

The use of digital technologies among older adults during the COVID-19 pandemic: A descriptive study in Turkey

Seyma Esin Erben¹; Aydan Ünlükaya Çevirici²; Jale Balaban Salı³

Received: 7th July 2022 / Accepted: 9th March 2023 / [OPR](#)

Abstract. The objective of this descriptive qualitative research was to explore the use of information technologies and changes in its use among elderly individuals who experienced the longest curfews in Turkey during the COVID-19 pandemic. The study also aimed to better understand the challenges this age group faced while utilizing these technologies. The researchers conducted semi-structured interviews with twelve over sixty-fives from different regions of Turkey, ten of whom are retired, and two of whom are currently working. The study's results indicated that during the pandemic, the use of ICT among this age group increased for financial transactions, connectedness, obtaining information/news, and leisure activities. However, the study also revealed that these individuals faced challenges in adopting new online activities due to concerns about personal data, especially in financial transactions, highlighting the need for support in this area.

Keywords: digital challenges; elderly; information technology; interviews; curfew.

[es] El uso de tecnologías digitales entre adultos mayores durante la pandemia de COVID-19: Un estudio descriptivo en Turquía

Resumen. Esta investigación cualitativa tiene como objetivo explorar el uso de las tecnología de la información y los cambios en su uso entre personas mayores de sesenta y cinco años que experimentaron confinamientos más largos en Turquía durante la pandemia de COVID-19. El estudio muestra los desafíos digitales que este grupo de edad tuvo que afrontar en este periodo. Los investigadores realizaron entrevistas semiestructuradas con doce personas mayores de sesenta y cinco años, de diferentes regiones de Turquía, diez de ellas jubiladas y otras dos en activo. Los resultados indican que esta muestra de personas mayores realizó un mayor uso de las TIC en transacciones financieras, conectividad, acceso a información/noticias y actividades de ocio. El estudio también revela que esta muestra de personas mayores tuvo que afrontar nuevas ansiedades asociadas a los problemas de seguridad de sus datos personales en actividades online, especialmente en transacciones financieras. El estudio concluye la necesidad de recursos y medidas adicionales que faciliten el alfabetismo digital de las personas mayores.

Palabras clave: anciano; confinamiento; desafíos digitales; entrevista; tecnología de la información.

Summary. 1. Introduction. 2. Methodology. 3. COVID-19 and (un)digitalisation. 4. Findings. 5. Conclusion and discussion. 6. Authorship contribution statement. 7. Data availability. 8. References.

How to cite: Esin Erben, Seyma; Ünlükaya Çevirici, Aydan; Balaban Salı, Jale (2023). The use of digital technologies among older adults during the COVID-19 pandemic: A descriptive study in Turkey. *Teknokultura. Revista de Cultura Digital y Movimientos Sociales*, 20(2), 261-268. <https://doi.org/10.5209/tekn.82932>

1. Introduction

The World Health Organization (WHO) recognizes that ageing is not only characterized by biological changes but also by other transformations in life such

as retirement and housing arrangements (WHO, 2022). In Turkey, the Ministry of Family and Social Services defines individuals aged sixty-five and older as elderly, in line with the general approach of most developed countries (Kowal & Dowd, 2001).

¹ Istanbul Gelisim University (Turkey)

E-mail: seerben@gelisim.edu.tr

ORCID: <https://orcid.org/0000-0002-9984-1242>

² Istanbul Gelisim University (Turkey)

E-mail: aunlukaya@gelisim.edu.tr

ORCID: <https://orcid.org/0000-0002-5645-6192>

³ Independent Researcher (United Kingdom)

E-mail: jalebalaban@gmail.com

ORCID: <https://orcid.org/0000-0002-5392-7438>

After the WHO declared COVID-19 a global pandemic on March 11, 2020, the Turkish government imposed a curfew on individuals over sixty-fives years of age and those with chronic conditions, starting from March 21, 2020. Subsequently, various circulars were issued by the Ministry of Interior Affairs, outlining different regulations regarding curfews.

During the COVID-19 pandemic, older adults had to adjust their daily routines and faced difficulties accessing essential support in areas such as social interaction, psychological well-being, and healthcare. Those who had access to information and communication technologies (ICT) and basic digital skills used digital tools to interact with family and friends and to carry out daily activities during the curfews. However, many older adults had to adapt to using digital tools and applications they had not used before the pandemic.

This study focuses on the use of ICT by individuals over sixty-five years of age, both before and during the COVID-19 pandemic, with a discussion centred around four main themes: connectedness, information/news acquisition, financial transactions, and leisure activities.

2. Methodology

This study aims to examine changes and challenges in the use of ICT by those over sixty-fives—a group that has experienced prolonged curfews due to the COVID-19 pandemic in Turkey. A descriptive research method was adopted, and qualitative data were collected from twelve participants, including six women and six men, through semi-structured interviews. The study initially employed a judgment-based sampling method to select the first three participants from researchers' indirect networks based on three criteria: age (sixty-five+), active use of ICT, and residence in Turkey, where age-based curfews were in place for about nine months. Snowball sampling was used to interview participants from various regions of the country, including Marmara, Aegean, Central Anatolian, and Black Sea regions.

Between December 15 and June 7, 2021, the interviews were conducted both online and offline, with an average duration of 35 minutes. Before participating in the study, all participants provided informed consent. All interviews were audio recorded and transcribed. Google Sheets was used for collaborative thematic analysis of the data.

3. COVID-19 and (un)digitalisation

The curfews on over sixty-fives to go out on the streets due to the COVID-19 pandemic in Turkey continued under the name of restriction after a while. The first circular regarding this situation was published on the website of the Ministry of Interior Affairs on March 21, 2020, ten days after the official announcement of the first COVID-19 case in Turkey. Following this, until December 27, 2020, a total of seventy-two circulars on curfews/restrictions were published, and fifty one circulars directly related to

the issue of curfew were obtained. The curfew restriction for over sixty-fives in the circulars also included people with chronic diseases whose health is at high risk during the COVID-19 pandemic. The circulars state the updates on issues such as regulating the hours of curfew restrictions for the citizens in question, permission to go out of the city on the condition that they do not return in one way and for a month, and exemption of employees from restrictions.

In the first days of the curfew, many incidents of age (elder) discrimination were reflected in the mainstream news and on social media. Ageism was first conceptualised by Robert Butler (1969) as ageism, as the prejudice of one age group against another. Over time, ageism has started to be used to correspond to age discrimination. Ayalon Liat and Clemens Tesch-Römer (2018) evaluate age discrimination in three different dimensions: The first one is the micro level, associated with the individual; the second is the moderate level, in relation to societal assets such as health services; the third is the macro level, in relation to cultural and social values. Despite the efforts to explain these levels with different theories and approaches, there is no common definition of age discrimination and the most attention is given to the advancing chronological age. Whereas the stated curfews were applied according to chronological age in the COVID-19 pandemic, it was inevitable for over sixty-fives to encounter difficulties at all three levels.

Based on the SPRY approach, it can be observed that older adults have four interrelated areas of needs: financial security, physical health, mental health, and environmental factors, as well as engagement in intellectual pursuits (SPRY, 2000 cited by Tatnall & Lepa, 2003). In their study in which they evaluated the literature on the social needs of the elderly, Tina Ten Bruggencate et al. (2018) drew attention to the needs such as participation in social activities, connectedness, and relationship building. However, due to the curfew during the COVID-19 pandemic, it has become extremely difficult to meet all these needs for people aged sixty-five and over.

Although ICT has provided as an emergency button for daily needs, accessing it has posed a challenge for older adults. Statistics show that the percentage of over sixty-fives in the total population is 9.5% (TUIK, 2021b), and at the start of the pandemic, 65% of this group had not used the internet in the past three months (Binark et al., 2020).

Socio-economic and regional differences should be considered when evaluating the needs of elderly and it should be considered that social and personal experiences are not the same in the context of ICT use (Neves & Vetere, 2019). Based on a review of the literature, this study emphasizes the purposes of ICT use for individuals aged sixty-five and over during the COVID-19 pandemic in terms of maintaining connectedness with family, peers, and healthcare services, conducting financial transactions, accessing information and news, and engaging in leisure activities such as entertainment and intellectual pursuits.

3.1. Connectedness

In the study of Zheng and Walsham (2021), in which they discuss digital inequality during the COVID-19

pandemic, it is stated that digital inequality is closely linked to the position of people in the multisystem. In this study, a relatively inclusive social approach is presented by considering digital inequality together with the digital divide, work, gender, and racial discrimination. Therefore, supporting the ageing population to reduce the digital divide is not a step towards eliminating this inequality.

Feifei Bu, Andrew Steptoe and Daisy Fancourt (2020) state that loneliness in society is a subject of increasing interest during the COVID-19 pandemic. Despite the general assumption that ICT increases social connectedness among older adults (Chen et al., 2021), Yi-Ru Regina Chen and Peter J. Schulz's (2016) systematic review study found that the effectiveness of ICT in reducing social isolation and loneliness among older adults was uncertain. Accordingly, ICT affects social support, connectedness, and social isolation in general positively. However, in the uncertain results of the effect of ICT on reducing loneliness, interest, motivation, and physical skills are seen as important determinants.

3.2. Obtaining information and news

Older people who experience stress, concern, and anxiety due to the lack of scientific knowledge about COVID-19 may feel more secure with their reliance on their sources of information (Chen et al., 2021). Mainstream media content regarding the COVID-19 pandemic in Turkey became quite controversial during the curfews. The Coronavirus Science Board was established by the Ministry of Health to provide scientific opinions during the pandemic. However, such issues as not using the diagnostic codes recommended by the WHO, questions about the low number of deaths due to COVID-19 (Altındağ, 2020), and the criminalisation of data sharing by healthcare professionals (Kısa ve Kısa, 2020) have been the subject of debate. Moreover, some conflicting statements by the WHO on wearing masks and confusing information around the world such as the effects of COVID-19 vaccines, as well as conflicting statements and practices on issues such as curfews, social distancing, open-air contagion, and vaccine supply in Turkey, have taken place on the agenda of both mainstream media and social media (Birgün, 2021).

Tiziano Gerosa et al. (2021) state that obtaining information through social media ensures the rapid dissemination of unverified information, and education-based information inequalities have emerged during the pandemic. In this context, confirmation and verification are necessary for every age group that obtains information via digital media. Digital media includes social media, institution websites, news sites, and other online resources. However, social media provides the fastest dissemination of content due to its nature.

Bo Xie et al. (2020) reported that older adults tend to rely on television for information. A similar finding was revealed in a study conducted in Turkey during the COVID-19 pandemic. According to this research, 95% of elderly participants considered television as a source of information, while the proportion of those who

relied on digital media as an information source after the pandemic was only around 20% (Binark et al., 2020).

3.3. Financial transactions

The use of ICT has become mandatory from time to time to carry out financial transactions as part of daily activities during the COVID-19 pandemic, curfews, quarantine, or social isolation periods. Activities such as online money transfers, bill or tax payments, online shopping and bank account management have significantly increased during the pandemic and are carried out through mobile applications and websites. In fact, with the surge in global e-commerce traffic, mobile financial transactions have become dominant compared to other alternatives (Chevalier, 2021).

However, the adoption and use of technology by older adults lag behind younger communities, according to Xie et al. (2020). Factors such as devices and applications not being designed for the older people, sociocultural habits, and data safety and security issues play an important role in technology adoption. Nevertheless, a study conducted in England with Three thousand four hundred ninety-one participants aged between fifty-five and seventy-five-75 by Anna-Stiina Wallinheimo and Simon L. Evans (2021) found that 77% of the participants used the internet for online shopping, and 63% used it for financial transactions. These studies demonstrate the use of ICT in financial transactions is closely related to sociocultural differences.

3.4. Leisure activities

According to Carolyn Wilson (2018), academic studies on the use of ICT by older people have been extensively conducted since 1994. In Turkey, research on the use of ICT by the elderly population has increased significantly during the COVID-19 pandemic, with a particular focus on socialisation, information acquisition, and communication in the Turkish literature. The interest of older adults in using ICT for specific purposes has been noted as a significant factor (Gündoğdu, 2020, p. 41).

On the other hand, it is seen that over sixty-fives use these technologies for leisure and entertainment purposes (Sinav, 2020, p. 118). To gain a comprehensive understanding of the topic, it is essential to examine these time-consuming activities within the broader context of other ICT-mediated processes and applications. Given the extended periods of time older adults spend at home during the COVID-19 pandemic, changes in their leisure activities are worth considering. Older adults with ICT access, with or without support, spend their time online watching shows, movies, and videos, listening to music, and playing games (Atakisi & Orhan, 2020).

4. Findings

The findings of the study are presented in the following order: first, the demographic characteristics of the participants; then, the findings related to the use of ICT

during the COVID-19 outbreak; and finally, the difficulties encountered by participants when using ICT tools.

4.1. Demographics of participants

The study included interviews with twelve participants, consisting of six females and six males. Four participants resided in the Marmara region, four in the Aegean region, one in the Mediterranean region, one in the Black Sea region, and two in the Central Anatolia region. All but two participants were retired at the time of the study. Out of the participants, only one lived alone, while the others lived with family member(s). One participant reported living alone, while all others reported living with family members. However, the participant who lived alone revealed that they regularly met with their children and grandchildren in person on a daily basis.

4.2. Findings on the use of ICT

Almost all the interviewees (eleven people) stated that they have been using ICT for more than a decade. Notably, the interviewees primarily associated ICT with the use of smartphones. Besides, three interviewees indicated that smartphones had replaced computers for their needs.

Most interviewees (nine individuals) reported that they first started using ICT with the support of their children but later advanced their learning through trial-and-error as they gained confidence that those technologies would not fail.

Three interviewees reported purchasing new smartphones during periods of curfew, while all participants noted differences in the purposes and duration of their ICT use during the COVID-19 pandemic. The study identified several topics related to ICT use during the pandemic, which are examined below:

- Social media: During the COVID-19 pandemic, most interviewees (9 people) stated using social media more effectively, while three said their usage remained unchanged. On social media, they communicate with friends and families, participate in group discussions, stayed updated on agendas, watch how-to content, and share everyday moments and information. Facebook, Instagram, YouTube, and Pinterest were the most used platforms. While none of the male participants used Pinterest, three women reported spending significant time learning new things such as creative crafts and upcycling. Participants use WhatsApp for daily communication. They generate less content on Instagram than on Facebook. While YouTube isn't used for content creation, it serves as a visual and auditory search engine and a way to pass time. Change in duration and activities with ICT use during the pandemic: It was revealed that all interviewees spent at least three hours per day using ICT, even while watching television at home, during the COVID-19 pandemic. The participants indicated an increase in their overall ICT use duration and activities during this time. Obtaining information and

news: All participants obtained daily information and followed news from TV channels that align with their political views and occasionally from social media. Regarding COVID-19 news and information, the interviewees deemed television news as the most reliable source, with preferences based on their political leanings. Besides, online news sites are preferred for longer news content that arouses more interest.

- Content types: All participants stated that news attracts their attention even if they do not want to pay attention to them. This is followed by how-to content that attracted the attention of ten participants. As a matter of fact, it is concluded that the participants consume how-to videos and visual content for both leisure activities and to gain information about the subjects they are curious about.
- Online platforms used during the pandemic: The interviewees were asked which platforms they used during the pandemic to better comprehend the limits of their use of ICT. Accordingly, while all of them use WhatsApp, the vast majority (ten people) are connected to Facebook, and ten people are heavily connected to YouTube. This ranking is followed by Instagram, which is used by 9 people. The usage rate of Twitter among participants, where both official institutions and medical doctors in the ground post updates and information, is very low during the COVID-19 pandemic (three people). Besides, the number of people who stated that they use Pinterest is three and all are females. Other ICT tools specified by the participants are mobile banking (five people), Netflix (2 people), Telegram (two people), and Zoom (one person). Even though some of the interviewees emphasised that they use such tools as navigation, e-pulse, and games from time to time while answering other questions, it is remarkable that they did not provide information about these applications in this question.
- Online activities through ICT: The findings showed that besides spending time on social media and obtaining news and information, the interviewees also used ICT for playing games, financial transactions, and watching series and movies.

One-third of the interviewees (four people) preferred traditional banking and did not use ICT for financial transactions. On the other hand, five interviewees indicated that they began using ICT for banking transactions during COVID-19 curfews with the help of their family members. The primary concerns of those who have not used online banking for their transactions during curfews are related to potential disruptions in financial transactions and the security of their personal information. Half of the interviewees (six people) played games on their digital devices. Almost all the games mentioned by the interviewees (backgammon, quizzes, puzzles) are short-term, simple-to-play games. Five interviewees watching TV series/movies online connect to YouTube for mostly missed episodes on TV.

On the other hand, all ten people, who stated that they use YouTube, watch the training and how-to videos that last a few minutes on their smartphones.

4.3. Findings on the difficulties when using ICT

To understand what challenges, the interviewees encountered while using ICT, participants were first asked what kind of technical information they had about their devices. Based on their responses, three of them only know the brand of their device, and six people know the brand and model.

When asked about the internet connection speeds, three participants answered as very good, and six of them said as good, and three interviewees answered as very poor. Notably, participants living in the same cities evaluated their internet connection speeds differently, suggesting that these evaluations depend on online activities and device technical features.

Regarding support needs, three interviewees reported not needing any support, while nine received assistance from their children for daily use or when they do something they are not sure about. Significantly, financial transactions require support. The primary reservations expressed regarding ICT use were related to incorrect financial transactions, fraud, and personal data security.

5. Conclusion and discussion

This study has focused on comprehending the use of ICT and the challenges faced by over sixty-fives in Turkey, who were subjected to the longest period curfews during the COVID-19 pandemic. The research has identified four main themes that emerged from the study: connectedness, financial transactions, information/news acquisition, and leisure activities.

Ahmet Sinav (2020b) comparatively analysed the social media usage behaviours of these people in his study, in which he defined people aged sixty-five and over in terms of those between the ages of sixty five and seventy four as young-older people, the ones between the ages of seventy five and eighty four as middle-older people, and the people aged eighty five and over as advanced-older people. According to the results of this research, young-older people prefer to use mobile devices instead of computers compared to middle-older and advanced-older adults. The fact that almost all interviewees have used ICT for more than ten years and associate this use with a smartphone supports Sinav's study. The emergence of some physical problems (such as vision and hearing regression) as people age is seen as the reason why middle-older and advanced-older adults use desktop computers with larger screens and keyboards instead of smartphones with smaller screen sizes. However, the preference for smartphones for the age group between sixty-five and seventy-four, which constitutes the sample of this study and is defined as the young elderly people, indicates that the screen and keyboard

sizes of mobile devices are sufficient for this age group. Additionally, according to the interviewees, smartphones have replaced computers. Therefore, they associate the use of ICT with smartphones.

In a study conducted by Kenneth Hsiche Wang, Gong Chen and Houn-Gee Chen (2018), it was determined that older adults are more passive and conservative in adopting technological products than young people and that they mostly need help in using ICT. The findings from the interviews conducted in this study support Wang et al.'s findings, as many interviewees reported initially learning to use ICT with the help of their children and then continuing the learning process through trial and error. The fact that they advance learning these technologies only when they are confident that these technologies will not fail indicates that they avoid taking risks in using ICT.

Within the framework of leisure activities, there has been an increase in the use of ICT as an entertainment tool among those over sixty-fives who had to spend extended periods at home during the pandemic. According to a report published by the Turkish Statistical Institute (TUIK, 2021a), internet usage rates among individuals aged 65-74 have increased during the pandemic. The interviewees reported an increase in the duration of their ICT use during the pandemic supports TURKSTAT's data.

Like the increase in the ICT usage rate, it is seen that most of the interviewees have increased their social media usage rates during the lockdown period. The social networks that were most used by participants are Facebook, Instagram, YouTube, and Pinterest. According to the 2021 Social Media Demographics Guide shared by Khoros (2021), a software company, 34% of over sixty-fives use Facebook, 8% use Instagram, 15% use Pinterest, and 58% of people aged over fifty-six use YouTube. These data support the study findings. It is noticeable that almost all the interviewees use Facebook more than other platforms and share their own content on it. It can be stated that Facebook is seen as a more suitable platform for over sixty-fives, as it offers various functions such as photo and video sharing, and text-based content. Unlike Instagram, which mainly focuses on visual content, and Twitter, which is text-heavy, Facebook easily accommodates all types of content sharing easily.

Moreover, since Facebook emerged earlier than many other popular social media platforms and over sixty-fives are familiar with it, they often see no need to switch to other social media platforms. Even if they try out a new platform, they may prefer to continue using Facebook actively, as it meets their expectations, and they are reluctant to learn a new platform. Furthermore, the interviewees also use Facebook to follow up-to-date news. However, they tend to use Instagram to follow their acquaintances on this network, YouTube as a source of information and entertainment and Pinterest for how-to content.

According to the research findings, the interviewees use YouTube similarly to their purpose of watching television. In this context, it is observed that participants only use this platform as a viewer and do not produce any content, rather than seeing YouTube as an online video-sharing platform.

One noteworthy finding in the study is that interviewees using Pinterest connect to this platform to keep themselves busy because they have to spend time at home. It can be inferred that the reason for using this platform is that Pinterest provides personalised recommendations and how-to content. Additionally, it has been concluded that a significant part of the interviewees tends to prefer reading lengthy texts, unlike younger generations who consume information quickly and primarily through visual content.

As of 2021, WhatsApp, the most widely used messaging application globally, has approximately 2 billion monthly active users (we are social & Hootsuite, 2021). Considering the study's focus on 'connectedness', it is found that all interviewees communicated with their family members and friends through WhatsApp during the COVID-19 pandemic. Following the announcement of WhatsApp's plan to change personal data sharing settings in 2021, concerns about the security of personal data have increased and many people have deleted the WhatsApp application and switched to alternative mobile applications like Telegram. Despite a loss of trust in the platform, the fact that interviewees persisted in using WhatsApp suggests a reluctance to adapt to new communication platforms.

According to the findings obtained in the study within the framework of the theme of information and news acquisition, it is seen that all the interviewees primarily prefer television, which is one of the traditional mass media. Despite the controversial information provided through television channels about the COVID-19 pandemic in Turkey, older adults tend to find channels that align with their political views more reliable than information on the internet. The lack of information among older adults regarding the use of ICT due to the digital divide means that various news that spreads rapidly on social media platforms cannot be confirmed. Consequently, interviewees do not trust the information and news sources available online.

It is observed that the interviewees in the research use ICT for different purposes such as playing games, watching TV series/movies, apart from social media activities, communicating with people on their network, and getting information/news. Data published on Statista (Clement, 2022) on the distribution of video gamers in the United States by age groups show that 7% of over sixty-fives play games. However, according to the research findings, almost all the interviewees who stated that they play games prefer tap-to-play games. Some physical regressions that occur with advancing age can be shown as the reason for this situation.

When analysed within the framework of financial transactions, it is a significant finding that almost half of the interviewees started using ICT to perform their banking transactions, especially with the support of their family members during the COVID-19 pandemic. Although some participants seem to have changed their habits with the pandemic, their concern about personal data security causes the interviewees to continue their practices of going to the bank physically.

Based on the findings of the study, it can be concluded that young-older adults, who experienced an increase in the use of ICT during the COVID-19 pandemic, faced

several difficulties due to their limited knowledge of the technical features of the digital technologies they had and a lack of digital literacy. Despite these challenges, participants in the study were able to cope with new online activities with the help of their close circles, especially in matters related to financial transactions.

One of the challenges reported by participants when using ICT is that smartphone screens are too small for watching TV series or movies. However, it is paradoxical that these screens are not considered too small for other online activities. This suggests it is more related to traditional media consumption habits than any physical regression caused by ageing. In this sense, it could be argued that the screen size of smartphones is still too small for people in the sixty five and seventy four age group who have formed long-standing habits of watching TV series and movies on larger screens.

The limitations of this study are that it focuses only on the sixty five and seventy four age group and does not provide a comparative insight into the use of ICT by other age groups. Additionally, the socioeconomic similarity of the interviewees and the fact that all participants have a social support network are other limitations. For future studies, it is recommended to include other older age groups with different demographic characteristics. Moreover, a quantitative or mixed-methods study with a large-scale sample can be conducted to investigate the changing use of ICT by over sixty-fives during COVID-19.

Older adults need more ICT knowledge and skills to conduct online activities safely. However, the support provided by family members to older adults in this regard is often limited by their own level of digital literacy. Moreover, it should be noted that not all older adults have access to social support networks that can assist them in using ICT effectively. Therefore, there is a need for targeted educational programs or interventions to be provided by governments and non-governmental organisations. Moreover, institutions that supply essential services needed by older adults, such as health and banking services, can play a more active role in older adults acquiring the necessary skills and knowledge to use ICT effectively in their daily lives.

6. Authorship contribution statement

Seyma Esin Erben: Conceptualization, Methodology, Formal analysis, Writing - Original Draft, Writing - Review & Editing.

Aydan Ünlükaya-Çevirici: Conceptualization, Formal analysis, Investigation, Writing - Original Draft.

Jale Balaban-Salı: Methodology, Supervision.

7. Data availability

Erben, Seyma Esin, Ünlükaya Çevirici, Aydan and Balaban Salı, Jale (2023). The use of digital technologies among older adults during the COVID-19 Pandemic: A descriptive study in Turkey. Zenodo [Dataset]. <https://doi.org/10.5281/zenodo.7713096>

8. References

- Altındağ, Onur (2020, April 18). *Koronavirüs vefat sayıları ne anlatıyor?* https://www.onuraltindag.info/pt-tr/posts/excess_mortality/
- Atakişi, Barış & Orhan, Şefika Feza (2020). Orta yaş ve üstü yetişkinlerin günlük yaşamda İnternet kullanma durumlarının incelenmesi. *Yıldız Journal of Educational Research*, 5(1), 1-26. <https://dergipark.org.tr/tr/download/article-file/2066265>
- Ayalon, Liat & Tesch-Römer, Clemens (2018). Introduction to the section: Ageism-concept and origins. In Clemens Tesch-Römer & Liat Ayalon, Clemens (Eds.), *Contemporary Perspectives on Ageism. International Perspectives on Aging*, 19, 1–10. https://doi.org/10.1007/978-3-319-73820-8_1
- Binark, Mutlu, Arun, Özgür, Özsoy, Duygu, Kandemir, Beren & Şahinkaya, Gül (2020). Covid-19 sürecinde yaşlıların enformasyon arayışı ve enformasyon değerlendirmesi. [Research project] TUBITAK SOBAG #120k613. https://www.tubitak.gov.tr/sites/default/files/Covid19veToplum/ozet-ozgecmis/23SUBAT/FEZAGURSEYSALONU/12.00-13.00/FerruhMutluBINARK_Ozet.pdf
- Birgün (2021, March 14). Çelişkiler, gerçekleşmeyen hedefler, unutulmuş sözler: İşte Sağlık Bakanı Koca'nın bir yıllık aşı sicili. <https://www.birgun.net/haber/celiskiler-gerceklesemeyen-hedefler-unutulan-sozler-iste-saglik-bakani-koca-nin-bir-yillik-asi-sicili-337497>
- Bruggencate, Tina Ten, Lujkx, Katrien G. & Sturm, Janienke (2018). Social needs of older people: A systematic literature review. *Ageing and society*, 38(9), 1745-1770. <https://doi.org/10.1017/S0144686X17000150>
- Bu, Feifei, Steptoe, Andrew & Fancourt, Daisy (2020). Loneliness during a strict lockdown: Trajectories and predictors during the COVID-19 pandemic in 38,217 United Kingdom adults. *Social Science & Medicine*, 265, 1-6. <https://doi.org/10.1016/j.socscimed.2020.113521>
- Butler, Robert N. (1969). Age-ism: Another form of bigotry. *The gerontologist*, 9(41), 243–246. https://doi.org/10.1093/geront/9.4_Part_1.243
- Chen, Yi-Ru Regina & Schulz, Peter J. (2016). The effect of information communication technology interventions on reducing social isolation in the elderly: A systematic review. *J Med Internet Res. Journal of medical Internet research*, 18(1), e18, <https://doi.org/10.2196/jmir.4596>
- Chen, Annie T., Ge, Shaoqing, Cho, Susie, Teng, Andrew K., Chu, Frances, Demiris, George & Zaslavsky, Oleg (2021). Reactions to COVID-19, information and technology use, and social connectedness among older adults with pre-frailty and frailty. *Geriatric Nursing*, 42(1), 188–195. <https://doi.org/10.1016/j.gerinurse.2020.08.001>
- Clement, Jessica (2022, October 20). Distribution of video gamers in the United States in 2022, by age group. *Statista*. <https://www.statista.com/statistics/189582/age-of-us-video-game-players>
- Erben, Seyma Esin, Ünlükaya Çevirici, Aydan and Balaban Salı, Jale (2023). The use of digital technologies among older adults during the COVID-19 Pandemic: A descriptive study in Turkey. Zenodo [Dataset]. <https://doi.org/10.5281/zenodo.7713096>
- Gerosa, Tiziano, Gui, Marco, Hargittai, Eszter & Nguyen, Minh Hao (2021). (Mis)informed during COVID-19: How education level and information sources contribute to knowledge gaps. *International Journal of Communication*, 15, 2196-2217. <https://doi.org/10.5167/uzh-204498>
- Gündoğdu, Gülhan (2020, June 21-23). 21. yüzyıl iletişim biçimleri, 65 yaş ve üzeri: COVID-19 pandemi örneğinden [Paper presentation]. International conference on COVID-19 studies, Ankara/Turkey. https://www.researchgate.net/publication/351087790_21Yuzuil_Iletisim_Bicimleri_65_Yas_ve_Uzeri_Covid-19_Pandemi_Orneginden
- Kisa, Sezer & Kisa, Adnan (2020). Under-reporting of COVID-19 cases in Turkey. *The International Journal of Health Planning and Management*, 35(5), 1009–1013. <https://doi.org/10.1002/hpm.3031>
- Khoros (2021). *The 2021 social media demographics guide*. <https://khoros.com/resources/social-media-demographics-guide>
- Kowal, Paul & Dowd, J. Edward (2001). *Definition of an older person. Proposed working definition of an older person in Africa for the MDS Project* [Research project]. World Health Organization. <https://doi.org/10.13140/2.1.5188.9286>
- Neves, Barbara Barbosa & Vetere, Frank (2019). *Ageing and digital technology: Designing and evaluating emerging technologies for older adults*. Springer.
- Ofcom (2020, April 28). *Adults' media use and attitudes report*. https://www.ofcom.org.uk/_data/assets/pdf_file/0025/217834/adults-media-use-and-attitudes-report-2020-21.pdf
- Pirhonen, Jari, Lolich, Luciana, Tuominen, Katariina, Jolanki, Outi & Timonen, Virpi (2020). These devices have not been made for older people's needs – Older adults' perceptions of digital technologies in Finland and Ireland. *Technology in Society*, 62. <https://doi.org/10.1016/j.techsoc.2020.101287>
- Sinav, Ahmet (2020a). Sosyal medya ve yaşlı kullanıcılar: Kullanımlar ve doyumlar yaklaşımı çerçevesinde bir araştırma. *Açıköğretim Uygulamaları ve Araştırmaları Dergisi*, 6(1), 97-125. <https://dergipark.org.tr/tr/pub/auad/issue/55639/761311>
- Sinav, Ahmet (2020b). Genç-yaşlı, orta-yaşlı ve ileri-yaşlı bireylerin sosyal medya kullanım davranışlarının karşılaştırmalı analizi: Eskişehir ili örneği. *Etkileşim*, 3(5), 116-145. <https://doi.org/10.32739/etkilesim.2020.5.87>
- Tatnall, Arthur & Lepa, Jerzy (2003). The Internet, e-commerce and older people: An actor-network approach to researching reasons for adoption and use. *Logistics information management*, 16(1), 56-63. <https://doi.org/10.1108/09576050310453741>
- TÜİK (2020, August 25). *Hanehalkı bilişim teknolojileri (bt) kullanım araştırması, 2020*. [https://data.tuik.gov.tr/Bulten/Index?p=Hanehalki-Bilisim-Teknolojileri-\(BT\)-Kullanim-Arastirmasi-2020-33679](https://data.tuik.gov.tr/Bulten/Index?p=Hanehalki-Bilisim-Teknolojileri-(BT)-Kullanim-Arastirmasi-2020-33679)
- TÜİK (2021a, August 26). *Hanehalkı bilişim teknolojileri (bt) kullanım araştırması, 2021*. [https://data.tuik.gov.tr/Bulten/Index?p=Hanehalki-Bilisim-Teknolojileri-\(BT\)-Kullanim-Arastirmasi-2021-37437](https://data.tuik.gov.tr/Bulten/Index?p=Hanehalki-Bilisim-Teknolojileri-(BT)-Kullanim-Arastirmasi-2021-37437)
- TÜİK (2021b, March 18). *İstatistiklerle yaşlılar, 2020*. <https://data.tuik.gov.tr/Bulten/Index?p=Istatistiklerle-Yasli-lar-2020-37227>
- Wallinheimo, Anna-Stiina & Evans, Simon L. (2021). More frequent internet use during the Covid-19 pandemic associates with enhanced quality of life and lower depression scores in middle-aged and older adults. *Healthcare*, 9(4), 393. <https://doi.org/10.3390/healthcare9040393>
- Wang, Kenneth Hsiche, Chen, Gong & Chen, Houn-Gee (2018). Understanding technology adoption behavior by older adults. *Social Behavior and Personality*, 46(5), 801-814. <https://doi.org/10.2224/sbp.6483>

- We Are Social (2021, February 11). *Digital 2021: Turkey*. DataReportal. <https://datareportal.com/reports/digital-2021-turkey>
- Wilson, Carolyn (2018). Is it love or loneliness? Exploring the impact of everyday digital technology use on the wellbeing of older adults. *Ageing and Society*, 38(7), 1307-1331. <https://doi.org/10.1017/S0144686X16001537>
- Xie, Bo, Charness, Neil, Fingerman, Karen, Kaye, Jeffrey, Kim, Miyong T. & Khurshid, Anjum (2020). When going digital becomes a necessity: Ensuring older adults' needs for information, services, and social inclusion during COVID-19. *Journal of Aging & Social Policy*, 32(4-5), 460-470. <https://doi.org/10.1080/08959420.2020.1771237>.
- Zheng, Yingqin & Walsham, Geoff (2021). Inequality of what? An intersectional approach to digital inequality under COVID-19. *Information and Organization*, 31(1), 100341. <https://doi.org/10.1016/j.infoandorg.2021.100341>