the app".- P11 68-year-old, female.

Some participants also noted that they used Uber, Lyft, or other rideshare service apps to get them to and from the airports:

"I always get a taxi or an Uber. In addition to that, I have arranged, I've recently relocated several times here in the city of Philadelphia. And I have deliberately relocated near mass transit in case something happens with bad weather and I can't get an Uber or a taxi. So I've arranged it so that since, I have a roller bag, if I absolutely had to, I could walk to max transit, get on the local train and get to the airport and I, and I could do the reverse."- P1 70-year-old, female

While the majority of participants shared similar experiences, some participants mentioned that they were not comfortable using airline or airport apps. One participant explained that she thought technology like apps, were taking away the human interaction that many older adults appreciate.

"And so these sort of one off apps like schedule a wheelchair. I would I, you know, I don't see a purpose for it because you can schedule a wheelchair when you make your reservation. And, you know, that's what I started doing for my mom now. So to have a separate app, I don't get it. And not only that, you can also have a human interface with

the person at the ticket counter, with the person at the curb who takes your bags with the flight attendant on the flight,"-P1 70-year old, female

Participants that did not use apps, also shared that they felt comfortable using paper boarding passes because that is what they were comfortable with and were uneasy about using apps on their phone. "I'm usually somebody that prints out what I've ordered online. I'm still wanting to have that piece of paper and not, and not trusting showing my phone to somebody that there's something on the phone."-P4 69-year-old, female.

Kiosks

Participants shared their positive experiences while using kiosks in the airport. These kiosks were found in baggage check and customs for international travel. For example, one participant shared her experience when she used a kiosk at the baggage claim.

> "So you're kind of forced to check it. Checking the bag processes once again, going through the kiosk. One more line to stand in. A lot of them. How do you print out your own bag tag now and have to put it on your bag and put your bag on the conveyor belt once again? I mean, it's, it's, it's just not user-friendly for people who might be limited in strength or, or technology, both of those things are very difficult." -P9, 59-year-old

Some participants shared that they did not feel comfortable using kiosks in airports. One participant shared that she felt this way because she felt the kiosks could be confusing at times.

> "I'm usually somebody that prints out what I've ordered online. I'm still wanting to have that piece of paper and not, and not trusting showing my phone to somebody that there's something on the phone."-P4 69-year-old.

Face Scanner

One piece of technology that was mentioned as a new technological advancement being placed in airports are biometric face scanners. The literature explains that biometric face scanners were in testing and not for widespread use yet. However, some participants shared that they have seen and used these face scanners in their previous travel. One participant who used the face scanner, shared that she felt it was easy to use and would be beneficial to have in the future."I think that would be easy just to go there and have them scan your face and everything is fine. Yeah. I would like that."-P12 68-year old, female

Some participants did use a face scanner in the past, but did agree it would be a technological advancement . One participant shared that she thought the idea of using a face scanner would be beneficial for older adults as it would ease the experience. However, this same participant also shared a concern from a friend's experience when the face scanner did not recognize him, due to him having a darker skim complection. This participant shared that in order for face scanners to work, they have to be able to recognize travelers from different racial and ethnic backgrounds:

> "I've heard a lot of, I happen to have a lot of black friends, so I've heard that there is a problem and they have identified it. Obviously, the algorithms were all written by a bunch of geek guys, which unfortunately just happened to be white geeks and they're failing, they're not very good with, especially male black faces."- P7 71-year-old, female.

Recommendations for Age-Friendly Airports

Based on the experiences of older adults, recommendations for areas of improvement were given by participants. Thematic analysis yielded three themes: policy changes for TSA, training for airport staff, and access to electric carts.

Policy Changes for TSA

As participants were sharing their experiences about TSA, several recommendations emerged related to policy changes. Specifically, participants shared the idea of having a separate line specifically for those who need additional assistance going through security. One participant shared that the separate line shouldn't be specifically age defined as other participants shared. This participant shared that the line should be only for those who need extra time and allow those who are in a rush to go through TSA quickly. Some other participants also had similar opinions.

> "I can understand if they were to have a line that's like for people that are in a hurry in a line for people that have got more time, if you're not in a hurry, go through this line, if you really need to get to your flight, you know, like yesterday, go through this line. You know that to me seems a little bit more plausible. I don't know." -P14, 70-year-old female.

> "But then again, I can understand where that's a hassle because you're pulling people out to go through a separate line. And I don't know if that's fair to the people that are in the line waiting their turn." -P11 68-year-old, female.

Training for TSA

While participants discussed their concerns with TSA, some participants shared that an appropriate recommendation would be training on how to treat older adults as they go through TSA. As one participant shared her personal experience she had with TSA, she brought up the recommendation for increased training for TSA.

> "So, you know, it's just like, okay, and that's it's training, it's hiring enough people. It's, one of the problems with DFW and really, and truly it's the only airport we've been in that has that issue is that in a couple of the terminals."-P5, 73-year-old, female.

Electric Cart Access

As participants discussed their various mobility concerns and it's relation to the age-friendliness of airports, many participants felt that if they had access to the electric cart service, that many of these problems would be solved. Some participants noted that the electric cart would be specifically better for her, rather than using a wheelchair, since it is taking up a wheelchair by someone who doesn't need it. Other participants shared similar opinions.

> "I really think the electric cart solution is something that would be really, really good. I think that's a real problem. I think that the, to me, that's the biggest problem is how far you have to walk in a lot of these places."- P3 75-year-old, female.

> "They should have either carts or rolling sidewalks. Lots of airports have those movers people movers, lots of airports. Don't I can't remember, you know, I can't remember all these airports, but there was one of the ones in Detroit and I don't know which one I was like, you gotta be out of your freaking mind. Can I walk? You know, I can't run period." - P7 71-year-old, female.

CHAPTER 5

DISCUSSION

Mobility

Previous literature suggests that some adults may become fatigued while walking long distances (National Academies of Sciences, Engineering, and Medicine 2014). The literature also suggests that travelers should simply leave early to arrive at their gate, which should leave plenty of time for older travelers to get to their gate on time while getting in breaks (Haughney, 2012; Karimi, n.d.). While several participants did mention they tried to be at their gate early, there were some instances where that was not possible. Some participants explained that they either drove themselves to the airport or they had family drop them off. For the participants who drove themselves to the airport, some noted that they were tired just getting to the airport from the parking lot, due to walks to shuttle buses and difficulty putting bags into shuttles with no assistance from shuttle drivers. While this is consistent with previous literature, if travelers are having to stop frequently, it could be possible that leaving early may still not be enough time for older travelers. Last-minute changes may occur with their flight, causing travelers to be in a rush. If an older traveler is in a rush, the likelihood increases for an older adult to fall causing injury and a decrease in autonomy and dignity. Two participants noted that they either witnessed a fall or were the victim of a fall in an airport, leaving one of the participants in an arm sling. Falls can be extremely dangerous to older adults. Falls is the leading cause of fatal injury and is seen as the most common related trauma hospital admission for older adults (NCOA, n.d.). Regardless of injury, falls can change the way older adults look at life. It causes older adults to limit activities due to fear of falling, which could cause other sever concerns including isolation, depression, and physical decline (NCOA, n.d.)

Participants who were frequent international travelers reported that they sometimes felt rushed to be at their next gate for their upcoming flight. Participants noted that airports like Atlanta International, DFW International, and Chicago O'Hare can be stressful to navigate, especially trying to get to a connecting flight. This is due to the rather large size of these airports and the multiple terminals and gates. As some participants shared, they simply felt tired or did not feel they would make it to their connecting flight. While fatigue is a problem stated in the literature (National Academies of Sciences, Engineering, and Medicine 2014), the concern of older adults missing their flight is not mentioned in the literature. Older adult feeling that they cannot make their connecting flight suggests that airports can do more to promote an age-friendly environment, particularly in regards to mobility.

TSA

Research suggests that older travelers may become fatigued waiting in line to go through security (National Academies of Sciences, Engineering, 2014), especially if the line is very long, which is often the case in larger airports. While the literature does discuss the 2012 TSA policy change that allows travelers 75 years and older to keep their shoes and light jackets on, some participants mentioned that they would appreciate having the age limit lowered so they could benefit from this policy. Participants felt this way due to the heightened rush they feel to get through security and the treatment they receive by TSA agents for taking up time.

Regarding the treatment of older adults in airports, the literature provides little information about the occurrence of this being an issue for older travelers. However, the literature does provide some evidence that certain travelers are not treated fairly, particularly, minority passengers (Clement, 2019; Wattanacharoensil & Sakdiyakorn, 2016). While one article did note that TSA agents treated travelers differently based on age (Clement, 2019), the

article did not go into detail as to why this is. The same authoritative demeanor participants

shared they experienced by TSA agents, has been noted by other travelers along with the shared

experience of invasive pat-downs (Clement, 2019; Wattanacharoensil & Sakdiyakorn, 2016).

Based on the evidence provided by the literature, it is possible that older travelers feel their

dignity being diminished and human rights not being respected by TSA staff (Clement, 2019).

Built Environment

Currently, there are companies that are working to reduce the types of problems

identified by older travelers regarding the built environment of airports. Previous literature

suggests that these types of changes are what airports need to reduce anxiety (National

Academies of Sciences, Engineering, and Medicine 2014; Skift, 2014). One study suggested the

use of a Wayfinding Accessibility Audit Checklist (Harding, 2018). This checklist was based on

the results of the Airport Cooperative Research Program (ACRP) 171. ACRP 171 states that the

audit provides instructions for airports to create "a signage and services gap analysis as well as a

wayfinding plan; the aspects of visual, verbal, and virtual wayfinding information to the

passenger with directions; and methods that would allow aging travelers and passengers with

disabilities to comfortably utilize technology for wayfinding" (National Academies of Sciences,

Engineering, and Medicine 2017). One article also pointed out the principles of universal design

that are supposed to provide support for all travelers, but particularly older travelers and travelers

with disabilities. These principles include equitable use, flexibility in use, simple use, perceptible

information, tolerance for error, low physical effort for the traveler, and size and space for

interaction (Harding, 2018).

`   Based on the results of this study, one question that arises is if these changes are

happening (Bunch, 2016). Even though the literature is suggesting that change are occurring

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(Bunch, 2016) and the tools are there to allow changes to begin, it is difficult to tell whether this is the case, based on participant's experiences. However, it is important to note that participants felt changes in this category was not likely. For example, one participant noted that even though the electronic signs are small, if you made them larger, the screen would be too big. Since some participants feel change cannot occur or are not aware of the different aspects' changes are attempting to be made, it could cause some older travelers to feel undesired in airports.

Experiences of Technology in Airports

The literature discusses the increasing technological advances coming to airports. These include mobile apps that can be used in airports and biometric face scanners (Bosch & Gharaveis, 2017; Harding, 2018; Vora, 2020). Based on the results of this study, participants shared that they would be comfortable using this new technology. There is literature evidence to suggest that older adults are comfortable using and learning new technology (Nash, 2019; Peek et al., 2016; Vaportzis et al., 2017). However, some literature suggests that older adults are not comfortable using and understanding technology in airports like kiosks (Skift, 2014), which is slightly different than the findings from this study that found some participants did have difficulties and some did not. Since most older adults are comfortable using and learning new technology, this study suggests that the increase in technological advances promote independence and autonomy for older adults in airports.

Recommendations for Age-Friendly Airports

Participants shared several recommendations the airports could put in place to increase the age-friendliness of airports. The first one of the recommendations was a separate line for those who need additional assistance, instead of it being focused around age. While the

recommendation is one that was mentioned several times, the literature has noted that there are separate lines for older travelers (National Academies of Sciences, Engineering, and Medicine 2014), however, it seems that some older travelers may not be aware of this service or are unaware of their location. The literature also explains that airports already have something in place for those who have difficulty standing in line or require additional time to go through security (Hill, 2017) Based on the results of this study, participants were not aware of additional services that could help them, besides electric carts and wheelchair assistance if requested. If this information was readily available, problems like difficulty understanding signage, difficulty hearing announcements, and mobility concerns, could be resolved.

Second, participants recommended increase training for TSA agents. Since the literature provides information regarding the mistreatment of travelers regardless of age, training of TSA agents is a recommendation that should be taken into consideration. One study noted that TSA agents who were hired received little formal training (Clement, 2019). This same study also noted that security agents in other countries that did provide technical and practical application training saw improvements of security agents following appropriate guidelines and the motivation to do their job correctly (Clement, 2019). While it is suggested that these types of trainings should be implemented in the U.S, training could also include discussing the aging process and describing the thought process of older travelers as they are preparing to go through security.

Along with training for TSA agents, training for wheelchair assistants is also recommended based on the evidence from the literature. Training could also be provided to remind wheelchair assistants to promote independence and autonomy for travelers. This independence can encourage older adults to continue to receive those physical, mental, and

social benefits seen from traveling. Policies could be put into place on how older adults should be treated by staff members throughout the airport. This could include staff members asking older adults if they need help or in need of directions.

Finally, participants recommended the ability to access electric cart services. While reviewing the literature, this is also a service that is already put in place (Hill, 2019; US Department of Transportation, Delta Airlines, and Newark Airport). While the literature explains that electric carts are available for those who identify as having a disability, it does not specify about age (Delta Airlines, n.d.; Newark Liberty International Airport, n.d.; U. S. Department of Transportation, 2017). One article did note that older travelers do have the right to ask for electric cart services at baggage check (Hill, 2017). Based on the comments from participants, it seems that this service is not common knowledge to older travelers, as several participants shared that they did not know how to request electric cart services. This could be a potential barrier for older adults to access this service, when they truly need it, even if they do not have a disability(Guerreiro et al., 2019)

Limitations

The results of this study should be interpreted with caution. The majority of participants in this study were white females, who were well educated and well-resourced. Future studies should include a more diverse sample, including persons from broader socio-economic backgrounds. Due to the pandemic, travel for older adults has significantly decreased, due to public health concerns related to COVID-19. Therefore, this may have resulted in some participants not qualifying for the study since they did not travel in the time frame needed to participate in the study. Finally, participation of this study required older adults to have access to Zoom, either by phone or computer. For older adults that do travel, but either do not feel

comfortable using Zoom, are unaware of how to use Zoom, or do not feel comfortable using recent phone and computer technology, this may have impacted their willingness to participate.

Implications

The present study has implications for research in the future. First, future research should explore possible gender, racial, educational, and socio-economic background differences in experiences of age-friendliness of airports, experiences of technology in airports, and recommendations on how to improve age-friendliness. Second, future research could be completed to examine further the thoughts of age-friendliness of airports specifically with older baby boomers compared to younger baby boomers. Third, since the study showed that there were services airports already provided, such as access to electric carts, separate TSA lines, and TSA security accommodations, future research could be completed to determine what needs to change on the airport and TSA's end to communicate these services to older travelers effectively. Fourth, future research could also allow older travelers to provide information on these current services and allow older travelers to provide their thoughts regarding the improvement or elimination of these services. Fifth, since the study also discussed increase training for TSA agents, future research should be completed to discover what specific pieces of training would be appropriate for TSA agents and how these pieces of training compare to the ones received by international security agents. Finally, even though the literature showed evidence of airports making changes to their built environment, participants of this study reported that this was not evident. Future research could look into a specific airports recent changes to age-friendliness, if any, and allow older adults to provide feedback if these changes can promote autonomy and dignity for older travelers. Since this study occurred in the middle of a global pandemic, future research could include how services to improve age-friendliness have been affected by the

Coronavirus and how possible policies have changed to promote social distancing and overall health of travelers.

Implications for Social Work

Though social workers are not usually seen working in an airport environment, it is still important that social workers advocate for travel policies and programs that support the dignity and worth of older travelers. In particular, gerontological social workers are committed to ensuring older adults dignity, and autonomy in any environment. One area that social workers could do to positively impact age-friendly airports is by joining an airport advisory committee. These committees discuss a variety of topics including aviation projects with city councils, facilitate conversations with community members regarding areas of improvement in airports, and third-party contracts to be made by the airport. Social workers can provide a unique insight into advocating for change to promote autonomy, dignity, and health within these committees. Social workers can also work with local governments and the local Area Agency on Aging to ensure that older adults have access to appropriate services and supports that promote an age-friendly travel experience, facilitate conversations with community members and airports to discuss the unique strengths and challenges of older adults, and to continue to advocate for older adult travelers.

Conclusion

This study provided unique insight into the experiences of the age-friendliness of airports from the point of view of older travelers. Findings suggest that there are several areas of needed improvements to promote age-friendly airports related to mobility, the TSA, and the built environment of the airports. This study also provides recommendations to increase age-

friendliness by creating policy changes for TSA, implementing training for TSA agents, and the accessibility of electronic carts. Finally, the study also reviewed older travelers' experiences with technology in airports and received feedback on potential and current technological advancements for airports such as biometric face scanners, kiosks, and mobile apps.

While this study has its limitations, this study provides a foundation for future research related to age-friendliness of airports, including the use of innovative technology. The study also sheds light on the value of the social work perspective in transportation research. Previous studies suggest that interprofessional collaborations which include social workers may help to create more holistic recommendations for transportation policy and practice (Fields et al., 2020). The core values of social work are also well-aligned with the core tenets of age-friendliness: autonomy, health, and dignity. For older adults to achieve autonomy, dignity, and health in the different environments they interact with, social workers can promote self-determination and advocate for those who cannot speak for themselves. Previous research demonstrates that social workers can also connect older adults to their environments through an ecological perspective (Barusch, 2013). This ecological perspective can interconnect older adults to programs and environments that allow older adults to achieve the core tenets of age-friendliness. Finally, this study was designed to provide older adults an outlet for their voices to be heard. Through the analysis of their experiences, their desires for change are amplified and should be taken into consideration for future age-friendly airport initiatives.

References

AARP. (2019). *2019 Boomer Travel Trends*. (November 2018), 1–47. Retrieved from

    https://www.aarp.org/content/dam/aarp/research/surveys_statistics/life-leisure/2018/2019-

    boomer-travel-trends.doi.10.26419-2Fres.00263.001.pdf

Airlines, D. (n.d.). Accessible Travel Services. Retrieved from

    https://www.delta.com/us/en/accessible-travel-services/overview

Airport, D. I. (2005). DFW International Airport to Open International Terminal D on July 23.

    Retrieved from http://dfwairport.mediaroom.com/DFW-INTERNATIONAL-AIRPORT-

    TO-OPEN-INTERNATIONAL-TERMINAL-D-ON-JULY-23

Airport, N. L. I. (n.d.). Accessibility Services at Airports. Retrieved from

    https://www.newarkairport.com/at-airport/accessibility-services

Balderas-Cejudo, A. & Leeson, G. (2017) Leisure Travelling and its Link to an Active and

    Healthy Ageing. MOJ Gerontology & Geriatrics, 1 (4): 00024.

Barusch, A.S. (2013). Age-friendly cities: A social work persepective. *Journal of Gerontological*

    Social Work, 56 (6), 465-172. doi: 10.1080/01634372.2013.826563

Bonilla, J. (n.d.). American Airports: No Place For Old People. Retrieved from

    https://judibonilla.com/american-airports-no-place-old-people/

Bosch, S. J., & Gharaveis, A. (2017). Flying solo: A review of the literature on wayfinding for

    older adults experiencing visual or cognitive decline. *Applied Ergonomics*, *58*, 327–333.

    Retrieved from https://academic.oup.com/ageing/article/42/6/758/46793

Braun, V., & Clarke, V. (2012). Thematic analysis, APA Handbook of Research Methods in

Psychology. *APA Handbook of Research Methods in Psychology, Vol 2: Research Designs: Quantitative, Qualitative, Neuropsychological, and Biological.*, Vol. 2, pp. 57–71. https://doi.org/10.1037/13620-004

Bunch, J. (2016). As Baby Boomers Age, Is Architecture Failing Them? Retrieved from https://www.bisnow.com/dallas-ft-worth/news/commercial-real-estate/as-baby-boomers-age-is-architecture-failing-them-61554

Callahan, C. M., Unverzagt, F. W., Hui, S. L., Perkins, A. J., & Hendrie, H. C. (2002). Six-Item Screener to Identify Cognitive Impairment among Potential Subjects for Clinical Perkins and Hugh C . *Medical Care*, *40*(9), 771–781. https://doi.org/10.1097/01.MLR.0000024610.33213.C8

Carlisle, A. (2015). Airport business resilience: Plan for uncertainty and prepare for change. *Journal of Airport Management*, *9*(2), 118–132.

Clement, R. N. (2019). *Airport Security and TSA : A Case Study Analysis* (Publication No 27542626) Northcentral University School of Business.Proquest Dissertations Publishing.

Corgan. (n.d.-a). Delta Airlines Terminal C, LaGuardia Airport. Retrieved from https://www.corgan.com/projects/lga-laguardia-airfield-reconfiguration/

Corgan. (n.d.-b). Terminal D- Dallas/Fort Worth International Airport. Retrieved from https://www.corgan.com/projects/terminal-d/

Corgan. (n.d.-c). Terminal Renewal and Improvement Program (TRIP) - Dallas/Fort Worth International Airport. Retrieved from https://www.corgan.com/projects/terminal-renewal-and-improvement-program-trip/

Creswell, J. W., & Miller, D. L. (2000). Determining validity in qualitative inquiry. *Theory into Practice*, *39*(3), 124–130. https://doi.org/10.1207/s15430421tip3903_2

Desjardins, J. (2017). This graphic shows how the US population is ageing. Retrieved from https://www.weforum.org/agenda/2017/11/this-mesmerising-animation-shows-how-the-us-population-is-ageing

Ecklund, T. (2015). Hearing Loop Systems in an Airport Enviornment. https://doi.org/10.1016/S1607-551X(09)70466-8

Ferrer, Jordi G.; Sanz, Mireia, F., Ferrandis, Estrella D., Mccabe, Scott, Garcia, J. S. (2015). Social Tourism and Healthy Ageing. *International Journal of Tourism Research*, 1–11. https://doi.org/10.1002/jtr

Ferri, M., Durá, E., & Garcés, J. (2013). Functional Health Benefits for Elderly People Related to Social Tourism Policy Promotion. *International Journal of Multidisciplinary Social Sciences Issue*, *1*(1), 1–8. Retrieved from https://www.researchgate.net/profile/Jordi_Garces/publication/271839847_Functional_Health_Benefits_for_Elderly_People_Related_to_Social_Tourism_Policy_Promotion/links/54d9ea480cf2970e4e7d1af0/Functional-Health-Benefits-for-Elderly-People-Related-to-Social

Fields et al., (2020). Interprofessional collaboration to promote transportation equity for environmental justice populations: A mixed methods study of civil engineers, transportation planners, and social workers' perspectives. *Transportation Research Interdisciplinary Perspectives. 5,* 1-5. doi: https://doi.org/10.1016/j.trip.2020.100110

Fowler, K. (2017). Senior-Friendly Airports: Flying with Dementia. Retrieved from https://www.aplaceformom.com/blog/senior-friendly-airports/

Frazier, B. Y. S. O. (2019). *Hearing Loop Technology Is Taking Off at Airports Around the World*. (April), 39–43.

Global Coalition on Aging. (2018). Destination Healthy Aging : The Physical, Cognitive, and Social Benefits of Travel. Retrieved from https://globalcoalitiononaging.com/wp-content/uploads/2018/07/destination-healthy-aging-white-paper_final-web.pdf

Guerreiro, J., Ahmetovic, D., Sato, D., Kitani, K., & Asakawa, C. (2019). Airport accessibility and navigation assistance for people with visual impairments. *Conference on Human Factors in Computing Systems - Proceedings*. https://doi.org/10.1145/3290605.3300246

Haughney, C. (2012). Flying Tips for Older Passengers. *The New York Times*. Retrieved from https://www.nytimes.com/2012/02/12/travel/for-older-fliers-plan-ahead.html

Karimi, S. (n.d.). Travel Tips for the Elderly. *USA Today*. Retrieved from https://traveltips.usatoday.com/travel-tips-elderly-13507.html

Lipp, E. (2015). What creates access and inclusion at airports? *Journal of Airport Management*, *9*(4), 390–397.

Liu, Y. E., Harrington, C., Melgen, S., & Sanford, J. (2016). GatePal - Universal design for airport navigation to allow departing travellers to stay informed. *Lecture Notes in Computer Science (Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*. https://doi.org/10.1007/978-3-319-40238-3_56

Nash, S. (2019). Older Adults and Technology: Moving Beyond the Stereotypes. Retrieved from http://longevity.stanford.edu/2019/05/30/older-adults-and-technology-moving-beyond-the-stereotypes/

National Academies of Sciences, Engineering, and Medicine. (2014). Impacts of Aging

    Travelers on Airports. *The National Academies Press.* https://doi.org/10.17226/22417

National Academies of Sciences, Engineering, and Medicine. (2017). Enhancing Airport

    Wayfinding for Aging Travelers and Persons with Disabilities. In *Enhancing Airport*

    Wayfinding for Aging Travelers and Persons with Disabilities.

    https://doi.org/10.17226/24930

National Council on Aging (n.d.). Falls Prevention Facts. Retrieved from:

    https://www.ncoa.org/news/resources-for-reporters/get-the-facts/falls-prevention-facts/

National Institue on Aging (2018). Participating in Activities You Enjoy. Retrieved from:

    https://www.nia.nih.gov/health/participating-activities-you-enjoy

Peek, S. T. M., Luijkx, K. G., Rijnaard, M. D., Nieboer, M. E., Van Der Voort, C. S., Aarts, S.,

    … Wouters, E. J. M. (2016). Older Adults' Reasons for Using Technology while Aging in

    Place. *Gerontology*, *62*(2), 226–237. https://doi.org/10.1159/000430949

Skift. (2014). The Biggest Issues Faced By Elderly Travelers at American Airports. Retrieved

    from https://skift.com/2014/04/16/the-biggest-issues-faced-by-elderly-travelers-at-

    american-airports/

Transportation, D. of. (2019). *Air Travel Consumer Report*. (December), 1–54. Retrieved from

    https://www.transportation.gov/sites/dot.gov/files/2020-01/december-2019-atcr-revised-1-

    22-2020.pdf

Transportation, U. S. D. of. (2017). Wheelchair and Guided Assistance. Retrieved from

    https://www.transportation.gov/individuals/aviation-consumer-protection/wheelchair-and-

guided-assistance

U.S. Travel Association. (2018). Fact Sheet: Destination Healthy Aging: The Physical, Cognitive and Social Benefits of Travel. Retrieved from https://globalcoalitiononaging.com/wp-content/uploads/2018/07/destination-healthy-aging-white-paper_final-web.pdf

United States Census Bureau. (2020). Supplemental Tables for Living Longer: Historical and Projected Life Expectancy in the United States, 1960 to 2060. Retrieved from https://www.census.gov/content/dam/Census/library/publications/2020/demo/p25-1145-supplemental-tables.pdf

Vaportzis, E., Clausen, M. G., & Gow, A. J. (2017). Older Adults Perceptions of Technology and Barriers to Interacting with Tablet Computers: A Focus Group Study. *Frontiers in Psychology*, *8*, 1687. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5649151/

Vora, S. (2020). What the airport of 2030 will look like. Retrieved from CNN Travel website: https://www.cnn.com/travel/article/airports-future-technology/index.html

Wattanacharoensil, W., & Sakdiyakorn, M. (2016). Passenger airport experience : Hearing passengers ' views about airport service fairness. *Journal of Service Management*, 1–3. Retrieved from https://www.researchgate.net/profile/Walanchalee_Wattanacharoensil2/publication/306192706_Passenger_airport_experience_Hearing_passengers'_views_about_airport_service_fairness/links/57c8f2e208ae9d640480e6b3/Passenger-airport-experience-Hearing-passengers-

Weed, J. (2019, April 22). More Benches, Special Goggles: Taking Steps to Assist Older Travelers. *The New York Times*. Retrieved from

https://www.nytimes.com/2019/04/22/business/elder-travel-airports-hotels.html

World Health Organization. (n.d.). Age-friendly World: City of San Rafael. Retrieved from

https://extranet.who.int/agefriendlyworld/network/city-san-rafael/

Appendix A

Demographic Survey Questions

1. Please indicate your age:
   - 55-64
   - 65-74
   - 75-84
   - Over 85
   - Prefer not to answer

2. Please identify your sex
   - Male
   - Female
   - Other
   - Prefer not to answer

3. Please identify your race
   - Hispanic
   - African American
   - White
   - American Indian
   - Asian
   - Pacific Islander
   - From multiple races
   - Prefer not to answer

4. What is your highest level of education?
   - Less than a high school degree
   - High school degree or equivalent (GED)
   - Some college but no degree
   - Associate degree
   - Bachelor degree
   - Graduate degree
   - Prefer not to answer

5. Please indicate your marital status
   - Married

- o Widowed
- o Divorced
- o Separated
- o Single
- o Prefer not to answer

6. Please describe what your current living arrangement is?
   - o Live alone
   - o Live with spouse/partner
   - o Live with children, but without spouse/partner
   - o Live with children AND spouse/partner
   - o Live with others:_____
   - o Prefer not to answer

Appendix B

Guiding Research Questions

- How often do you travel by plane?

- Describe the process you go through upon arriving at an airport. What are some particular places you like to visit?

- Describe some problems you experience at the airport? What do you feel are some the airport could do to fix these problems?

- What are some things an aiport could add to improve the airport enviornment for you? (ex: signs could have larger fonts or more seating areas).

- Are you aware of any age-friendly services that you could choose to use to ease your travel experience? If so, what are those services?

- What type of techonology services do you use when preparing to travel or at the airport? Please explan why you use these services or do not use any services.

- Do you use any apps while at an airport related to your time at the airport or traveling (ex: DFW app)? If so, please explain why and what aspect of the app do you enjoy. If you do not, explain if the participant would be willing to try an app aimed to improving experience at the airport. If yes, what would they want to see in an app. If no, explain why and what would the participant use instead?