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ORIGINAL ARTICLE

Experiences of People with Visual Impairment Interacting with Others after the COVID-19 Pandemic in Japan; A Qualitative Study

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ABSTRACT

Introduction: This study aimed to clarify the experiences of visually impaired Japanese in their interactions with others after the COVID-19 pandemic. **Methods:** Participants of this study were ten individuals (six women) aged 30 to 70 years, with severe visual impairment, who required a guide helper to navigate their way in the outdoor environment. Semi-structured interviews were conducted, and the data were analyzed using qualitative content analysis. **Results:** The following major themes formed the core of the interview questions: (1) approaching guide helpers in view of infection control measures, (2) lack of understanding by society/worrying about being judged by others, (3) maintaining connections with persons familiar to them and friends, and (4) facing the challenges of exchanges and interactions using information and communications technology. **Discussion:** Based on the participants' experiences of interacting with others after the COVID-19 pandemic, the support systems and strategies required for people with visual impairment to continue their social activities in the event of a disaster such as the pandemic could be clarified. **Implications for Practitioners:** Ensuring the quality of guide helpers as professionals, removing the disparity between the various types of providers, and preventing the social isolation of people with visual impairment by creating a support system that allows them to have multiple people to depend on during normal times are essential.

Keywords: Visual impairment, COVID-19, Guide helper, Interacting, Qualitative research

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1. Introduction

The COVID-19 pandemic not only resulted in considerable losses of life, but also isolated people from their communities and societies¹⁾ owing to stringent strategies such as globally imposed lockdowns, which led to chronic loneliness^{2,3)}. Such loneliness associated with social isolation during COVID-19 is a significant risk factor for developing mental health problems⁴⁾. To address this, various interventions have been implemented to reduce social isolation and loneliness after the COVID-19 pandemic⁵⁾.

However, more recently, the stringent strategies against COVID-19, such as lockdowns, have been replaced by more accommodative strategies, such as social distancing measures that limit physical contact with others and maintain distance between oneself and others in public settings. The stringency index, an indicator of the stringency of government policies for COVID-19, has declined significantly since the early stages of the pandemic⁶⁾. Strict strategies such as lockdowns are becoming less common worldwide, with accommodating strategies becoming predominant. In other words, during the prolonged pandemic, people could participate in communities and society while adopting mitigating strategies such as social distancing measures.

Meanwhile, people with visual impairment struggled to implement social distancing properly when interacting with others because of their difficulty in visually recognizing the distance between themselves and others⁷⁾. In fact, after the COVID-19 pandemic, people with visual impairment found it difficult to go out even when accommodative strategies were implemented against the pandemic. They were unable to gain access to medical institutions owing to their struggle in using public transportation⁸⁾. People with visual impairment are generally considered to have little social participation and social roles⁹⁾. However, after the COVID-19 pandemic, things worsened as communities between people with visual impairment themselves were lost,¹⁰⁾ reducing their engagement with others in the long-term. In other words, in a prolonged pandemic, while people with sight were beginning to rejoin their communities and societies by adopting accommodative strategies against the pandemic, those with visual impairments continued to find it difficult to interact with others even under such accommodative strategies. Therefore, supporting those with visual impairments in ways that can help them connect with others even during a pandemic is critical.

Despite its criticality, the experiences of people with visual impairment regarding their interactions with others after the COVID-19 pandemic have not been examined so far. This study, therefore, aimed to bridge this gap by exploring the experiences of individuals with visual impairments interacting with others after the COVID-19 pandemic in Japan so that measures to provide appropriate support systems that can help them overcome these difficulties can be developed.

2. Methods

2.1. Study Design

In this qualitative descriptive study, semi-structured interviews were conducted with people with visual impairments in Japan. The participants belonged to three organizations for the visually impaired located in Hyogo Prefecture, Japan.

This study's ethical considerations are as follows: In addition to the standard versions (word and text) of the request form, consent form, and withdrawal of consent form used in the selection process of research collaborators, we prepared enlarged, braille, and audio versions of these forms as needed. The consent form was signed by a family member or guide helper on behalf of the participant or by the participant himself/herself using a signature guide. In some cases, a seal or voice signature was also feasible. If transportation to and from the interview site was required, the lead investigator, who was qualified to

act as a guide helper, offered such assistance upon request. The study was approved by the Institutional Review Board of the College of Nursing Art and Science, University of Hyogo (approval number: 2021F02).

2.2. Participants

Participants were recruited from three organizations for the visually impaired; three to four participants were recruited from each organization and the sample comprised 10 research participants. The eligibility criteria were that the participants must be 18 years or older at the time of the interview, and they must have a government certification confirming their visual impairment. The exclusion criteria were any physical or cognitive problems that would make it difficult to interact during the interview. Those who wished to participate in the study were provided an explanation of the study purpose, and their written and oral consent to participate was obtained.

2.3. Data Collection

Semi-structured interviews were conducted in-person or by telephone, depending on the participants' preference. Interview guides created by the researchers were used, and the focus was on the participants' experiences of interacting with others in their daily life after the COVID-19 pandemic. After obtaining permission from participants, the interview content was recorded using an IC recorder, transcribed verbatim using Microsoft Word (Microsoft Corporation, Redmond, WA), and converted into text data. The interviews were conducted by two of the authors for about 60 minutes each from July 2022 to December 2022.

2.4. Analysis

The analysis involved repeatedly reading the verbatim transcripts obtained from the interviews with each individual research participant until the content was clear. Using the qualitative content analysis method of Elo and Kyngäs,¹¹⁾ we read and extracted the context around sentences that were considered the “experiences of people with visual impairment interacting with others after the COVID-19 pandemic.” We then conducted our analysis through the open coding, category creation, and abstraction processes. To ensure reliability, the 10-interview data were independently coded by two qualitative content analysis experts (Chizuru Yamaoka and Kenji Awamura) during the study, and the verbatim transcripts were read several times. The coding, classification matrix, and disagreements were then discussed in detail by the team of researchers until consensus was reached.

3. Results

3.1. Participant Characteristics

Table 1 presents the characteristics of the study participants. The participants were six females and four males, aged 30 to 70 years. Most of the participants had severe visual impairments, and two were born blind. Three participants lived alone, and most of the participants had difficulty walking independently using a white cane; hence, they used a guide helper when going out.

Table 1. Participant Characteristics

ID	Sex	Age	Disease	Extent of Disability	Time of Blindness	Living Conditions	Use of a Guide Helper* ¹
A	Female	50s	RP	Blindness	50s	With others	Daily
B	Male	30s	OA	Blindness	Adolescence	With others	1–2 times a month* ²
C	Female	60s	RP	Blindness	40s	With others	Daily
D	Male	60s	CSC	Blindness	50s	Alone	Daily
E	Male	60s	RP	Low vision	Not applicable	With others	Once a month* ²
F	Male	50s	MD	Low vision	Not applicable	With others	Several times a year* ²
G	Female	60s	RP	Blindness	50s	With others	Daily
H	Female	60s	Glaucoma	Blindness	20s	With others	Daily
I	Female	70s	ROP	Blindness	Since birth	Alone	Daily
J	Female	60s	Anophthalmia	Blindness	Since birth	Alone	Daily

Note. *¹Guide helper in Japan refers to a person who assists visually impaired people in their daily movements/activities, provides them information, and helps them read/write.

*² They are basically able to go out alone with a white cane, but they use a guide helper when they go to unfamiliar places.

Abbreviations: RP, Retinitis Pigmentosa; OA, Optic Atrophy; CSC, Central Serous Chorioretinopathy; MD, Macular Dystrophy; ROP, Retinopathy of prematurity

3.2. Themes

The analysis identified 4 main themes and 30 sub-themes. The 4 main themes were (1) approaching guide helpers considering the infection control measures, (2) lack of understanding by society/worrying about what others think of them, (3) maintaining connections with familiar persons and friends, and (4) facing the challenge of having exchanges with others using information and communications technology (ICT). Table 2 shows the 30 sub-themes under these main themes.

Table 2. Interaction Experiences of People with Visual Impairment during COVID-19

Theme	Sub-theme
Approaching guide helpers considering infection control measures	Concerns about ambiguous infection control measures left to the individual discretion of guide helpers
	Prohibition of use/restricted access to guide helpers from the office
	Concerns of infection risk to guide helpers and refraining from going out
	Gauging the guide helper's reactions and responses when deciding where to go and what to do
	Cannot work well with guide helper owing to strict infection control measures at outdoor locations
	Difficulty adjusting to the social distancing measures in all situations
	Paying close attention to avoid being a transmitter of infection because many guide helpers assist older adults
	Increased anxiety about infection if not accompanied by the usual guide helper
	Restrictions on going out, as well as on registering with a new office
	Refrain from approaching or contacting the guide helper even if feeling slightly unwell
Lack of understanding by society/worrying about what others think of them	Being warned by others about not taking appropriate infection control measures
	Inability to receive money when shopping and concerns about being judged by others
	Strict infection control measures required depending on outing location, and no flexible response provided
	Voices blocked by partitions, masks, etc., making two-way communication difficult
	Concerned about the involvement of other people with disabilities and feeling that society does not understand people with disabilities
	Touch is essential for people with visual impairment, but there are concerns about being judged by people who consider it a way to spread infection
	A feeling that others are not approachable
	A hesitancy in asking for support
Maintaining connections with familiar persons and friends	Difficulty in finding motivation until resumption of activities after disrupted habits and routines
	Fewer places where people can casually gather with friends, and difficult to refresh oneself mentally
	Stakeholder group members continue to care, so a positive feeling emerges
	Contact with familiar means (telephone, email) makes communication easier
	Valuing interactions and connections with sighted people other than people with visual impairment
	Continuing with the existing social roles
Facing the challenge of exchanges using ICT	Lacking confidence in using ICT or not good at using ICT
	Few people with visual impairment use PC devices in social circles
	High barriers to entry for using ICT because practical and immediate technical support cannot be obtained
	Gradually becoming accustomed to ICT development and ability to use it smoothly
	Facing the challenge of interacting with new sighted people using a remote system
	Facing the challenge of interacting with people with visual impairment using a remote system

3.2.1. Approaching Guide Helpers Considering Infection Control Measures

Many of the respondents had issues interacting with guide helpers. When the pandemic began, many guide helper offices were closed, and the participants were unable to go out. Even after the restrictions were gradually eased and participants could use guide helpers, they were concerned about contracting the virus from guide helpers and realized that they were refraining from many activities that they usually performed.

“I felt bad toward the guide considering the infection aspects, so I refrained from going out and started negotiating with the guide for everything but essential activities.”

“I began to refrain from participating in leisure activities, which are a low priority in my life, because I was worried about infecting my guide helper.”

Additionally, one respondent mentioned being worried because they did not know what infection control measures were taken unless they were accompanied by the guide helper who was usually in charge of their affairs.

“I don’t know the range of activities unless I am with the helper I’m used to, so I’m worried.”

“I’m paying attention to infection aspects, but my helper isn’t, so it’s problematic.”

Meanwhile, people with congenital blindness had stronger convictions that guide helpers were professionals and thus had fewer concerns than people who developed visual impairment during their lives.

“Guide helpers are professionals, so it is clear that infection control measures are being followed properly.”

“The guide helper and I are both protecting ourselves, so there is no need for unnecessary concern.”

3.2.2. Lack of Understanding by Society/Worrying about What Others Think of Them

When the pandemic began, there were concerns about its impact on the mental health of those with visual impairments due to the nature of their disabilities. People with visual impairments communicate through touch and voice. However, in a situation where restrictions were imposed on touch and partitions and ventilation systems made it difficult to hear voices, the result was a feeling that society lacked understanding.

Respondents recognized society’s lack of understanding of their needs caused by their visual impairments. Specifically, their feelings were worsened on being treated like sighted people, especially when they were shopping or dining.

“When I went out to eat with a guide helper, there was a partition in front of me so I couldn’t hear and receive support... usually, they would let us remove the partition, but in some places they did not.”

Additionally, respondents with low vision were particularly concerned about how society viewed the restrictions on touching.

“When the pandemic started, when I went shopping, I would pick up an object and view it under a magnifying glass before I decided to buy it. But, if I put it back after deciding not to buy it, there was some resistance to that action ... I thought it made people uncomfortable.”

Meanwhile, several respondents recognized touching as an essential act.

“I cannot know anything about an object without touching it, so I do not worry about what others think at all.”

3.2.3. Maintaining Connections with Familiar Persons and Friends

Most of the respondents had some experience of social participation (e.g., stakeholder groups, sports for people with disabilities, various workshops, leisure activities) and played a social role. These activities were conducted at places where they could refresh themselves and maintain their health. However, the pandemic changed all that, and the lives of participants became monotonous; their motivation decreased, and they found it difficult to resume their activities.

“Right now, I do play table tennis and baseball, but what I worked so hard for before COVID is gone, and now I don’t really feel like DOIng my best again.”

The participants were unable to meet familiar persons and friends and there was uncertainty about resuming activities; however, they continued to make efforts to maintain connections with these friends using the telephone and the Internet.

Many of the people with visual impairment were older adults; so, there were obstacles to using ICT, but by using their phones to stay connected, they felt a sense of caring for each other. Additionally, continued interactions with sighted peers helped maintain their connections. After restrictions on movement are eased and movement returns to normal, the participants were able to smoothly return to their original activities without losing their communities.

3.2.4. Facing the Challenges of Exchanges Using ICT

It became clear that ICT was both supportive and challenging for some respondents. However, some respondents who felt that they were not good at ICT or had few visually impaired friends who used PC devices preferred to meet in person. One respondent said that they could not use ICT because they were unable to get practical technical support and that the barriers to using ICT are high when one does not own a device.

Additionally, respondents who originally owned a device had developed the practice of making bar code payments due to unpleasant experiences while shopping and in other situations. These respondents began to search for ways to use ICT to make their lives easier based on their own experience. Using remote systems, people with visual impairments who found it difficult to go out gained more opportunities to interact with other people and engage in more activities.

4. Discussion

To the best of our knowledge, this is the first study to investigate the interactions of people with visual impairment with others in Japan since the COVID-19 pandemic. This study highlights issues not seen prior to the COVID-19 pandemic or during the strict lockdown period.

Most importantly, this study showed that the relationship with a guide helper who assists those with visual impairments with daily outings is important for them as they begin to resume social activities while taking the necessary infection control measures. Previous studies have shown that after the COVID-19 pandemic, people request assistance from family and friends, and that close family and friends are the main source of support to facilitate social activities¹²⁾. In the present study, most of the participants lived with their families, but they had been using guide helpers before the COVID-19 pandemic

and routinely had opportunities to go out for shopping, leisure, and other activities. Previous studies have reported the psychological burden of assistance by informal caregivers such as close family members and friends¹³⁾¹⁴⁾, and in this study, we aimed to reduce the burden on the family members living with the participant as much as possible by using the formal guide helpers. It can be inferred that the services were used. From the themes presented in this study, it was found that people with visual impairments faced difficulty in engaging with guide helpers while taking measures against infection by COVID-19. Concerns have emerged due to the necessity for infection control through contact, making it difficult to request assistance while going out, as casual touching of external objects has been found to be a cause for concern¹⁵⁾. A similar situation was observed in this study, but it was not only a one-way concern from the person with visual impairments, but also a concern for two-way transmission between the person with visual impairments and the guide helper, which may have led to a sense of difficulty in engaging with the guide helper. However, for individuals with severe visual impairment, such as those in the present study, going out alone is difficult, and this may lead to unhealthy decisions such as suspending or shortening the time of going out.

Furthermore, as demonstrated in this study, leaving infection prevention to the discretion of individual guide assistants may exacerbate the fears of people with visual impairments without their knowledge. In Japan, guide helpers are also responsible for people who do not have professional qualifications in nursing care or welfare, and it is desirable to establish a support system that allows guide helpers to respond to health and disaster-related situations such as COVID-19 without anxiety.

The second important aspect of this study was that in their relationship with the community, they experienced discriminatory ways of being viewed by others while taking infection control measures. Due to the characteristics of their disability, people with visual impairments had difficulty adapting to new lifestyles¹⁶⁾ because they rely on senses other than sight. According to the study findings, partitions and masks impeded good two-way communication in scenarios where information was delivered. In addition, there was an increasing sense of incomprehension toward those with visual impairments, such as being warned about not taking appropriate infection control measures when out and about, and not being given flexible responses even when necessary for support. There was an increased lack of understanding of the COVID-19 pandemic related to infection control measures, such as concerns about being judged, especially by those who consider contact as a factor in the spread of infection, a sense of difficulty in approaching others, and hesitancy in seeking assistance from strangers. Opportunities to recognize the stigma associated with infection control measures existed. Because stigma is something that individuals with disabilities routinely carry with them as they participate in daily life, work, and other activities¹⁷⁾, it is conceivable that individuals with visual impairments experienced more stress during the pandemic than they did in their daily lives. Like them, others in the community felt various stigmas in complying with infection control measures, so it can be assumed that there were difficulties in responding in a tolerant manner, even though they felt that contact and voice were necessary support for those with visual impairments. As a measure, it is contended that if supporters understand stigma and respond appropriately, it may deepen society's understanding of disability and reduce the level of stigma.

The third important aspect of this study is that when the COVID-19 pandemic was prolonged and participation in leisure and social activities was restricted, persons with visual impairments remained connected to their friends and maintained relationships, which facilitated their participation once activities resumed. This contrasts with the findings of Gombas and Csakvari¹⁸⁾ who reported that persons with visual impairments had difficulty continuing leisure activities and hobbies,

especially outdoor activities, after the strict infection control measures implemented after the COVID-19 pandemic¹⁹). As noted above, this was not the case for the respondents in this study. Although they were unable to meet for extended periods of time during the tight blockade, participants remained in contact as members of the stakeholder group, waiting for the resumption of activities and maintaining a positive attitude. This is a characteristic and strength of the participants in this study.

Furthermore, the use of ICT was also a way to maintain contact with others. However, as shown in previous studies, older adults with visual impairments often ask their sighted relatives to operate digital devices²⁰). Furthermore, many people with visual impairments who use ICT in the workplace need the support¹⁸). The diffusion of ICT has had a positive impact on people with visual impairments who can use it, such as meeting new friends, having more hobbies, and being able to shop without fear of infection. On the contrary, some participants had difficulty utilizing ICTs because of significant barriers to participation such as lack of technical support or lack of devices.

Therefore, flexible choices regarding the use of ICTs need to be made based on the strengths and weaknesses of the participants. Maintaining connections with known people improves the mental health of people with visual impairments who are prone to loneliness²¹). Future strategies should include the establishment of support systems that enable people with visual impairments to communicate with each other even in vulnerable situations where connections are severed, such as after the COVID-19 pandemic.

This study has several limitations. First, the majority of the participants in this study suffered from severe visual impairment, and these individuals had been using guide helper services since before COVID-19 to secure opportunities to go out. Therefore, although we present the experiences of individuals with visual impairment who use guide helpers in Japan, we cannot apply the results to individuals who do not use guide helpers on a daily basis and have a relatively mild visual impairment. Second, as the gender, age, and the severity of individuals' visual impairment was not included in the selection criteria for recruiting participants, it is impossible to predict how the experience differs depending on the individual attributes of the participants. Future studies should expand the number of participants and control for individual attributes.

5. Conclusions

Based on the experiences of those with visual impairment in Japan after the COVID-19 pandemic, four main themes were identified for this study. It is necessary to develop specific strategies to support those with visual impairment in resuming social activities in the context of a health crisis or pandemic such as COVID-19, so as to not be cut off from their community, connections, and interactions with others.

6. Implications for Practitioners

This study clarified the vulnerability of the support systems for people with visual impairments in the event of an unexpected disaster. Ensuring the quality of guide helpers as professionals and correcting the disparities between providers are necessary to expand the options for people with visual impairment and ensure their safety. Additionally, in this study, respondents who had been participative in society prior to the COVID-19 pandemic did not experience a loss of community; hence, it is suggested that having multiple people to depend on during normal times can prevent social isolation and lead to the creation of a disaster-resistant support system.

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Conflicts of Interest

None

References

- 1) Banerjee D & Rai M. Social Isolation in COVID-19: The Impact of Loneliness. *International Journal of Social Psychiatry*, 2020, 66(6), 525-527. DOI: 10.1177/0020764020922269
- 2) Kmietowicz Z. Clinically Extremely Vulnerable Adults Should Not Leave Home For Work, Says New Advice. *British Medical Journal*, 2020, 371, m4292. [cited 2023. Sep 13]. <https://www.bmj.com/content/371/bmj.m4247>
10.1136/bmj.m4247
- 3) Mahase E. COVID-19: Harshest Restrictions are Imposed on Greater Manchester after Talks Collapse. *British Medical Journal*, 2020, 371, m4084. [cited 2023. Sep 13]. <https://www.bmj.com/content/371/bmj.m4084>
10.1136/bmj.m4084
- 4) Creese B, Khan Z, Henley W, O'Dwyer S, Corbett A, Vasconcelos Da Silva M, et al. Loneliness, Physical Activity, and Mental Health During COVID-19: A longitudinal analysis of depression and anxiety in adults over the age of 50 between 2015 and 2020. *International Psychogeriatrics*, 2021, 33(5), 505-514. DOI: 10.1017/S1041610220004135
- 5) Williams CYK, Townson AT, Kapur M, Ferreira AF, Nunn R, Galante J, et al. Interventions to Reduce Social Isolation and Loneliness During COVID-19 Physical Distancing Measures: A Rapid Systematic Review. *PLoS One*, 2021, 16(2), e0247139. DOI: 10.1371/journal.pone.0247139
- 6) Our World in Data. COVID-19: Stringency Index. [cited 2023. Sep 13]. <https://ourworldindata.org/covid-stringency-index>
- 7) Zebehazy KT, Rosenblum LP & Thompson KM. The Impact of COVID-19 on Transportation of Adults With Visual Impairments. *Journal of Vision Impairment and Blindness*, 2022, 116(6), 794-805. DOI: 10.1177/0145482X221143143
- 8) Bernard A, Weiss S, Rahman M, Ulin SS, D'Souza C, Salgat A, et al. The Impact of COVID-19 and Pandemic Mitigation Measures on Persons With Sensory Impairment. *American Journal of Ophthalmology*, 2022, 234, 49-58. DOI: 10.1016/j.ajo.2021.06.019
- 9) Desrosiers J, Wanet-Defalque MC, Témisjian K, Gresset J, Dubois MF, Renaud J, Vincent C, et al. Participation in Daily Activities and Social Roles of Older Adults With Visual Impairment. *Disability and Rehabilitation*, 2009, 31(15), 1227-1234. DOI: 10.1080/09638280802532456

- 10) Good GA, Orakani SN, Officer TN, Roguski M & McBride-Henry K. Access to Health and Disability Services for New Zealanders with Impaired Vision During the COVID-19 Pandemic 2020-2022. *Journal of Vision Impairment and Blindness*, 2022, 116(6), 830-836. DOI: 10.1177/0145482X221144324
- 11) Elo & Kyngäs. The Qualitative Content Analysis Process. *Journal of Advanced Nursing*, 2008, 62(1), 107-115. DOI: 10.1111/j.1365-2648.2007.04569.x
- 12) Bernard A, Weiss S, Rahman M, Ulin SS, D'Souza C, Salgat A, et al. The Impact of COVID-19 and Pandemic Mitigation Measures on Persons With Sensory Impairment. *American Journal of Ophthalmology*, 2022, 234, 49-58. DOI: 10.1016/j.ajo.2021.06.019
- 13) Bambara JK, Owsley C, Wadley V, Martin R, Porter C, & Dreer LE. Family Caregiver Social Problem-Solving Abilities and Adjustment to Caring for a Relative With Vision Loss. *Investigative Ophthalmology and Visual Science*, 2009, 50(4), 1585-92. DOI: 10.1167/iops.08-2744
- 14) Ruiz-Lozano RE, de la Rosa-Pacheco S, Hernández-Camarena JC, Garza-Garza LA, Davila-Cavazos O, Dominguez-Varela IA, et al. Burden and Depression Among Informal Caregivers of Visually Impaired Patients in Mexico. *Disability Health Journal*, 2022, 15(3), 101284. DOI: 10.1016/j.dhjo.2022.101284
- 15) Oviedo-Cáceres MDP, Arias-Pineda KN, Yepes-Camacho MDR & Montoya Falla P. COVID-19 Pandemic: Experiences of People with Visual Impairment. *Investigacion y Educacion en Enfermeria*, 2021, 39(1), e09. DOI: 10.17533/udea.ice.v38n3e09
- 16) Ministry of Health, Labour and Welfare. Example of practicing "New Lifestyle" [cited 2023 Aug 23]. <https://www.mhlw.go.jp/content/10900000/000632485.pdf>
- 17) Sara pattow, Roger Cook & Rachael Mc Donald. Coping With Stigmazation and Discrimination Related to Blindness and Low vision. *Rehabilitation Psychology*. 2021, 66(4), 576-588. DOI: 10.1037/rep0000391
- 18) Gombas J & Csakvari J. Experiences of Individuals With Blindness or Visual Impairment During the COVID-19 Pandemic Lockdown in Hungary. *British Journal of Visual Impairment*, 2021, 40(2), 378-388. DOI:10.1177/0264619621990695
- 19) Bubbico L, Bellizzi S, Ferlito S, Maniaci A, Guglielmotti RL, Antonelli G, et al. The Impact of COVID-19 on Individuals With Hearing and Visual Disabilities During the First Pandemic Wave in Italy. *International Journal of Environmental Research and Public Health*, 2021, 18(19), 10208. DOI: 10.3390/ijerph181910208
- 20) Fuglerud KS, Tunold S & Kjæret K. Social Contact for Older People with Visual Impairment Through Mastery of Smartphones: Barriers and suggested Solutions. *Studies on Health Technology and Information*, 2021, 282, 415-428. DOI: 10.3233/SHTI210417
- 21) Kim HN & Sutharson SJ. Individual Differences in Emotional Intelligence Skills of People With Visual Impairment And Loneliness Amid the COVID-19 Pandemic. *British Journal of Visual Impairment*, 2021, 41(1), 20-32. DOI: 10.1177/02646196211013860