
# JOURNAL of AGING and LONG-TERM CARE

A New 21st Century Initiative from TÜRKİYE

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**EMRE SENOL-DURAK**

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A Journal of the National Association of Social and Applied Gerontology (NASAG) - Türkiye

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# Third-Age University Students' Use of Gerontechnological Products and Their Attitudes Towards the Use of Gerontechnological Products: The Example of 60+ Refreshment University

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## ABSTRACT

The research was carried out to determine the rate of use of gerontechnological products, which factors affect their use, and the attitudes towards using gerontechnological products of individuals aged 60 and over who participated in the third-age university. A quantitative research method and survey technique were used in the study. Kruskal-Wallis and Mann-Whitney U tests were performed. It was found that there was a statistically significant difference between the sub-dimensions of the use of gerontechnological products and age, education, working status, economic status, and health status. In factor analysis findings, four factors were obtained: perceived usefulness of technology, perception of using technology, access to technology and transportation, and anxiety regarding technology use. It was revealed that the participants' use of gerontechnological products was high and that as product use increased, the anxiety about using technology also increased.

**KEYWORDS:** Older Adults; Aging; Gerontechnology; Lifelong Education; Third-Age University

## KEY PRACTITIONER MESSAGE

1. Planning extensive theoretical and applied education studies on technology use by older adults is of utmost importance.
2. Prioritizing planned technology training according to older people's needs and expectations, including their cognitive and physical limitations, is vital.

## INTRODUCTION

Aging has become an increasingly important phenomenon worldwide (Tuna & Tenlik, 2017). In Türkiye, the decrease in birth rates and the prolongation of life expectancy have caused an increase



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in the proportion of older adults in the total population. According to the numbers in the Turkish Statistical Institute [TUIK] 2020 Report: "Old People with Statistics," the population aged 65 and over increased from 8.2% in 2015 to 9.5% in 2020. Türkiye's projected proportion of older people is expected to reach 11.0% in 2025, 12.9% in 2030, and 16.3% in 2040, as indicated by population dynamics (TUIK, 2020).

Advances in medicine and technology allow individuals a healthier and longer life span. Along with the extended human life span, a longer aging period is experienced today more than ever. Due to this, both the individual and society have different needs for adaptation to the prolonged old age period. Interventional opportunities of applied gerontology to prevent and compensate for aging are limited because of relatively increasing diversity with the increase in the proportion of the older population. This also makes social and physical environmental arrangements for older people essential and creates a necessity to evaluate them with a holistic perspective to define the problems related to aging, to produce solutions, and to plan a healthy, quality, and successful aging process.

Technology is another field advancing as rapidly as the older population today. It is almost impossible to imagine a society without technology in daily activities, work, education, and health. The proliferation of technical items across several domains of human life is quickly expanding in terms of both quantity and diversity.. Technology can be used in care, health, safety, protection, mobility, participation in independent living, and social life for older individuals. In many situations, gerontechnological improvements can be life-saving (Ekici & Gumus, 2016).

## Gerontechnology

New understandings and models are needed to improve older people's access to and benefit from modern technology. Many developed and developing countries accept studies in this field and define this area as "gerontechnology." Gerontechnology facilitates the lives of older people and the lives of family members, caregivers, and many people who come into contact with the older individual. Gerontechnology can be used in many areas, such as increasing the quality of life, participation in social life, and supporting independent living, health, and care (Harrington & Harrington, 2000). Although technology has become an integral aspect of modern human existence, opinions about how older individuals will use it or whether they want to use it are still unclear in Türkiye. The old age period is gradually extending, and the perceptions and behaviors of the majority of older people about using technology will change soon (Kalinkara et al., 2016).

## Technology Acceptance and Use by Older People

The acceptance and adoption of technology by older

people are as crucial as where older people can use this technology. In addition, older people can adopt different technological products and services only at the same level as the cognitive and physical changes brought by the old age period, the individual's culture, education, economic status, and environment. It is challenging to balance these changes because technology acceptance and development factors are changing so fast.

Although most older individuals have a positive attitude toward technology, they are less likely to adopt new technologies as quickly as young people for various reasons (Kuo et al., 2012). Several studies have been conducted to determine the factors that affect older people's acceptance or rejection of technology.

Davis (1989) suggests two critical determinants of technology use: perceived usefulness and ease of use. Perceived usefulness is "the degree to which a person believes that using a particular system would enhance his or her job performance." Perceived ease of use is "the degree to which a person believes that using a particular system would be free of effort" (Davis, 1989, p. 320).

Technology acceptance is a cognitive and physical process that is affected by the perception, expectation, and emotions that occur in the older person's mind until the completion of the adoption, adaptation, and use of innovations in technological products and services (Ozsungur, 2018). Considering the possible decline in their cognitive and physical abilities, reducing the complexity of applications is essential for older users. Obtaining the opinions of older practitioners on technological products and services will be an essential factor in determining technology acceptance levels..

## Senior Technology Acceptance Model (STAM)

Different models were developed to show the effects of multidimensional factors and attitudes affecting technology acceptance. Model structures and theories support each other and have been adapted from 1975 to the present by improving previous models. The senior technology acceptance model (STAM) of Chen and Chan (2014), developed from various models and theories for understanding technology acceptance by older adults, constitutes the theoretical framework of this study. The model developed by Chen and Chan (2014) extended previous technology acceptance models and theories by adding older people's age-related health and ability characteristics (Shore et al., 2018).

## Selection, Optimization, and Compensation Theory

The selection, optimization, and compensation theory (SOC) (Baltes & Baltes, 1990) focuses on how resources are applied to support individuals' growth and maintenance of functioning in the face

of age-related loss. According to the SOC model, successful aging focuses on selecting appropriate developmental areas according to one's resources, maximizing developmental potential, and compensating for losses, thus maintaining functioning and minimizing losses (Schulz et al., 2014).The conceptual framework of the selection, optimization, and compensation (SOC) theory is a valuable tool for integrating research that promotes life-span improvement across functional domains (Riediger et al., 2006). Lindenberger et al. (2008) use this general framework to discuss how intelligent assistive technology, which constantly adjusts the balance between environmental support and individual abilities, can maximize an individual's potential.

## Third Age University Model: 60+ Refreshment University

Education and training in several fields have changed with modernization and globalization. The need for the emergence of *"lifelong learning"* and for education to take place in every period of life has arisen. Lifelong learning in all areas of life refers to the learning process in multiple situations throughout life and daily (Kolland, 2017). In developed countries, the participation of older people in educational activities is supported, and services in this field are expanded. With different models and concepts of lifelong education, countries can diversify the education program's content according to society's needs and expectations. These models can be defined differently as adult education, old age academies, retirement learning institutes, and leisure universities. Studies on education in old age have become widespread in the literature, with the most common concept of lifelong learning: the third-age university.

The first third-age university model, *"60+ Refreshment University"*, a new movement in gerontology in Türkiye, was established in 2016 by Prof. Dr. Ismail TUFAN. 60+ Refreshment University is an ongoing *"social responsibility"* project within the body of the Akdeniz University Aging Studies Research and Application Center. It sets an example as the most widespread and sustainable lifelong education program applied in the field of old age in Türkiye. This project also contributes to positive change in individuals and society's negative thoughts about old age (Tufan et al., 2018). 60+ Refreshment University is a lifelong education model that is compatible with the expectations of society, helps individuals aged 60 and over to protect and develop their physical, psychic, and social abilities, helps the development of memory and intelligence abilities related to learning ability, and also supports socialization in old age (Tufan et al., 2018).

# METHOD

## Population and Sample of the Research

The research population included 746 students

aged 60 and over, who were 1st, 2nd, and 3rd-year students continuing their education at Akdeniz University 60+ Refreshment University Campus. The study sample was determined with simple random sampling to be 254 with ±5 error margin and 95% confidence level from this population. Interviews were conducted by the researcher using the face-to-face survey technique, and 364 people were reached. After the implementation of the data collection tools used in the research was completed, the answer key was checked, and the research was carried out with a total of 318 participants, excluding those who gave incomplete information.

The socio-demographic characteristics of the participants (N=318) indicate that 72.3% of the study's participants were within the age range of 60-69, 64.2% were female, 44.0% resided with their spouses, and 57.5% held college/university degrees. It was seen that 89.6% of them were married, 89.6% were retired, 92.1% were making a living with a pension, 89.6% were middle-income, and 60.4% had health problems that prevented them from continuing their daily lives (Table-1).

## Data Collection Tools and Analysis of Data

In this study, a quantitative research method and survey technique were used. The research questionnaire was developed by Chen and Chan (2014), and the validity and reliability study of the scale was conducted by Kalinkara et al. (2016). The questionnaire consists of three main parts: *"Demographic characteristics," "use of gerontechnological products by older people,"* and *"attitudes and perceptions towards accepting gerontechnological products."* The interviews were carried out voluntarily, and after information was given to the participants describing the aim of the research, their informed consent was obtained and analyzed with the SPSS 23.0 statistical program.

In order to determine the appropriate statistical method for the data analysis, the Kolmogorov-Smirnov test of normality was applied to check if the data had a normal distribution. As a result of the test, it was determined that the data did not have a normal distribution. Due to this, the non-parametric Kruskal-Wallis and Mann-Whitney U tests were used in the analysis. If a significant difference was found due to the Kruskal-Wallis analysis, pairwise comparisons were made with the Bonferroni-corrected Mann-Whitney U test to determine which groups differed. The value obtained by dividing the number calculated using the formula n(n-1) /2 with Bonferroni correction, where the number of groups of the variable is *"n,"* is accepted as the new significance value (Field, 2009). Factor analysis determined the participants' attitudes toward using gerontechnological products. Correlation analysis was applied to determine the relationship between the use of gerontechnological products and attitudes

Table-1. The socio-demographic characteristics of the participants (N= 318).

| Groups | Frequency | % | Groups | Frequency | % |
|---|---|---|---|---|---|
| *Age* | | | *Working status* | | |
| 60-69 years | 230 | 72.3 | Working full time | 3 | .9 |
| 70-79 years | 83 | 26.1 | Works part-time | 12 | 3.8 |
| 80-89 years | 5 | 1.6 | Retired | 285 | 89.6 |
| *Gender* | | | Never worked | 18 | 5.7 |
| Female | 204 | 64.2 | *Income source* | | |
| Male | 114 | 35.8 | Salary / Income | 16 | 5.0 |
| *Living with* | | | Pension | 293 | 92.1 |
| Family members | 70 | 22.0 | Property income | 6 | 1.9 |
| Spouse | 140 | 44.0 | Other | 3 | .9 |
| Alone | 108 | 34.0 | *Levels of income* | | |
| *Educational status* | | | Rich | 16 | 5.0 |
| Primary school | 16 | 5.0 | Middle | 293 | 92.1 |
| Secondary school | 106 | 33.3 | Poor | 6 | 1.9 |
| College / University | 183 | 57. 5 | Very poor | 12 | .9 |
| Postgraduate Education | 13 | 4.1 | *Health status* | | |
| *Marital status* | | | No health problems | 122 | 38.4 |
| Married | 179 | 56.3 | Health issues that don't affect daily life | 192 | 60. 4 |
| Divorced / Separated | 53 | 16.7 | Health issues (unable to live alone) | 4 | 1.3 |
| Widowed | 75 | 23.6 | | | |
| Never married | 11 | 3.5 | | | |

towards the use of gerontechnological products.

## Research Hypotheses

$H_0$: There is no significant difference between the sub-components of gerontechnological product use and demographic variables.

$H_1$: There is a significant difference between the sub-components of gerontechnological product use and demographic variables.

$H_0$: There is no positive relationship between the factors affecting gerontechnology product acceptance and the

sub-dimensions of gerontechnological product use.

$H_2$: There is a positive relationship between the factors affecting gerontechnology product acceptance and the sub-dimensions of gerontechnological product use.

## RESULTS

### Sub-Dimensions of Participants' Use of Gerontechnology Products

Among the gerontechnological products of the individuals participating in the research, the most used products were remote control devices from home daily life technologies (95.9%), mobile phones/ mobile phones from communication technologies (98.4%), electric blood pressure monitors from health technologies (73.3%), and digital cameras from education and recreation technologies (62.9%). In health technologies, 49.4% of the participants stated that they had never heard of telecare; this was the variable with the highest rate in the group of those who had never heard of it (Table-2).

Table-2. Findings regarding sub-dimensions of participants use of gerontechnology products.

| Product | Tools and Equipment | I've Never Heard | | I've Never Used It | | Used / Still Using | |
|---|---|---|---|---|---|---|---|
| Home and Daily Life Technologies | Electric Cooking Tools | 1 | .3 | 31 | 9.7 | 286 | 89.9 |
| | Remote Control Devices | 3 | .9 | 10 | 3.1 | 305 | 95.9 |
| | Cash Dispenser | 5 | 1.6 | 10 | 3.1 | 303 | 95.3 |
| | Credit Card | 6 | 1.9 | 53 | 16.7 | 259 | 81.4 |
| | Smart Cards | 13 | 4.1 | 89 | 28.0 | 216 | 67.9 |
| Communication Technologies | Mobile phone / Cell phone | 3 | .9 | 2 | .6 | 313 | 98.4 |
| | E-mail | 2 | .6 | 83 | 26.1 | 233 | 73.3 |
| | Computer and Internet | 3 | .9 | 35 | 11.0 | 280 | 88.1 |
| Health Technologies | Health Products and Sports Equipment | 13 | 4.1 | 112 | 35.2 | 193 | 60.7 |
| | Emergency Alert Products / Services | 27 | 8.5 | 222 | 69.8 | 69 | 21.78 |
| | Electronic Sphygmoma-nometer | 8 | 2.5 | 77 | 24.2 | 233 | 73.3 |
| | Telecare | 157 | 49.4 | 136 | 42.8 | 25 | 7.9 |
| Education and Recreation Technologies | Electronic Dictionary and Book | 24 | 7.5 | 184 | 57.9 | 110 | 34.6 |
| | Digital Camera | 11 | 3.5 | 107 | 33.6 | 200 | 62.9 |
| | CD/ MP3/MP4 | 16 | 5.0 | 134 | 42.1 | 168 | 52.8 |
| | DVD / VCD Player | 14 | 4.4 | 125 | 39.3 | 179 | 56.3 |

## Demographic Variables from Participants' Gerontechnological Product Use Sub-Dimensions

In this section, the relationship of the variables of age, gender, living together, education, marital status, working status, income source, economic status, and health status with home and daily life technologies, communication technologies, health technologies, and education and recreation technologies is examined.

The Kolmogorov-Smirnov (KS) normality test was applied to examine whether the sub-headings average for using gerontechnological products in older people were normally distributed. According to the results of the test, since the mean KS statistic of home and daily life technologies values is D (318) = .262, $p < .05$, the null hypothesis that the data are normally distributed is rejected; that is, it is seen that they do not comply with the normal distribution. When the mean KS statistic of communication technologies values (D(318) = .409, $p < .05$), the mean KS statistic of health technologies values (D(318) = .158, $p < .05$), and the mean KS statistic of education and recreation values (D(318) = .191, $p < .05$) are considered, it is understood that they do not comply with the normal distribution.

When the demographic variables are analyzed according to the sub-dimensions of the participants' use of gerontechnological products, it is seen that there are significant differences between age group and communication technologies. The difference is statistically significant, as indicated by a chi-square value of 7.41 and a p-value of .025. The usage of communication technology differs significantly between age groups, with the 60-69 age group showing a higher preference compared to the 70-79 age group (Z = -2.67, p = .008).

The usage of communication technology differs significantly between age groups, with the 60-69 age group showing a higher preference compared to the 70-79 age group (Z = -2.67, p = .008).

Usage of home and daily technologies ($X^2$ = 9.09, p = .025), communication technologies ($X^2$ = 25.90, p = .001), and educational and recreation technologies ($X^2$ = 20.41, p = .001) varies significantly based on education categories. Participants with a college/university education level showed significantly higher usage of "home and daily life technologies" (Z = -2.75, p = .006), "communication technologies" (Z = -4.95, p = .001), and "education and recreation technologies" (Z = -3.799, p = .001) compared to those with primary school education.

A significant difference was noted between the employment status category and health technologies ($X^2$ = 7.98, p = .047), as well as education and recreation technologies ($X^2$ = 13.08, p = .004). The use of health technology is significantly higher among part-time working participants compared to retired participants

(Z = -2.18, p = .029). Part-time employees exhibit a notable advantage in their utilization of education and recreation technologies (Z = -3.33, p = .001) in comparison to individuals who have never been employed.

A significant difference was observed in the utilization of communication technologies ($X^2$ = 10.74, p = .013), health technologies ($X^2$ = 10.74, p = .013), and education and recreation technologies ($X^2$ = 19.00, p = .oo1) across different economic status categories. Participants who self-identified as "rich" compared to those who self-identified as "poor" showed significant differences in the usage of communication technologies (Z = -2.58, p = .010), health technologies (Z = -2.847, p = .004), and education and recreation technologies (Z = -3.42, p = .001).

Within the demographic variables, a notable difference was found between the health status category and the utilization of communication technologies ($X^2$ = 10.90, p = .004) as well as education and recreation technologies ($X^2$ = 10.31, p = .006). Individuals who did not have any health issues exhibited a higher propensity to utilize communication technologies (Z = -3.28, p = .001) and education and recreation technologies (Z = -3.20, p = .001) compared to individuals who had health problems that did not impact their everyday activities.

## Factor Analysis

Factor analysis was applied to determine 60+ Refreshment University students' attitudes toward using gerontechnological products. As a result of the test performed to understand whether the sample size is suitable for factor analysis, the KMO value is .829. It is understood that the sample size is sufficient for factor analysis; as a result of the factor analysis for the scale of acceptance of gerontechnological products by older adults, factors with eigenvalue statistics greater than 1 and 4 factors were determined. The factor analysis demonstrated that accounting for 69.46 % of the total variance. The first factor (Perceived Usability in Technology) explained 38.41 % of the variance, the second factor (Perception of Using Technology) ex-plained 15.10 % of the variance, the third factor (Access to Technology and Transportation) ex-plained 9.52 % of the variance, and the fourth factor (Concern about Use of Technology) ex-plained 6.43 % of the variance. After determining the number of factors in the analysis, the factor matrix formed with the eigenvalue is checked to determine which factor determines the variables. The factor rotation matrix was used for the ones close to the factor matrix components and those difficult to separate (Yildiz, 2012). Which variables will be included in which factors were decided according to the transformed matrix values? Variable and factor distribution are shown in Table-3. The Cronbach alpha technique was employed to ascertain the internal consistency. The Cronbach

Table-3. The factorial structure of the scale of acceptance of gerontechnological products

| | Factor 1 | Factor 2 | Factor 3 | Factor 4 |
|---|---|---|---|---|
| It's a good idea to use technology | .264 | .858 | -.002 | -.083 |
| You like the idea of using technology | .301 | .853 | .026 | -.097 |
| Using technology will increase its ef-fectiveness in life | .220 | .748 | .197 | -.139 |
| Using technology will make my life easier | .723 | .480 | .095 | .005 |
| I see technology as useful in my life | .728 | .472 | .102 | .014 |
| I see technology as something easy to use | .785 | .208 | .172 | -.212 |
| I can be adept at using technology | .773 | .232 | .183 | -.229 |
| If someone shows me how I can com-plete a job using technology | .792 | .155 | .244 | -.068 |
| If there are instructions for use, I can do a job using technology | .758 | .125 | .273 | -.064 |
| I get worried when it comes to the use of technology | .006 | -.166 | .005 | .845 |
| I avoid using technology for fear of making a mistake I can't fix | -.143 | -.046 | -.027 | .874 |
| I do not have the necessary knowledge to use the system | -.212 | -.047 | .303 | .726 |
| I have a person or group to help me with the technology challenges | .114 | .020 | .599 | .074 |
| The financial situation does not restrict technology use activities | .040 | .087 | .718 | .140 |
| Technology tools are available to me when I want to use it or need to use it | .365 | .077 | .743 | -.059 |
| My family and friends want / support me to use technology | .266 | .054 | .734 | .009 |

alpha coefficient for a set of 16 items was calculated to be 0.79. Therefore, it may be concluded that the scale has a moderate level of reliability. The four variables' Cronbach alpha coefficients for attitudes range from .71 to .91. The first factor, perceived usability in technology, has a Cronbach alpha value of .91; the second, perception of using technology, has a coefficient of .85; the third, access to technology and transportation, has a coefficient of .71; and the fourth, concern about using technology, has a coefficient of .79.

## Correlation Analysis

Correlation analysis was performed to determine the relationship between the use of gerontechnological products and attitudes towards the use of gerontechnological products. The correlation coefficient varies between +1 and -1. If the correlation coefficient is +1, it means that there is a perfect positive relationship between the variables; if it is 0, there is no relationship between the variables; and if it is -1, it means that there is a perfect negative

relationship be-tween the variables (Kose, 2008). Analysis results are shown in Table-4.

Table-4. Correlation analysis between use of gerontechnological products and attitudes towards gerontechnological products

| | Home and Daily Life Technologies | Communication Technologies | Health Technologies | Education and Recreation Technologies |
|---|---|---|---|---|
| Factor-1 | -.27*** | -.33*** | -.25*** | -.21*** |
| Factor-2 | -.39*** | -.26*** | -.25*** | -.27*** |
| Factor-3 | -.22*** | -.33*** | -.17*** | -.17*** |
| Factor-4 | .28*** | .25*** | .17*** | .33*** |

*Note-1*. Factor-1 = Perceived Usability in Technology, Factor-2 = Perceptions of Using Technology, Factor-3 = Access to Technology and Transportation, and Factor-4 = Concern about the Use of Technology; *Note-2*. *** $p \leq .001$

Among the sub-dimensions of attitudes towards the use of gerontechnological products, there is a negative relationship between perceived usefulness in technology and home and daily life technologies (-.27), communication technologies (-.33), health technologies (-.25), and education and recreation technologies (-.21). Among the sub-dimensions of attitudes towards the use of gerontechnological products, there is a negative relationship between the perception of using technology and home and daily life technologies (-.39), communication technologies (-.26), health technologies (-.25), and education and recreation technologies (-.27). Among the sub-dimensions of attitudes towards the use of gerontechnological products, there is a negative relationship between access to technology and transportation and home and daily life technologies (-.22), communication technologies (-.33), health technologies (-.17), and education and recreation technologies (-.17). Among the sub-dimensions of attitudes towards the use of gerontechnological products, there is a positive relationship between anxiety about technology use and home and daily life technologies (.28), communication technologies (.25), health technologies (.17), and education and recreation technologies (.33).

## DISCUSSION

The high rate of mobile phone use by the individuals participating in the research supports the findings of previous studies (Chen et al., 2012). It is thought that the low price of mobile phones compared to the past, their widespread use, and the fact that they are the primary source of communication with family members and close circles affect the usage rates. At the same time, the communication and announcements made via mobile phone and the calling or short message systems in the education program that the individuals attend greatly impact phone use.

Today, remote control devices are becoming more and more common. Televisions, CD-DVD players, security systems, and even the doors of cars can be opened and closed with remote control systems.

Remote control devices save time and speed in many vehicles, systems, and living space arrangements.

The use of electric sphygmomanometers in health technologies is becoming increasingly widespread. The number of people who prefer it for quick intervention or blood pressure monitoring is increasing due to its practical use. Especially after retirement, people have a digital camera to pursue a hobby or profession and to keep their memories of trips or tours, and they desire to improve its use by going on photography courses.

It was found that there was no significant difference between the use of gerontechnological products and the variables of gender, living together, marital status, and income source. There was no statistically significant difference between men and women in the participants' use of technological products. However, according to the TUIK (2019) data, it was found that older men using the Internet used the Internet more than women. A study conducted in Hong Kong based on technology acceptance concluded that women tended to use technology more than men (Chen et al., 2012). It is thought that the gender variable is generally effective in using gerontechnological products. However, in this study, there was no significant difference be-tween men and women in the use of technology due to the high education level of the individuals participating in the third-age university program and the fact that they were a homogeneous group.

It was revealed that there was a significant difference between the use of gerontechnological products and the variables of age, education, economic status, and health status. It was seen that individuals in the age group of 60-69 used communication technologies more than individuals in the age group of 70-79. This shows that the use of technological products decreases with aging, and in this case, the design of the products does not include losses in advanced ages (Chen & Chan, 2014).

The TUIK (2019) household information technology usage survey revealed that the rate of individuals in the 65-74 age group using the Internet had increased four times. While there was a difference between the educational status of the participants and the use of communication technologies and education and recreation technologies, it is seen that education was ineffective in health technologies and the use of home and daily life technologies. Since home and daily life technologies are frequently used and shared and can be understood by everyone compared to other technology groups, it is seen that the status of education correlates with health technologies since the majority of individuals aged 60 and over have health problems.

Ozkan and Purutcuoglu (2010) emphasized in their research that educational status was effective in accepting and using technology. Since most of

the participants in the lifelong education program in this study are college/university graduates, educational status is considered an influential variable. It was concluded that there was a significant difference between working status and the use of gerontechnological products. It is seen that they used education and recreation technologies more than retired and part-time employees and participants who had never worked. It is understood that individuals working on lifelong education activities can spare less time. It was found that there was a significant difference between the economic situation and the use of gerontechnological products. There was a difference in communication technologies between the poor and middle-class participants. There was also a significant difference between individuals who stated they had a rich and poor economic situation with health, education, and recreation technologies. It is seen that there was a significant difference between health status and the use of gerontechnological products. It is seen that there was a significant difference between those who did not have a health problem and those who had health problems that prevented them from continuing their daily life. It is thought that participants who do not have health problems use communication, education, and recreation technologies more.

As the use of gerontechnological products by the students of the third age university participating in the research increased, their anxiety about the use of technology increased. Kalinkara et al. (2016) stated that the increase in the use of gerontechnological tools reduced anxiety in the results of their research in three different regions of Türkiye. Among the reasons for the difference between the results, 72.3% of the individuals participating in this research were in the early old age (60-69) period, which is considered adequate. It is thought that individuals who retire early are trying to integrate themselves because they stay away from technology due to the intervention of time. Individuals who have recently retired cannot allocate much time to technologies in the fields of home, daily life, communication, health, education, and recreation in their business life. At the same time, it is seen that 61.6% of the participants have a high school, university, or postgraduate education status. It is thought that as the education level increases, the use of gerontechnological products increases, but individuals experience difficulties in using products and services due to standardization, and they experience anxiety because they have difficulty solving complex systems. In technology acceptance and use by older adults, which emerged as a result of factor analysis, it is seen that the factors with the highest reliability among the factors of usefulness, perception of using technology, access

to technology and transportation, and use of technology are perceived usefulness in technology and the perception of using technology. The most influential factors obtained from the research are similar to the most influential factors suggested by Davis (1989) based on his previous research. In their studies, Schepers and Wetzels (2007) revealed that the Senior Technology Acceptance Model (STAM) for older adults could vary in different cultures. According to the findings, the effect of perceived usefulness in Western cultures supports the *"perceived usefulness"* factor. In the factor analysis, it is thought that the economic situation and education level are the main factors in the *"access to technology and transportation,"* which is one of the factors affecting technology acceptance by older adults. The opportunities for older adults with economic independence to benefit from the opportunities of modern society will increase (Tufan et al., 2019). While self-efficacy in using gerontechnological products includes the feeling of using technology successfully, anxiety refers to the concern faced in using gerontechnological products (Venkatesh et al., 2003). The variable with the highest mean among the factor variables of the research belongs to the statement, *"I stay away from using technology for fear of making a mistake that I cannot fix"* (.874). The second highest mean is *"It is a good idea to use technology."* While the highest variable belongs to anxiety towards technology use, the second highest variable belongs to the perception of using technology. While the participants' opinions about the use of technology are positive, the anxiety they experience in using technology due to the fear of making mistakes shows that they are reluctant to use technology. At the same time, the fact that the design of technological products is unsuitable for older adults is an important factor in the fear of making mistakes. In addition to the physical and cognitive abilities of older people, psychological mood, the size of their social network, retirement, role loss, life-cycle characteristics, and tasks have important effects on their self-efficacy in technology use and anxiety about using technological products (Ryu et al., 2009)

## CONCLUSION

This study evaluated the socio-demographic characteristics of individuals aged 60 and over who attended the third age university, the use of technological products, the influential factors, and attitudes in using the products. As a result of the research, for individuals aged 60 and over participating in the lifelong education program who had a high level of education, the most commonly used tools and equipment in the use of gerontechnological products, mobile phones, remote control devices, electric blood pressure monitors and digital cameras. Demographic

features practical in using gerontechnological products are age, educational status, economic status, working status, and health status.

According to the research results, there are four main factors in the attitudes of the older population towards the use of gerontechnological products: perceived benefit of technology, perception of using technology, access to technology and transportation, and anxiety about technology use. The factors with the highest reliability and validity are the perceived benefit of technology and the perception of using technology. The component with the highest mean among the factor subcomponents is "I stay away from using technology for fear of making a mistake that cannot be corrected." It has been concluded that as the use of gerontechnological products increases, the anxiety regarding the use of technology also increases.

Technology, once considered a luxury two decades ago, has now evolved into a fundamental necessity. While most young and adult individuals have made technology an indispensable part of their lives, older individuals have also gradually started to include technology in their lives. The use of new technologies requires learning new skills. Therefore, considering older adults' biophysical and psychosocial characteristics and the possibility of a decline in their cognitive abilities, selective attention, and working memory, they may take more time to acquire new skills than young people (Chen & Chan, 2014).

The impact of developing technology on individuals and societies differs from culture to culture. The acceptance and behavior of technology by individuals are affected by their experiences in their cultural life. Today, reconciling research, design, and production studies with the cultural characteristics of older adults is very important for their social progress in technology (Senel & Gencoglu, 2003). Technology education should be one of the main themes to be considered while creating the curriculum of third-age university programs, which is a new field in Türkiye and is applied in a limited way. Expanding technology courses and encouraging individuals to participate in life-long education programs can make a significant difference in the use of technology. While the participation of older adults in a lifelong education program is an encouraging reason for using technology, the difficulties they experience in using technology due to incomplete knowledge cause an increase in their anxiety about technology. Considering the abilities of older adults, special technology training should be given in line with their needs and expectations. Other-wise, the concerns of older adults will likely increase in the coming years with the development of technology. There is a difference between older adults who use and accept technology (Kalinkara, 2019). The main factor causing this situation is the rapid technological change. When products are constantly developed

and presented to consumers, older adults tend to buy another product in case a product loses its functionality or in case of need. In the meantime, product acceptance levels are changing due to the difficulties experienced in using the products. Even if older adults' perception of technology is thought to be negative today, technologies to support them should be developed and marketed. Considering the results of the research, the suggestions for future studies can be summarized as follows, based on the limited joint work in the field of gerontology and technology: planning extensive theoretical and applied education studies on technology use by older adults, dissemination of digital literacy to older adults, inclusion of technology-related education in the basis of lifelong education programs, planning technology training in line with the needs and expectations of older individuals, taking into ac-count their physical and cognitive abilities, considering anthropometric measurements in gerontechnological product designs, providing facilities for older people to access and transport technological products, reducing older people's sense of distrust towards technological products, involving individuals and groups that assist older people in technology use and to encourage multidisciplinary teamwork in developing technologies to support the older. Considering these issues, it is necessary to intervene in the lifestyles of older people by moving from the micro level, such as daily life activities, family and social relations, to the macro levels, such as health, care, and education with lifelong education programs (Ozkan & Purutcuoglu, 2010). With the changing structure of old age, in the future, old age individuals will struggle to be active, healthy, and productive and to maintain their social roles. In the future, not only the needs of the old age in health, care, and poverty but also their needs in education, art, sport, and activities will have to be met. The holistic society needs to plan practical services and policies for older adults in this area. One of the most critical steps in this field will be to include professional and qualified personnel in service planning and implementation. In this process, gerontologists have a crucial role. Gerontologists can support the transition process by optimizing the developmental processes of older people (Schulz et al., 2015). In order to meet the demands of the rapidly increasing older population, gerontologists play an essential role in developing cost-effective and widespread systems and interventions in the lives of older individuals with a more holistic perspective by bringing together different disciplines and practitioners.

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# "You Admit a Resident, You Admit a Family" The Impact of COVID-19 Restrictions on Family Time in Long-Term Care

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## ABSTRACT

Social connection is important for better health and well-being. However, the public health restrictions that were put in place due to COVID-19 disproportionately affected older adults, particularly those living in long-term care (LTC). Due to this unprecedented situation, the researchers aimed to understand the perceived impact of pandemic restrictions on families of residents in LTC facilities and shed light on how families perceive the strategies put in place to help families stay connected. Reporting data from semi-structured interviews with family members as part of a larger mixed-methods study, findings focused on themes of quality of life, quality of care, mental health concerns, communication, and the rules. The rules were an over-arching theme, and each of the interrelated themes describes the experiences of families feeling dismissed by the health system, stressed about being unable to support their loved ones, and helpless during the various lockdowns when staffing was additionally strained. These findings highlight how, being excluded from decision-making processes, family members and their loved ones were severely impacted by the COVID-19 restrictions and calls for policy changes to be inclusive of families as part of the care team in decision-making for LTC.

**KEYWORDS:** COVID-19; Restrictions; Policy; Long-Term Care; Family Caregivers; Social Connections; Canada; British Columbia.

## KEY PRACTITIONER MESSAGE

1. Family caregivers are critical members of the healthcare team of residents in long-term care homes.
2. Public health COVID-19 guidelines restricted families from their loved ones who were living in long-term care from visiting in-care homes, leading to greater isolation among residents.
3. COVID-19 restrictions caused physical, emotional, and social harm to families and residents.
4. Governmental health policies related to public health restrictions specific to long-term care must be family-centered and inclusive of families in decision-making.



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## INTRODUCTION

While the Coronavirus (COVID-19) pandemic had a global impact and affected individuals, communities, and healthcare organizations, it struck long-term care (LTC) settings disproportionately hard. Older adults living in LTC facilities were at very high risk for mortality from COVID-19, especially due to workers and visitors who were unknowingly bringing in the virus and spreading it. For example, by May 2020, 81% of the Canadians who died from COVID-19 were older adults in LTC (Canadian Institute for Health Information [CIHI], 2020), with a mortality rate 13 times higher than older adults living in a community (Fisman et al., 2020); resulting in responsive public health measures. Public Health directives required LTC facilities to restrict visitors from visiting residents and pause many activities within these facilities. While these measures decreased the spread of the COVID- virus, they also had a negative impact on the residents' health and social well-being (Bethell et al., 2020; Chu et al., 2022). However, residents' family and friends in LTC settings as a *"bedrock"* of the system and essential care partners accounting for approximately 30% of the overall care in LTC, including feeding, washing, toileting, mobilization, and social, emotional and memory support (Tupper, 2020; Wolf & Jenkins, 2008) and resulted in residents' families being concerned about the COVID-19 restrictions implemented in LTC (Kemp, 2020). Given that such restrictions were initiated when so little was known about COVID-19, the lack of family engagement/consultation about the restrictions demands consideration and understanding (Kemp, 2020).

In Canada, *"Medicare"* health care delivery is publicly funded through agreements with the ten provincial and three territorial governments to offer a wide range, but not inclusive, healthcare services and programs. However, while most of the health system is the responsibility of the provinces and territories, the federal government has a role in some health services, such as infectious diseases and health protection and disease surveillance and protection. Each province and territory is generally responsible for delivering health services in this intertwined and multilayered system. As such, services and directives are done at either the provincial/territorial and/or regional levels, making the health care system delivery and communication challenging. With the rapid emergence of COVID-19 and the urgent need for those responsible to protect the most vulnerable populations by restricting family visitation in LTC, research on the impact this has had on families is emerging.

### Objectives

A meaningful understanding of the psychosocial impact of COVID-19 restrictions on visitors in LTC facilities is emerging. It is also unclear what strategies

are effective in supporting families to remain connected. The researchers aimed to understand the perceived impact of pandemic restrictions on families of residents in LTC facilities, how families perceive the strategies put in place to help them stay connected, and determine if these were effective. The qualitative findings are presented in one-to-one interviews as part of a more extensive mixed-methods study using a survey, interviews, and arts-based focus groups. Other data from the study will be reported in future publications.

## METHOD

The researchers initiated this study during the second and third wave of the pandemic as visitor restrictions were evolving to include *"essential visitors."* The researchers followed the protocols approved (REB Certificate #H21-01256) by the harmonized research ethics board of Thompson Rivers University.

### Participants

Participants included family members, guardians, or close friends with a loved one living in an LTC facility in British Columbia during the COVID-19 restrictions. The criteria for participation were adult family members over the age of 18 (relative, friend, and legal guardian) of residents who were or had been living in an LTC facility during COVID-19 within one of the five regional health authorities (Fraser Health, Interior Health, Island Health, Northern Health, and Vancouver Coastal Health). The participants resulted from a nested approach of a larger mixed-methods study where they were asked to participate in the second phase of the study and, for participating in both phases of the study, were entered into a draw for a gift certificate.

### Data Collection

The qualitative data were collected through 60+ minute individual semi-structured interviews with participants until data saturation occurred. The interviews were conducted via telephone or virtually using primarily MS Teams to ensure COVID-19 protocols were maintained. Based on the literature (Kallio et al., 2016; McGrath et al., 2019; Ryan et al., 2009), one research member developed an interview guide, and the interdisciplinary team reviewed the guide for consensus. To ensure consistency in the interview data collection, the lead researcher reviewed the guide and interview process with the five other research team members. The guide was then pilot-tested with two non-participants to confirm that the questions were easy to understand and to determine the length of time to complete and make any adjustments to the overall interview process. Each of the five researchers was assigned participants to complete exploratory one-to-one interviews, using open-ended and probing questions to elicit information on how participants felt about the impact the restrictions had on

their well-being and how they had contact with their loved ones in LTC. Interviews provided a unique and rich description of the *"lived experience"* of participants (Polit & Beck, 2004). The researchers audio-recorded all interviews and used the built-in transcription tool in MS Teams to ensure no detail was missed. The MS Teams transcriptions were verified with the recorded audio to ensure the accuracy of the content. However, to ensure confidentiality and anonymity, all identifying information was removed. Finally, each researcher was directed to maintain a separate file of their field notes that could be used as part of data analysis

### Data Analysis

Interview data were analyzed using a thematic analysis approach and an inductive approach, where researchers explored data for patterns and themes. The transcripts were assigned to the research team who completed the interviews. Braun and Clarke (2006) guided the inductive thematic analysis as the individual researchers reviewed the transcripts to become familiar, developing codes or categories, looking for reoccurring themes, and describing those themes. Data was coded and themed independently. As part of the data analysis, the research team had several debriefing meetings to discuss the themes they had created. The final consensus of themes involved the team discussing, recording, and organizing the themes on a whiteboard. The research team's consensus ensured the confirmability of the data (Braun & Clarke, 2006). This process helped to establish rigor in this qualitative aspect of the study as each researcher was reflexive on the process and discussion of the results (Lincoln & Guba, 1986).

## RESULTS

### Descriptive Characteristics of the Participants

A total of 19 family caregivers volunteered for the one-to-one interviews, and of these, 16 were female. Most family participants were adult children (12), five were spouses, and one was a sibling, hence why the term *"loved one"* is used to describe the resident. Thirteen had a loved one living in care in Interior Health, and two in Vancouver Coastal, Island Health, and Fraser Health regions, representing four of the five provincial health authorities, respectively.

The interviews explored participants' experiences with the impact of COVID-19 restrictions in LTC and their ability to stay connected to their loved ones; however, they often described how COVID-19 impacted the residents. Five different themes were revealed through the thematic analysis of the data. The identified themes included several aspects, namely: (1) the assessment of quality of life, (2) the evaluation of quality of care, (3) the consideration of mental health problems, and (4) the examination of communication. These topics were unified by a fifth

overarching theme, namely, (5) the adherence to rules and regulations.

## Quality of Life

The theme of quality of life focused on the residents' rights to autonomy, self-determination, and the deterioration of the quality of life of family members. Participants described how their loved ones did not have input in their care decisions, and standardized care protocols implemented during the pandemic ignored the residents' right to make decisions about their care. For example, participant 6 powerfully described their view that their loved one's *"basic human rights were taken away."* Participant 1 elucidated that what was most terrifying was quickly realizing that when a loved one goes into care, *"they stop being unique and become part of the care system."* Such accounts of how their loved ones were unable to decide how they wanted to be cared for highlight how autonomy and self-determination were taken away, but it was the statement by Participant 03, who gut-wrenchingly described their experience, that depicted the impact on the quality of life of their loved one:

> *"I think that mom died when she did because of the last two years. And just not having the quality of life that she could have if she weren't shut off from everybody."*

The COVID-19 restrictions also negatively impacted the quality of life of family members of the residents. Family members recounted how they missed celebrating precious moments like birthdays, anniversaries, and holidays with their loved ones, noting, *"...as a family, we feel that the last nine months of his life were stolen from us"* (Participant 7). Participants experienced a decline in their overall well-being as they were busy fighting for their ability to be with their loved ones. Participant 6, who had both parents in care, which added an extra level of concern, described, *"Self-care was non-existent as I spent so many hours and days researching COVID-19 and was focused on seeing [reuniting with] my parents."* Similarly, Participant 03 expressed *"Sometimes I get myself to a point where I don't realize I need help, and then I find myself going sideways"* resulting in an overall decline in their own health status. Such comments provide the significance COVID-19 restrictions played on the quality of life for families.

## Quality of Care

Quality of care as a theme encompassed patient-centered care, family-centered care, advocacy, and staffing levels in the care facilities. At the height of COVID-19 restrictions, most participants lamented that governments and health organizations woefully disregarded the unique care needs of their loved ones. Participant 6 shared that *"The primary focus should be the needs of the residents, and it was not considered by the government."* Nevertheless,

a few participants recounted that their loved ones received quality patient-centered care as staff were doing *"the best they could."* However, Participant 9 shared an experience of a loved one who received quality care, stating:

> *"Well, I would say in long-term care, she got the best care. She really did. They were really good. But you would expect that for $9000."*

. In addition to providing family-centered care, most participants concurred that they were sidelined from actively contributing to the care of their loved ones. Due to the COVID-19 restrictions, most participants reported not being consulted or involved in the care of their loved ones. The participants explained that the non-involvement in their loved ones' care was alarming since they sometimes knew their loved ones well enough to be well-timed advocates for better services like switching medications or weight monitoring. The following quote was a common experience shared by the participants about being excluded from supporting their loved ones:

> *"We were definitely fearful of the care happening behind closed doors [without the family involvement]"* (Participant 6)

Participant 7 recounted,

> *"I checked his hearing aid, and low and behold, his hearing aid was broken. The tube going into the earmold had come disconnected. They had the ear mold in his ear. And then the hearing aid and the tube just over his ear, and it was disconnected,"*

and Participant 6 expressed,

> *"Only when the family is present and dealing directly with the care aide [is] where we get issues resolved."*

These accounts suggest that if they had the opportunity to be included, the quality of care would have been sustained. However, some families hesitated to advocate for their loved ones because they did not want the staff to brand them as an *"aggressive family"* or a *"troublemaker."* For example, Participant 1 shared a painful experience:

> *"There's always this underlying thing, you know, for us saying we want to advocate, but we better be careful because we don't want any blowback."*

With the staffing level and mix, most participants reported the inadequate number and rotating staff to care for their loved ones. They further added that the staffing issue was evident with the high staff-to-resident work ratio and the long wait times before they got to talk to staff about their loved ones whenever they phoned the care facility. Also, some participants described how the constant use of temporary staff was inconvenient, particularly for residents with cognitive impairment. Below are some examples of this inconvenience:

> *I don't think [they] had adequate staff.*

> *They were very hard to get in touch with. Whomever the director was in there, she was off on holiday for most of the time that mom was there. They had new administrators that didn't know what was going on.* (Participant 9)

Other participants described the effect of the strained staffing on their loved ones, noting the frequency of showers being diminished or absent, the lack of time due to high staff-to-resident ratios, and the constant staff turnover as examples of the impact of the restrictions on the quality of care.

## Mental Health Challenges

Both residents and family members experienced some form of mental health challenges. Four codes were captured under the theme of mental health challenges. Most participants agreed that the grief experienced by their loved ones (residents) was the most prominent trigger for residents' mental health decline. Due to the residents' prolonged exposure to isolation by the COVID-19 restrictions, the participants reported that residents became irritable, depressed, unhappy, and confused. Participant 9 stated,

> *"I think…isolation just made things much more difficult. She was quite unhappy being on her own. There was loneliness and depression."*

Participant 7 expressed,

> *"Many of the residents felt that their families had absolutely abandoned them, and they were imprisoned. It's just kind of, you know, we're stuck here. Nobody could come to see us, and we could not go out to see anybody either."*

Another contributing factor to residents' mental health decline was the ineffective support system for the residents. The COVID-19 restrictions heavily impacted the support systems that were in place before the pandemic. Participant 1 shared that residents had no mental health support within their care facility because the resources for mental health were available outside the care facility. Participant 6 also shared that there was *"no physical contact, no outside stimulation, such as drives, coffee or lunch out, no walks, and no sunshine"* for the residents. In contrast, some participants reported that some care facilities hired more staff to support their residents. For instance, participant 11 said that,

> *"the facility that we were at […] had extra staff coming in to do one-on-one visits with people [residents], and my mom really responded to that."*

The COVID-19 restrictions halted all social interactions among the residents. The sudden and prolonged detachment from families and friends indisputably impacted the cognitive well-being of the residents.

Participants reported that social events like games night, monthly birthday celebrations, and church services, among others, were all canceled, and residents were just kept in their rooms. While all participants recognized that their loved one's cognitive health would not improve in LTC, they did not expect the rapid decline they witnessed during the pandemic. Participant 9 noted, *"I think that the long isolation certainly led to a much faster decline mentally than we should have expected,"* while Participant 12 expressed, *"I think it's progressing the way it would have, but I think it's because of the lack of visitation at that time. It probably got worse, faster."* Participant 19 described their mother's experience of being put on symptoms isolation even after testing negative for COVID-19, which required her to be isolated from the other residents,

> *"...she just started sobbing like she just burst into tears. She was sobbing, and she was like, Please take me out of here. Please take me out of here. I can't be here. I'm gonna die if I stay here."*

Such examples highlight how family members viewed the effect on their loved one's mental health and well-being.

Guilt was another effect that impacted the mental well-being of families. Many participants reported feeling they betrayed their loved ones by abandoning them in the care facilities. Some participants also said their loved ones' accused them of intentionally leaving them in the care facility, accentuating their guilt. Participants described feeling guilty about not being able to provide care to their loved ones and missing out. *"It's disheartening and frustrating for me, and I was just kind of like if only I could be there"* (Participant 7), and Participant (19) shared,

> *I've seen my mom weigh less than I did before it's so just kind of that, you know, the grief around losing those two years with a mom who's almost turning 90. It feels like I've lost two years of really good quality time I could have had with her, and you know, that makes me feel really sad and, and guilty.*

## Communication

Most participants lamented how communication was ineffective within the care facilities across all levels during the COVID-19 pandemic. The communications were between the care facilities and the family, residents and the family, residents and the staff, and the staff and the family. Also included were participants' concerns about the communication of government, health authorities, and care facilities. With communication between the care facility and the family, most participants agreed that management could have done a better job of quickly instituting policies that would keep their residents safe and, at the same time, and stay in touch with their families about changes. For instance, numerous participants

questioned why the management of care facilities did not announce earlier that COVID-19 vaccination would be required or the implementation of rapid testing and screening for visitations.

Communication between the residents and the family was strained during the restrictions. Some participants, particularly families that were not comfortable with technology, reported that communication was non-existent for them during the early stages of COVID-19 restrictions because they did not use newer forms of technology and felt cut off from their loved ones. Participants were asked about the communication strategies implemented to help maintain the connection between families and residents. When asked about what strategies were used and how useful these were to communicate and stay connected, participants noted a mix of strategies used by the care facility. Some strategies, for example, included telephone, in-person visitations (window or socially distanced), and video calling (Zoom or Facetime). However, the most preferred method was in-person visitations. For instance, participant 2 noted they could take their loved one outside to the facility courtyard with face masks during the summer. Some participants also reported that, although they were happy to be in the same room (socially distanced) with their lovied ones, they were appalled by the fact that staff had to be in the room to supervise. Participant 14 shared,

> *"There would be a woman sitting in the corner listening to our conversation, and I'd say, there's a window in the door [...]. Why can't you stand outside and check to make sure I wasn't hugging him."*

The implemented window visits were generally ineffectual, where families were outside the LTC home looking in while offered some comfort as they could see their loved ones. Participant 19's analogy was poignant:

> *"It's almost like when you're in the candy store and you really want the candy and you're not allowed to touch it. You can only look at it. It's kind of how it felt like I wanted nothing more than to give my mom a giant hug."*

Participants noted that they were heartbroken because they could only watch their loved ones deteriorate. They were also frustrated with these strategies because of the procedures to set up such visits, as Participant 08 described,

> *"...you've got to phone ahead, and you've got to book a time, and then you're only allowed to do that maybe twice a week....because [they say] we're busy and we have lots of window people. We have lots of people to deal with them, and we can't do it all the time."*

Technologically-savvy families reported that

technology helped them stay connected with their loved ones during the COVID-19 restrictions. However, some participants noted that the strategies generally fell short of effectiveness due to their loved one's cognitive, hearing, or visual impairments. For example, *"Facetime - it did not work for us. My mom is classed as legally blind due to her macular degeneration. My dad did not understand why we weren't there in person"* (Participant 6). Other participants found the use of telephone and online communication challenging because their parents had cognitive impairment and could not comprehend why they were not physically there. Overall, most participants tried audio calling but described such communication as "inadequate."

Communication between the residents and staff was plagued with many barriers. Notable among the obstacles was the mandatory use of face masks. Most participants described how their loved ones had some hearing impairment and relied on lip reading. With the mask on, lip reading and reading facial cues were no longer possible. For example, Participant (7) described:

> *"My husband relied a lot more on reading people's lips and facial expressions and wearing a mask; I found these residents never saw smiling faces anymore. They couldn't read facial expressions, and their [staff] voices were very muffled due to the mask."*

However, some participants talked about how some individual staff helped to keep them updated about their loved ones. Participants shared how the care aides were not supposed to tell them anything about their loved ones, but they would because they cared about the residents.

The manner in which the personnel interacted with the families was indistinguishable from the approach used by the management in their communication efforts. Most participants reported feeling "rushed" or "ignored" when calling to check on their loved ones. As participants recounted their experiences, they described how it felt like a fight to get information or access to their loved ones. However, some staff were responsive and informative with families, as Participant (2) noted, *"As best as they could, they told us about her week and progress."* These anecdotes demonstrate the general challenges of communicating with staff.

When participants had concerns and wanted someone in a position of authority to know, they felt their voices were not being heard. Participant 08 stated, "I had no confidence whatsoever that my concerns were being relayed by the management to anybody. They were just nodding their heads." Participants used the terms "vilified," "hindrance," and "enemy" to describe their feelings about their experiences in attempting to communicate with staff and management. As

Participant 01 stated, "We are not the enemy...we deserve to be heard." Many participants shared that they would try contacting the care home, and sometimes staff would answer the phone, and sometimes they would not, with several messages unreturned. Once the restrictions were starting to ease and "essential visitors" were being allowed in, this too created much grief as communication from the government, health authorities, and facilities was confusing and sometimes lacking. It appeared that each facility interpreted the policies somewhat differently, even within the same health authorities.

## The Rules

There was an overarching and unifying theme about the rules. The rules refer to the restrictions and policies that were implemented during COVID-19. Although a few participants described the restrictions as "justified," most of the participants described the restrictions and policies as "inconsistent," "ineffective," and "inhumane." What became evident from participants was the variation in such rules between facilities and health authorities, and these variations also applied to public and private facilities. The inconsistencies resulted from the rules from the government and province to health authorities and the care facilities being open to interpretation. This made it unfair for some residents and families in facilities with overly protective management. For example, participant 12 shared, *"They were trying to do the best they could. They were a bit slow in implementing the changes as Bonnie Henry* [BC Provincial Health minister] *announced them."* Again, a participant lamented why they would not allow her family of four to visit her mother, yet 10,000 people could converge on Rogers Arena for a sporting game. Others noted that many of the rules did not make sense. For example, some facilities within the same health authorities did not use the same visitation policies. Participant 08 noted how staff and volunteers could come and go all over the facility into different areas, but a family member could not come into the facility to visit their parent in a private room. Whereas in the same health authority but in a different services area, Participant 13 could go in every day, noting they visited most days. Participant 19 described their feelings being up and down about the visitation restrictions, stating that,

> *"as time has progressed, I felt a lot more anger over the inconsistencies in the implementation of the restrictions across facilities and health regions. Like, it feels like there's no kind of person that oversees all of this; it's just kind of someone, and each health authority assigned to it and all the rules are different and even within a health authority. The facilities all seem to be doing different things, and that has really been annoying for me."*

As *"essential visitors"* policies were created, this also caused much frustration and confusion. Their spouse was immobile and incapable of feeding themselves, but their friend was not getting essential visitor status because their spouse was mobile and could eat independently. They highlighted that an essential visitor was solely there to help the care staff meet only the basic needs of residents.

With the ineffectiveness of the rules, some participants noted that even after sacrificing all dimensions of health to keep residents safe, some still died, and most did not feel safe but felt rejected and alone. Participant 07 described that when her spouse's health deteriorated and even in palliative care, the family could only visit one person at a time and would pass one another in the lobby, debriefing each other as they switched visiting roles while they watched their loved one die. Participant 08 stated *"they would have to call the police to keep me from my dying wife."* The purpose of imposing the COVID-19 restrictions was to keep residents safe.

Participants reported that their loved ones were not safe since some died, some experienced a faster decline in cognition, and some became incapacitated due to prolonged inactivity, and most of the participants reported that their loved ones had experienced a fall during the lock-down. Participant 11 encapsulated the feelings of all participants, stating,

> *"We're not saving them [by] putting them in a plastic bubble, keeping them away from everything and everyone."*

All participants agreed that the COVID-19 restrictions imposed were inhumane to the residents. All participants expressed that isolating them from their loved ones should not happen. Some participants reported that it was cruel to treat the residents like prisoners, lock everyone in, and lock out families, which was *"like they were in prison… in some penitentiary."* Key excerpts from some of the participants highlight the pain the restrictions caused families with Participant 01 stating, *"If we had infants and young children in […] care homes and the numbers we have in Canada of seniors in care and treated them like we do to our seniors, there would be people protesting in the streets"* and Participant 11 asserting that *"They're abused, as far as I'm concerned, by having the people they love kept away."* Participant 03 summarized the feelings of all participants, stating,

> *"…no matter what, when someone gets to the point where they're frail and needing LTC, you're not just moving in one person, you're moving that whole family. …so all policies must be…family-centered. It cannot continue."*

Finally, the idea of *"othering"* surfaced in the results. Participants felt excluded from decision-making on

the rules, policies, and restrictions and what was best for them and their loved ones. Participant 18 described this as *"othering."* All participants raised questions about the various and evolving decisions made by government and health officials. For example, Participant 08 questioned why policies did not consider residents' mental health sufficient for them to be designated as essential visitors, given that essential visitor status had to do mostly with those who needed assistance with eating. Several participants described how decisions were made without regard for them or their loved ones, stating, *"we're not the enemy," "we are part of the circle of care," they were an "important part of the care team,"* and that they *"need to be heard,"* suggesting that governments knew what was best for families of and residents living in LTC not the families. Most participants also voiced the need for family councils and/or adjudicators when families have questions or issues, suggesting such a strategy would offer families a voice in decision-making regarding care delivery in LTC. As Participant 18 stated,

> *"we can't fix the past…[they] better do better next time."*

## DISCUSSION

The findings from this study contribute to the growing evidence of the impact COVID-19 restriction policies have had on families with loved ones in LTC while offering insight into improvements for the remainder of the current pandemic and preparing for future pandemics. The results uncovered five themes that help to explain family members' experiences. These themes highlight that while each participant had somewhat unique experiences, the COVID-19 policy restrictions impacted all participants consistently. Similar evidence has emerged and suggests policies about LTC restrictions must be revisited and be made inclusive of the needs of families and residents of LTC, emphasizing inclusive perspectives of families in the delivery of care and decision-making.

Since the beginning of the COVID-19 restrictions in early 2020, the emerging literature has drawn attention to the negative consequences the restrictions have had on families and residents in LTC. Researchers and advocates have been calling on governments, health authorities, and organizations to make the necessary changes to correct the well-meaning but short-sighted public health measures that continue to have such adverse effects (Chu et al., 2022; Daley et al., 2022; Hugelius et al., 2021; Mitchell et al., 2021; Nash et al., 2021). The experiences shared in this study corroborate those of other studies that continue to highlight the effects on the physical, mental, and social well-being of families and the long-term consequences of such policies (Chu et al., 2022; Daley, 2022; Mitchell et al., 2021; Nash et al., 2021).

The themes discovered in this study demonstrate the inter-relatedness of the impact of the COVID-19 restrictions and how they manifested in family experiences. Being kept from loved ones caused great stress, grief, and anxiety that was compounded by the lack of communication with their loved ones and the care staff. Good communication has been linked with a greater sense of ease and confidence in the care being provided and reassures families that their loved one is being well-cared for and is recommended for keeping families informed about LTC residents' care (Daley et al., 2022; Nash et al., 2021). While efforts to keep families informed and connected had some benefit in maintaining the emotional and social needs of families and their loved ones, in some cases, these efforts were ineffectual, resulting in increased stress and anxiety.

The ongoing lack of adequate staffing in LTC (Chamberlain et al., 2016; Rowmanow, 2002) exacerbated by the pandemic and support needed for implementing necessary communication strategies demonstrates the need for improved human resource planning going forward as others have similarly discovered (Dupuis-Blanchard, 2022; Gallant et al., 2022). Even so, the significance of individualized communication is critical for families.

Furthermore, the descriptions of the quality of life and mental health impacts on families and loved ones living in LTC cannot be emphasized enough. Social isolation due to the COVID-19 restrictions was a burden on family members. Families felt guilty for being unable to be with their loved ones, keep them company, and offer social support. The perception that loved ones had been abandoned and living a non-existent life weighed heavily on families. Family members felt themselves or their loved ones perceived them as responsible for the condition or environment in which their loved ones found themselves. Similar findings have recently been presented that further describe such experiences as traumatic due to the effects of COVID-19 related stressors of uncertainty, social isolation, lack of autonomy, loss, and others (Chu et al., 2022; Nash et al., 2021).

In a scoping review on the mental health impacts of COVID-19 on the social connection of residents in LTC, researchers discovered 61 articles that found an association between social connection and mental health outcomes (Bethell et al., 2020). Unsurprisingly, families in this study also experienced decreased quality of life and mental well-being. Results are aligned with those of Nash and colleagues (2021), who found that family members had an increase in mental health diagnoses, with 38% reporting depression and anxiety. The worry and concern for their loved one's health and social well-being for whom they were restricted from visiting, in conjunction with the evidence in the literature,

indeed leads to the deduction that the public health restrictions negatively impacted families and require significant improvements to ensure further trauma does not occur.

Moreover, this study adds that families are important members of the care team and should be treated as such, going beyond just visitors. Family members' contribution to the care of their loved ones was significantly restricted during the pandemic. The restrictions resulted in even greater staffing shortages than were present prior to the pandemic (Chamberlain et al., 2016; Ontario Ministry of Health & Long-term Care, 2008; Rowmanow, 2002). Families wanted to be a part of the care team during the pandemic because they felt they could contribute to the care needs of their loved ones and help decrease the burden on staff. This is not surprising, given that family caregivers provide nearly 30% of all care for residents (Tupper et al., 2020; Wolf & Jenkins, 2008) and have implications for future practice in LTC.

The overarching and unifying theme about the rules resulted in family members being excluded from decision-making processes; there were negative consequences due to COVID-19 restrictions. Although instituting the COVID-19 restriction rules was well-meaning, results from this study and others indicate that both families and loved ones were negatively impacted (Chu et al., 2022; Daley et al., 2022; Dupuis-Blanchard et al., 2021; Mitchell et al., 2022). Families reiterated that due to the evolving, confusing, and often inconsistent COVID-19 rules between LTC facilities and health authorities, they had to be vigilant in staying informed about their loved one's care and the current rules that were in place.

Kemp (2020) argued that classifying families as "visitors" takes a narrow view of what health truly means and negates families' vital role and contribution to LTC. Further, the "essential visitor" rule had serious flaws and lacked recognition of the value of family members being more than visitors. Such policies caused more harm than good as they attempted to protect residents from the potential harm of a virus but at the cost of quality of life and mental and social well-being (Chu et al., 2022; Dupuis-Blanchard et al., 2021; Gallant et al., 2022) while removing resident and family autonomy via "othering," and highlight the need to ensure future policies consider families' perspectives.

## Limitations

Although data was collected during COVID-19 and participants' experiences were "fresh in their minds" with recent recall, they self-selected into the study and may have a vested interest in the topic, leading to potential bias. While families represented four of the five health authorities, the number was small, and views may not be representative of a larger population; however, collecting and reporting on

the lived experience of people related to a specific phenomenon bring their unique perspectives, and these can help shape future policy and/or practices. An important facet of qualitative studies is the degree of rigor (credibility, dependability, confirmability, and transferability) demonstrated, and some aspects of rigor may have been missed. However, the researchers attempted to establish credibility and confirmability by establishing the researchers' authority, interview process, and techniques (including triangulation) and ensuring the collection of field notes and reflexive research team debrief meetings (Lincoln & Guba, 1986). For dependability, the research team provided a detailed description of the study protocol, an audit trail of data, and an inter-coding process (Lincoln & Guba, 1986).

Finally, as part of the researchers' larger study, there was an attempt to apply transferability. Though the response rate was small and cannot confirm data saturation in other contexts or settings, the findings are similar to those reported in the literature.

## CONCLUSION

This study provides added evidence of the experiences of families with COVID-19 restrictions of access to their loved ones living in LTC. The findings illustrate the harmful impacts on families and residents and are relevant for practice and policy related to ongoing and future restrictions in LTC. Both provincial and federal governments now have lessons learned and research evidence that can rectify their actions of restricting families from their loved ones. This study adds to advocates' calls and the evidence demonstrating that families' and residents' physical and mental well-being is of utmost importance in policy development. Correcting and improving policies will need to include families and residents in the conversation on what needs to be done, focusing on " family-centered " policies.

While health organizations developed action plans and policies as the pandemic unfolded, there was disregard toward families and residents in these settings. Families are essential members of the caregiving team, yet they and their needs were dismissed and treated without regard, but they could have been instrumental in supporting residents and overworked staff and the strained healthcare system. It is vital to improve care delivery in LTC with an emphasis on "family-centeredness" and to build pandemic/visitor restriction plans and policies to prepare for ongoing and future outbreaks and pandemics. Families and residents deserve much better.

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# COVID-19 Vaccination Behaviors, Sources of Information, and Beliefs among Nursing Home Administrators and Other Staff

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## ABSTRACT

Vaccine hesitancy among healthcare workers is a major health issue. The study objective was to examine the vaccination behaviors, sources of information, and beliefs among a sample of nursing home administrators and other staff. The National Association of Long-Term Care Administrator Boards (NAB) provided their contact list of all 1,159 currently licensed nursing home administrators and assisted living administrators in the United States (US) for this study. A cross-sectional analysis of survey responses was collected in the spring of 2021, and data was analyzed from 1,004 completed surveys of US nursing home administrators and other staff. A subpopulation of long-term care staff who refuse to be vaccinated based on the perceived speed of vaccine development and rollout, among other health concerns. Respondents selected a variety of sources from where they retrieved information about the COVID-19 vaccine. Most respondents trust the COVID-19 vaccine (80.6%), believe that the vaccine is important (82.7%), and are confident in its effectiveness in decreasing the spread of COVID-19 (74.9%). There was a high percentage of respondents who reported getting vaccinated against COVID-19. Of the sample, 85.0% responded "yes" to receiving the vaccine (scheduled but not received, in progress, or completed). Healthcare workers need to use reputable sources to retrieve information about vaccines.

KEYWORDS: COVID-19; Vaccine Hesitancy; Nursing Home Administrator; Vaccination; Sources of Information.

## KEY PRACTITIONER MESSAGE

1. Healthcare administrators will have a better understanding of the sources of information used by their long-term care colleagues and staff and potential strategies to increase vaccination rates among their workforce.
2. Healthcare practitioners in this study demonstrated a pro-vaccine attitude rather than vaccine hesitancy.
3. The previous and current literature suggests that trust can be rebuilt by utilizing research-oriented healthcare organizations to minimize the spreading of misinformation surrounding the COVID-19 vaccine.



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## INTRODUCTION

The COVID-19 pandemic has been the major focus of public health, long-term care (LTC) administration, older adults, and healthcare policy since 2020 (Berry et al., 2021; Lee et al., 2022). The political, ethical, and emotional perspectives have been partly highlighted due to the vaccination debate.

Vaccine hesitancy research has some historical background (Berry et al., 2021; Canning et al., 2005; Taylor et al., 2020). Some reasons people hesitate to receive vaccines, either initially or longer term, are directly related to concerns about rapid vaccine developments and their side effects, including infertility or pregnancy-related concerns (Berry et al., 2021). Vaccine research must be intensely tested and not perceived as rushed to help with confidence and in-creased vaccination rates (Taylor et al., 2020).

Past vaccine hesitancy research involving influenza identified a lack of vaccine awareness, concerns about side effects, and a lack of perceived need to get vaccinated (Taylor et al., 2020). Other issues involve confidence and acceptance levels of vaccines, which influence individuals' own opinions (Karlsson et al., 2019; La Torre et al., 2017). Trust in healthcare systems, research behind vaccines, vaccination behaviors, trust in institutions, lack of resources and sup-port, and lack of communication and transparency have been identified as current gaps in the system (Larson et al., 2018; Tan & Lim, 2009; Holahan et al., 2022). Overall, distrust in healthcare systems, research, and media existed pre-COVID-19 but has become more prevalent today.

Evidence of vaccine hesitancy exists among skilled nursing facility (SNF) staff (Harrison et al., 2021). Some reasons people hesitate to receive vaccines, either initially or in the longer term, are directly related to government mistrust, concerns about rapid vaccine developments, and the misconception that the vaccine might negatively impact fertility and pregnancy (Harrison et al., 2021). Since the general public does not sufficiently understand the vaccine development and testing process, the rapid launch of the first COVID-19 vaccines challenged perceptions of vaccine safety, impacting vaccine confidence (Siani & Tranter, 2022; Taylor et al., 2020; Unroe et al., 2021). Unvaccinated healthcare workers can transmit disease to residents in the facilities where they work, and staff members themselves are still susceptible to falling ill to the same diseases spread across their workplaces (Unroe et al., 2021). Vaccine hesitancy among LTC and SNF staff is concerning for older adults who live in these facilities due to the rapid spread and transmission of COVID-19 (Niznik et al., 2022). During the pandemic, the nursing home facilities who had moderate to high vaccination rates of their workers tended to be better at identifying barriers to becoming vaccinated that were important to their staff (Berry et al., 2022; McGarry et al., 2022;

Sinha & Konetzka, 2022).

When this study was conducted in the spring of 2021, the Centers for Disease Control and Prevention (CDC) and the Food and Drug Administration (FDA) had an approved list of COVID-19 vaccinations made available to the public. The Pfizer-BioNTech vaccine was approved on December 11, 2020, and the Moderna vaccine followed with approval one week later on December 18, 2020 (FDA, 2021; Moderna Receives Full U.S. FDA Approval for COVID-19 Vaccine Spikevax, 2022). The Johnson & Johnson (J&J) vaccine was approved two months later on February 26, 2021, and this was the last of three major COVID-19 vaccines made available before or within the period of this study (J&J, 2021). COVID-19 tests were made available in at-home kits and the mask mandate was still in effect in most public places (Office of the Commissioner, 2021).

This study examined whether vaccine hesitancy existed among United States licensed nursing home administrators and other staff. This analysis examines sources of information, reasons behind vaccination decisions, and vaccination patterns among nursing home administrators, state-tested nursing assistants (STNAs), and other staff in the United States. Sources of information, leadership, and ethical principles are all potential influences on information people use to determine whether to get the COVID-19 vaccine, specifically among nursing home administrators and other staff in the United States. Sources of information on COVID-19 vaccines are important to understand how people learn about this historic health-related topic.

## METHODS

A quantitative survey was sent to all 1,159 licensed nursing home administrators and Assisted Living Administrators with a valid e-mail address registered with the National Association of Long-Term Care Administrator Boards (NAB) between February and April 2021. NAB gave the investigators access to their mailing list. A QR code and a survey link were created and distributed through Alchemer's survey services. Informed consent was collected at the beginning of each electronic survey. Incentives for participating in this survey were not offered. The instructions asked those working as Licensed Nursing Home Administrators (LNHA) to complete the survey and share it with their employees via email or a flyer with a QR code that could be posted in the facilities. Results are based on 1,004 completed surveys.

The measures were developed as part of a larger research study examining the attitudes, knowledge, beliefs, sources of vaccine information, and COVID-19 vaccination rates among LTC administrators and staff (see Authors under review). This manuscript focuses on the sample's beliefs, sources of information, and vaccination behaviors.

Self-reported responses to questions were asked about both respondents and their residents. Additional questions were asked about vaccination status, intentions, and sources of in-formation on the vaccine. The sources of information choices included large newspapers (e.g., The New York Times), social media (e.g., Facebook, MeWe), and other media (e.g., Fox News, CNN), being inclusive across the ideological spectrum.

The analyses were done using the IBM SPSS Version 29.0.0.0 (241) program. First, analyses of frequency distribution were used to examine answers to the survey questions. Next, cross-tabulations were performed to examine sources of information, beliefs, and vaccination behaviors by gender and position. When analyzing the data, it was observed that many responses contained "CDC" as a written-in source of information under the "Other" category. Due to the high count of "CDC" responses, a new variable was created for "CDC" if it only contained "CDC" in the response, and if the response contained "CDC and [other]," it was counted in both categories. Due to a greater-than-expected pro-vaccination response among the sample, additional analyses were unnecessary.

## RESULTS

### Demographics and Personal Beliefs

Almost half of the respondents were LNHA's (49.5%) and were college graduates or had higher education levels (81.0%) (Table-1). They were asked questions about their opinions regarding the COVID-19 vaccine, including whether they trust the vaccine, resources used, and influences on receiving it. "Other" social media responses included, *"I have read excessive literature on the Covid vax. I also follow Zdogg," "None. So far nobody can tell me what 'sin the actual vaccine!," and "TikTok."* Respondents supplied *"ALL OF THE NEWS," "don't believe a thing from the news,"* and *"TV news is an oxymoron"* as other TV news sources. Responses similar to these were also provided for Newspaper Source and Other for sources of information (Table-2).

The next set of questions asked about the benefits of the vaccine (Figure-1). Respondents were generally in agreement (81.1% strongly agree/agree) with the statement, *"benefits of the vac-cine are greater than the risk for me."* The next question, *"the benefits of the vaccine are greater than the risk for residents/consumers,"* also showed strong agreement (86.8% strongly agree/agree). The question, *"The vaccine will prevent me from getting COVID-19,"* had greater variance in responses, with 25.5% strongly agreeing and 34.8% agreeing, while 10.6% disagreed and 7.8% strongly disagreed with the statement. A similar distribution was found for the statement, *"The vaccine will prevent residents/consumers from COVID-19"* (26.5% strongly agree, 37% agree, 11.1% disagree, and 5.5% strongly disagree)."

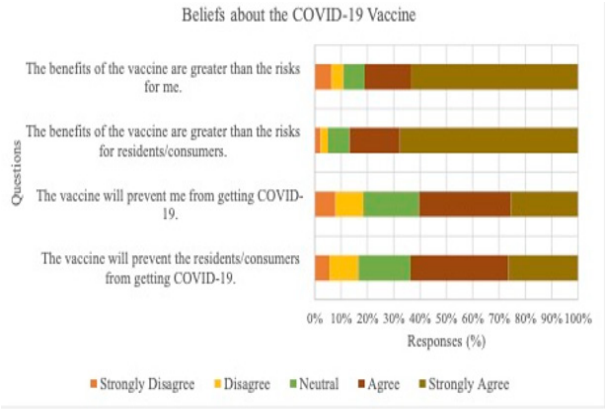


Figure-1. Literature search screening and selection flow-chart

## Behaviors

Of the sample, 85.0% responded "yes" to receiving the vaccine (scheduled but not received, in progress, or completed). The statement, "I trust the COVID-19 vaccine," showed 19.4% selecting "no." Fewer than 2% had not been offered the vaccine and 15% had not received the COVID-19 vaccine. Of those who received the vaccine, the most common reasons were to protect residents (83.4%), to protect family and friends (83.3%), and to protect co-workers (73.8%). Respondents were able to select all that applied and had a text box to enter other reasons (Table-2).

Most respondents were given educational information from their employers about the COVID-19 vaccine (91.6%). A small percentage of respondents reported that they would hardly ever or never get the COVID-19 vaccine after their co-workers (14.3%) or after members of management (14.4%). A similar percentage of respondents hardly ever or never receive their annual flu shot (16.1%) (Table-2).

Most respondents believe the COVID-19 vaccine is important (Figure-2). A large percentage of respondents reported having confidence in the COVID-19 vaccine to decrease its spread (82.6%) and prevent others from getting COVID-19 (76.4%). There were still 14.7% of respondents who did not plan to be vaccinated. Barriers to getting vaccinated include potential side effects (54.6%), "don't know enough about it to make a decision" (38.5%), potential

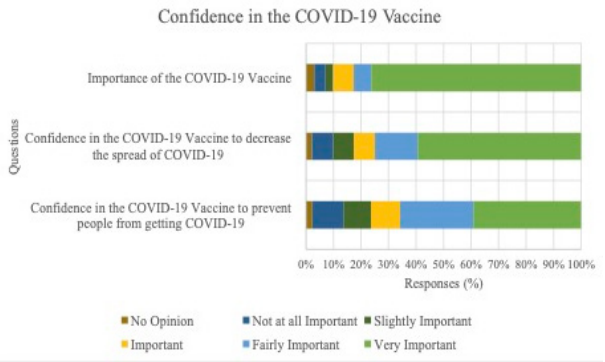


Figure-2. Literature search screening and selection flow-chart

allergic reaction (35.4%), and other (44.6%). Examples of answers in the "Other" category included mistrust, fear of microchipping, religious reasons, fertility concerns, and personal choice.

## Sources of Information

The next set of questions sought to learn more about the sources people used to gather information (Table-3). Questions were included about news sources (e.g., Fox News, CNN), social media (e.g., MeWe, Facebook), CDC, and other sources of information. The most common social media sources were Twitter (44), CDC (99), and Facebook (256). Traditional

Table-1. Vaccination status and demographic information about respondents

| Categories | Have you received the COVID-19 vaccine? | |
|---|---|---|
| | Yes (scheduled but not received, in progress, or completed) (%) | No (%) |
| Highest completed education level | | |
| Elementary schools and some High schools | 2 (0.2%) | 0 (0.0%) |
| High school graduate, GED, or post-high school certification | 47 (4.7%) | 19 (1.9%) |
| Some college | 92 (9.2%) | 30 (3.0%) |
| College graduate | 388 (38.9%) | 68 (6.8%) |
| Master's degree | 281 (28.2%) | 31 (3.1%) |
| Graduate college degree (MD, PhD, EdD, PharmD, etc) | 39 (3.9%) | 1 (0.1%) |
| What is your current job position? | | |
| Licensed nursing home Adminis-trator (LNHA) | 453 (45.1%) | 44 (4.4%) |
| State tested nurse aide / certified Nurse aide / nurse aide (STNA/CNA/NA) | 23 (2.3%) | 11 (1.1%) |
| Non-medical home health aide (HHA) | 1 (0.1%) | 0 (0.0%) |
| Licensed practical nurse (LPN) | 19 (1.9%) | 8 (0.8%) |
| Registered nurse (RN) | 46 (4.6%) | 13 (1.3%) |
| Dietary | 13 (1.3%) | 2 (0.2%) |
| Housekeeping | 5 (0.5%) | 4 (0.4%) |
| Maintenance | 7 (0.7%) | 2 (0.2%) |
| Administration | 117 (11.7%) | 23 (2.3%) |
| Activities / life enrichment | 21 (2.1%) | 3 (0.3%) |
| Rehabilitation staff | 8 (0.8%) | 2 (0.2%) |
| Other – write in | 101 (10.1%) | 19 (1.9%) |
| Social services | 19 (1.9%) | 6 (0.6%) |
| Clerical | 12 (1.2%) | 10 (1.0%) |

news net-works included ABC (282), CNN (318), Fox News (274), and OAN (27). Newspaper sources included local newspapers (226), New York Times (169), USA Today (103), Washington Post (111), Wall Street Journal (97), and the New York Post (47). The CDC appeared in each section in large numbers as "other." Each section allowed respondents to select all that applied, including "other," and then had an opportunity to enter other sources of information.

## Vaccination Behaviors

To help understand the context of vaccine behavior, we asked about annual flu vaccination behaviors, with 70.7% reporting getting the shot each year and 10.1% reporting never receiving the annual shot (Table-3). This compares to 85% of the sample who reported receiving the COVID-19 shot. Respondents were more likely to get the COVID-19 shot if their co-workers (66.5% very likely) and members of

management (66.7% very likely) received the vaccine first (Table-3). However, a consistent group would still be very unlikely to receive the COVID-19 shot even if their co-workers (10% very unlikely; 4.3% unlikely) and members of management (10.1% very unlikely; 4.3% unlikely) received the vaccine first.

Of those who selected being a college graduate or higher, 71.0% of respondents had either received, scheduled, or had the COVID-19 vaccine series in progress. LNHA's are among the most highly vaccinated job positions (45.7%), followed by administrators/clerical jobs (13.0%) and others (14.7%) (Table-3). When asked about confidence regarding whether the COVID-19 vaccine decreases the spread of the disease, most respondents agreed (58.3% very confident; 14.5% fairly confident) (Table-3). A similar distribution is reflected when asked the same question: LNHA's are more confident (33.5% very confident, 7.6% fairly confident) that the COVID-19 vaccine decreases the spread of the disease in comparison to administrators/clerical jobs (11.6% very/fairly confident) and other (12.9% very/fairly confident). Less respondents believed that the COVID-19 vaccine prevents people from getting the disease (38.5% very confident; 25.9% fairly confident). LNHA's were again the most confident (22.8% very confident; 14.3% fairly confident) that the COVID-19 vaccine prevents people from get-ting the disease, compared to administrators/clerical jobs (10.2% very/fairly confident) and other (11.9% very/fairly confident).

Table-2. Vaccine behaviors

| Categories | Count (%) | Categories | Count (%) |
|---|---|---|---|
| Reported Vaccination Rate | | Do you trust the COVID-19 vaccine? | |
| Yes | 850 (85.0%) | Yes | 803 (80.6%) |
| No | 150 (15.0%) | No | 193 (19.4%) |
| Missing | 4 (0.0%) | Receive an annual flu shot | |
| Given educational information about the COVID-19 vaccine from employer | | Every year | 708 (70.7%) |
| Yes | 916 (91.6%) | Almost every year | 86 (8.6%) |
| No | 94 (8.4%) | Some years | 46 (4.6%) |
| Likeliness to get COVID-19 vaccine after co-workers | | Hardly ever | 56 (5.6%) |
| Every year | 638 (66.5%) | Never | 105 (10.5%) |
| Almost every year | 112 (11.7%) | Likeliness to get COVID-19 vaccine after members of management | |
| Some years | 73 (7.6%) | Every year | 643 (66.7%) |
| Hardly ever | 41 (4.3%) | Almost every year | 112 (11.6%) |
| Never | 96 (10.0%) | Some years | 71 (7.4%) |
| | | Hardly ever | 41 (4.3%) |
| | | Never | 97 (10.1%) |

## DISCUSSION

The current study indicates a high level of vaccination among the sample of nursing home administrators and other staff. However, approximately 15% of respondents did not intend to receive the COVID-19 vaccination or were hesitant. At the beginning of the COVID-19 pandemic, there were disproportionate numbers of older adults and minority individuals who were affected; most of these individuals resided in LTC facilities (Gorges & Konetzka, 2021; Temkin-Greener et al., 2020). LTC facilities were challenged by the COVID-19 pandemic, primarily by staffing shortages and mistrust surrounding the development of the COVID-19 vaccine by residents and staff, among other challenges (Vipperman et al., 2021). In this study, a provaccine attitude was observed among the respondents; for example, 85.0% of the respondents received the vaccine (scheduled but not received, in progress, or completed). However, despite using non-scientific sources of information, our population exhibited a high level of vaccination behavior. This study shows how nursing home administrators and other staff take risk-benefit, personal beliefs, best interests of older adult residents, and influences of their co-workers into consideration when making decisions about whether or not to receive the COVID-19 vaccine. There are important lessons from the respondents highlighting underlying trust issues and potential for educational programs on the methodology and research processes involved in the COVID-19 vaccines and other health initiatives. Understanding and overcoming barriers to staff vaccine acceptance is vital for understanding how to invoke better outcomes for staff and residents living in these facilities. Vaccine hesitancy can be attributed to a variety of factors, many of which were seen in this study and support the findings of similar research studies on the subject. The results from this study show that sources of information and vaccine behaviors are two major factors that influence whether a person will become vaccinated. The focus of this study was on the healthcare population sub-groups of nursing home administrators and other staff, and while a majority of the respondents reported that they were in the process of becoming or already vaccinated against COVID-19, it is of utmost importance that healthcare workers get vaccinated to protect not only themselves but their co-workers and patients who are more susceptible to acquiring the disease. Providing accurate, informative, and unbiased sources of information about COVID-19 and vaccine development may help encourage higher vaccination rates and shift belief systems surrounding the vaccine stigma.

### Limitations and Directions for Future Research

This is a limited self-selected sample of nursing home administrators, STNAs, and other staff, with

a large representation of LNHAs. There are roughly 15,000 certified nursing homes in the United States; the survey went to around 10%, and of that 10%, we had close to a 6.6% response rate. In addition, since the LNHA was given the responsibility of soliciting participation from other staff in the building, there may have been significant bias among the group of front-line staff that opted to submit responses based on the level of trust and engagement with the LNHAs of their centers, or which LNHAs actually made an effort to share the survey.

Randomization was not used and patterns of bias with snowball sampling were possible. Because the survey could be shared with staff, it was impossible to compute a response rate. The CDC should have been listed within the survey as a source for information choice. This was addressed by reviewing other category entries and including them in the analysis. All answers were anonymous; however, potential respondents may not have completed the survey and may have been more likely to have not been vaccinated due to a social desirability effect.

Future research should examine ways of building trust between the CDC, Healthcare advocacy and membership organizations, the National Institutes of Health, and other research-oriented organizations.

Table-3. Sources of information

| Categories | Count (%) | Categories | Count (%) |
|---|---|---|---|
| Social Media | | TV News Source | |
| Facebook | 256 (36.7%) | ABC | 282 (25.7%) |
| Gab | 6 (0.9%) | CNN | 318 (29.0%) |
| MeWe | 9 (1.3%) | FOX | 274 (25.0%) |
| Twitter | 44 (6.3%) | OAN | 27 (2.5%) |
| CDC | 99 (14.2%) | CDC | 4 (0.4%) |
| Other | 284 (40.7%) | Other | 193 (17.6%) |
| New Source | | Others | |
| LA Times | 16 (1.8%) | Co-workers | 398 (19.3%) |
| Local Newspaper | 226 (25.5%) | Family | 317 (15.4%) |
| New York Post | 47 (5.3%) | Friends | 263 (12.7%) |
| New York Times | 169 (19.1%) | YouTube | 56 (2.7%) |
| Wall Street Journal | 97 (11.0%) | Public Service Announcements / Advertisements | 325 (15.7%) |
| USA Today | 103 (11.6%) | Websites | 302 (14.6%) |
| Washington Post | 111 (12.5%) | Self-research | 306 (14.8%) |
| CDC | 12 (1.4%) | CDC | 21 (1.0%) |
| Other | 104 (11.8%) | Other | 76 (3.7%) |

Establishing or rebuilding trust via educational interventions should be the next set of research studies, specifically focusing on interpersonal, organizational, institutional, and public trust (Holahan et al., 2022). Information sources are permeated by mis- and disinformation, impacting vaccine beliefs and behaviors among this sample group. To combat mis- and disinformation, administrators of LTC facilities could provide an array of scientifically sound information when training staff members to improve vaccine behaviors and vaccine confidence. These efforts should also be built into the curricula of LTC administration, nursing, and other collegiate programs educating our healthcare professionals and direct care workers. Comparing LNHA's and assisted living facility directors and their roles in providing vaccine resources to their staff is an area of study that should also be addressed. Continuing education programs should also be designed to help educate current professionals on the scientific method, research, and the role of the CDC.

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# INSTRUCTIONS TO AUTHORS

## JALTC Journal Rules

The Journal of Aging and Long-Term Care (JALTC) is being established as open access and quarterly peer-reviewed journal that accepts articles in English. Open Access publishing allows higher visibility of an author's research as articles are available for anyone to access worldwide. Articles published in JALTC are highly visible and gather more citations and publicity than stand-alone articles.

JALTC is published three times a year. Articles submitted should not have been previously published or be currently under consideration for publication any place else and should report original unpublished research results. The journal does not expect any fees for publication. All articles are available on the website of the journal with membership.

The quantitative, qualitative and mixed-method research approaches are welcome from disciplines including but not limited to education, gerontology, geriatrics, nursing, care and hospice, social work, psychology, sociology, biology, anthropology, economics and business administration, engineering, gerontechnology, law, human rights, public policy, architecture, women studies, rehabilitation, and dietetics.

Prospective authors are cordially invited to contribute clearly written original empirical research manuscripts, reviews, brief reports, hypothesis & theory, clinical trial, case report or discussion, short communications, and case studies, general commentary, debates and controversies, care facility and services, book review, editorial or guest editorial and erratum including innovative practices from the field as well as relevant philosophical and ethical perspectives on long-term care and older adults.

The review process for submitted manuscripts has been planned **not to exceed four months.** All research articles submitted to the journal will undergo **rigorous peer review,** based on initial editor screening and anonymous refereeing by two peers.

## Scientific and Ethical Responsibility

Authors, as they contribute to the academic-scientific article on the cover page, share the scientific and ethical responsibility. After acceptance of manuscripts, then is confirmed that it belongs to the Journal and copyright passes on the publisher.

Authors should ensure accepting scientific and ethical responsibility by avoiding unacceptable or improper behaviors of falsified research, fraudulent data, paraphrasing, duplication, and blatant plagiarism. Authors should also keep in mind the terms emphasizing "ageism" need to be avoided in using to describe the population. Discrimination based on age should be avoided by considering two statements:

> *"Elderly is not acceptable as a noun and is considered pejorative by some as an adjective. Older person is preferred. Age groups may also be described with adjectives: gerontologists may prefer to use combination terms for older age groups (young-old, old-old, very old, and oldest old), which should be used only as adjectives. Dementia is preferred to senility; senile dementia of the Alzheimer's type is an accepted term" (The American Psychological Association, Section 2.17 Age, p. 69).*

> *"Age.-Discrimination based on age is ageism, usually relevant to older persons. Avoid using age descriptors as nouns because of the tendency to stereotype a particular group as having a common set of characteristics. While in general the phrase the elderly should be avoided, use of the elderly may be appropriate (as in the impact of Medicare cuts on the elderly, for example). Otherwise terms such as older person, older people, elderly patients, geriatric patients, older patients, aging adult, or the older population are preferred" (The American Medical Association, Inclusive Language Section, 9.10.3, p. 268).*

The Copyright Transfer Form should be signed by all the authors.

## Preparation of Manuscripts

Only the articles sent online can be evaluated. The authors should submit their manuscripts online via the journal's website at http://agingandlongtermcare.com. In addition, the authors can register to the link https://dergipark.org.tr/en/ site to send the article and track the progress of evaluation.

Information about the application should be entered into the system in nine complete steps: (1) Manuscript and Abstract

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Information (2) Affiliation(s) (3) Author(s) (4) Corresponding Author Information (5) Manuscript Title (6) Abstract (7) Keywords (8) Comments to Editorial Office (9) Upload Files. The information about manuscript type and category, the author name(s), name of the institution, affiliations, an address for correspondence (including the name of the corresponding author with an e-mail address and fax and phone numbers) and ORCID ID for author(s) should be entered in the system.

ORCID is part of the wider digital infrastructure needed for researchers to share information on a global scale. In this respect, the authors should use an internationally recognized ORCID identification number to avoid difficulties that occasionally arise as a result of similarities in names and surnames also to enable transparent and trustworthy connections between researchers.

The latest version of The American Psychological Association (APA) Style, namely the APA 7th Edition, should be followed when formatting articles. The manuscript file must be double spaced, including the references and tables, and the text should be left justified. Tables and figures must be fully prepared for publication according to APA guidelines. Detailed information on the latest APA Style can be found on the following website: http://www.apastyle.org

**Language:**

It is recommended that authors use American English spelling.

**Length of Articles:**

The whole manuscript must not exceed maximum 8000 words, including abstract, keywords, key practitioners message, the article itself, tables and figures, and references.

**Line Spacing and Font:**

Articles should be double-spaced excluding abstracts, notes and references and should be submitted in 12pt Times New Roman font.

**Title Page and Abstract:**

The **Title** should consist of 30 or fewer words.

An **Abstract** must include a maximum of 300 words (including citations if used) and be provided on a separate page.

**Keywords** must include a minimum of 5 to 8 words and/or phrases.

**Key Practitioner Message** must include 3 to 5 bullets

**Reference Citation:**

Reference citations in the text and in the reference list proper should follow conventions listed in the Publication Manual of the American Psychological Association latest edition (7th ed.), referred to hereinafter as the APA Manual. Provide a reference or bibliography that lists every work cited by you in the text. It is recommended that authors use Citation Management Software Programs for reference citation; please look at web pages of EndNote (www.endnote.com), RefWorks (www.refworks.com), Papers (www.mekentosj. com), Zotero (www.zotero.org), and Mendeley (www.mendeley.com).

*Journal Articles:*

Lo, C. L., & Su, Z. Y. (2018). Developing multiple evaluation frameworks in an older adults care information system project: A case study of aging country. Journal of Aging and Long-Term Care, 1(1), 34-48. doi:10.5505/jaltc.2017.65375.

*Edited Book:*

Whitbourne, S. K. (Ed.) (2000). Wiley Series on Adulthood and Aging. Psychopathology in Later Adulthood. Hoboken, NJ, US: John Wiley & Sons Inc.

*Book Section:*

Bowen, C. E., Noack, M. G., & Staudinger, U. M. (2011). Aging in the Work Context. In K. W. Schaie & S. Willis (Eds.), Handbook of the Psychology of Aging (7th Ed.) (pp. 263-277). San Diego: Academic Press.

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*Web Page:*

Borji, H. S. (2016, 25.07.2016). Global Economic Issues of an Aging Population. Retrieved from http://www.investopedia.com/articles/investing/011216/4-global-economic-issues-aging-population.asp.

**Figures and Tables:**

Figures and tables should be numbered using Arabic numerals. The same information should not appear in both a figure and a table. Each table and figure must be cited in the text and should be accompanied by a legend on a separate sheet.

Authors are responsible for all statements made in their work, and for obtaining permission from copyright owners to reprint or adapt a table or figure or to reprint quotations from one source exceeding the limits of fair use.

**Plagiarism Checking:**

All manuscripts are scanned with a plagiarism checker to deter and prevent plagiarism issues before submission.

**Copyediting and Proofs:**

Manuscripts will be evaluated on the basis of style as well as content. Some minor copyediting may be done, but authors must take responsibility for clarity, conciseness, and felicity of expression. PDF proofs will be sent to the corresponding author. Changes of content or stylistic changes may only be made in exceptional cases in the proofs.

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Vision and Mission

The major goal of the Journal of Aging and Long-Term Care (JALTC) is to advance the scholarly contributions that address the theoretical, clinical and practical issues related to aging and long-term care. The JALTC, while making efforts to create care services for older people at the best quality available that are more humane, that pay special attention to people's dignity, aims from the perspective of the whole aging process to discuss Social Care Insurance as a human right, to contribute care for older people to be transformed into an interdisciplinary field, to integrate care services for older people and gerontological concepts and to create more effective collaboration between them, to enhance the quality of care services for older people and the quality of life of caregivers from medical, psychological and sociological perspectives, to highlight the cultural factors in care for older people, to increase the potential of formal and informal care services, to provide wide and reachable gerontological education and training opportunities for caregivers, families and the older people.

Aims and Scope

"National Association of Social and Applied Gerontology (NASAG)"has recently assumed responsibility for the planning and introduction of a new international journal, namely, the Journal of Aging and Long-Term Care (JALTC). With world societies facing rapid increases in their respective older populations, there is a need for new 21st century visions, practices, cultural sensitivities and evidenced-based policies that assist in balancing the tensions between informal and formal longterm care support and services as well as examining topics about aging.

The JALTC is being launched as the official journal of the NASAG. The preceding journal aims to foster new scholarship contributions that address theoretical, clinical and practical issues related to aging and long-term care. It is intended that the JALTC will be the first and foremost a multidisciplinary and interdisciplinary journal seeking to use research to build quality-based public policies for long-term health care for older people.

It is accepted that aging and long-term care is open to a diverse range of interpretations which in turn creates a differential set of implications for research, policy, and practice. As a consequence, the focus of the journal will be to include the full gamut of health, family, and social services that are available in the home and the wider community to assist those older people who have or are losing the capacity to fully care for themselves. The adoption of a broader view of aging and long term care allows for a continuum of care support and service systems that include home base family and nursing care, respite day care centers, hospital and hospice care, residential care, and rehabilitation services. It is also crucial to be aware that life circumstances can change suddenly and dramatically resulting in the need for transitional care arrange ments requiring responsive, available, accessible, affordable and flexible health care service provision.

For further assistance and more detailed information about the JALTC and the publishing process, please do not hesitate to contact Editor-in-Chief of the JALTC via sending an e-mail: editor-in-chief@jaltc.net Editor-in-Chief: Emre SENOL-DURAK

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