

# Exploring Technology Usage of Southeast Asian Elderly Women for Better Mental Health during COVID-19 Pandemic

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## ABSTRACT

The elderly population worldwide got immensely affected by the increased isolation and risk for complications due to the COVID-19 pandemic. Notably, elderly women get more affected by social isolation and distress irrespective of health factors. We aim to understand how urban elderly women in Southeast Asia – typically highly dependent on the other family members due to cultural practices – took care of their mental health with uncertainty and distress using technology during the social distance period. Through 19 semi-structured interviews with participants from six Southeast Asian countries and analyzing the data using thematic analysis, we surfaced that our participants started learning different technology with great enthusiasm and used them for their mental well-being during the pandemic period. This paper portrays how our participants enhanced interpersonal bonding, cultivated self-care and creative outlets, and facilitated positivism around their social circle using different technology platforms to mitigate their stress and uncertainty during the pandemic. Our participants' technology usage for better mental well-being during the COVID-19 period provides HCI researchers with valuable design guidelines. Here, we contribute by expanding the HCI community's understanding of technology design within the intersection of the elderly population and mental health for the Southeast Asian cultural context.

## CCS CONCEPTS

- **Human-centered computing;**

## KEYWORDS

Mental health, COVID-19, Elderly women, Southeast Asia

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## 1 INTRODUCTION

COVID-19 pandemic and the social distancing due to this crisis have turned the whole world upside down since last year. Although most of the research efforts currently are considering the direct health effects of the COVID-19 virus, eventually, we are getting concerned with the mental health – the scale of the 'collateral damage' – due to both of the pandemic scenario and our response to it (social distancing, working from home, etc.) [38]. The risk of having COVID-19 increases with age, and most of the deaths are observed in the elderly population (people older than 60), especially those with chronic conditions [27]. Additionally, social distancing and increased panic due to excessive information and misinformation with the ongoing uncertainty make these elderly people more vulnerable to stress and anxiety. Notably, elderly women get more affected by isolation and distress independent of health factors [15]. On this line of concern, multiple aspects of tradition, culture, and social dynamics unfold around the severity. Due to these cultural and traditional practices, social distancing, or lock-down periods due to the pandemic can have a severe downgrading effect on the people's mental health in this region [18]. Moreover, as mentioned in recent research of Sultana and Ahmed [36], the western *rational* formulation of health and well-being may not be appropriate for the Global South's context. Therefore, to mitigate this ongoing stress and anxiety and ensure better mental well-being during the pandemic's social distancing period, the elderly people need more attention aligning with their own cultural point of view. While we appreciate the focus on the global well-being concern during the COVID-19 pandemic, in this study, we want to highlight the mental health scenario of the elderly people, particularly the women population, during the COVID-19 pandemic associated with their social and cultural factors that are essential to many, especially the people living in South-East Asia.

HCI researchers have started exploring how they might use their knowledge and expertise to contribute, both in the immediate crisis and in the phases that are coming next [12]. According to the recent discussions, HCI scholars have emphasized shaping the "new normal," where the potential focus revolves around understanding and reflecting on how the crisis impacts lives and societies. Thus, exploring how existing technologies are employed and appropriated to facilitate mental well-being with the sudden pandemic scenario and help us reflect upon the crisis became necessary. To this line of work, we aim to investigate how the lives of elderly women of Southeast Asia evolved during the pandemic and how they used technologies to take care of their mental health during the ongoing anxiety.

In this study, we have conducted a six-month-long qualitative study with nineteen elderly women participants (age range 60 to 75)

from six Southeast Asian countries – India, Pakistan, Bangladesh, Afghanistan, Maldives, and Sri Lanka. Through semi-structured interviews with our participants, we explored how our participants took care of their mental health using technology during the uncertain and isolated period of COVID-19. Using thematic analysis on our collected data, we identified that by adopting different technology platforms, our participants (1) enhanced inter-personal bonding, (2) improved self-care practices and fostered creative outlets, and (3) leveraged positiveness among their social circles for their improved mental health. Our findings inform the necessity of designing sustainable technology intervention for the elderly population to improve their mental well-being and the possibility of empowering this underrepresented population through technology interaction.

## 2 RELATED WORK

In this section we explain the overall effects of social isolation on elderly population during COVID-19 pandemic. We also expand the cultural influence and vulnerability of mental health for the elderly women of Southeast Asia.

### 2.1 Effect of social isolation on elderly population during COVID-19 pandemic

Social isolation puts the elderly people at a high risk category for various physical and mental health problems. According to Valtorta et al. [42], social isolation refers to the lack of contact or the physical separation from family, friends, or broader social networks and the lack of involvement in social activities. Social isolation – typically happens due to environmental restrictions instead of an individual's inability to maintain social relationships [40] – increases the risk of anxiety, depression, cognitive dysfunction, heart disease and mortality among the elderly population [5] [22] [32] [35]. Particularly, elderly women are significantly affected by the loneliness–distress independent of health factors [15]. During the COVID-19 pandemic, the elderly population, who are at the greatest risk of severe symptoms from COVID-19, highly susceptible to social isolation [28] [8]. This population is getting severely affected by social isolation requirements because of the removal of social contacts, which may have occurred during grocery shopping, attending community groups and places of worship, and other day-to-day activities [8] [24]. For example, Armitage et al. [4] and Brooke et al. [8] mentioned them as an isolated community in the UK context, as can be seen in the pandemic scenario. In a similar research in the Indian context, Grover et al. [18] found that, other family members would avoid meeting the elderly persons of the house in most cases, due to the vulnerability of the elderly for COVID-19 infections, and that became a significant source of distress for those elderly people. Thus, it is necessary to explore how to mitigate this distress resulted in from social isolation particularly for this vulnerable population.

### 2.2 Technological support to reduce mental distress in difficult life incidents

Technology often facilitates people's engagement in expressions of mental distress and challenges associated with significant life incidents and distress related to those incidents – mental illness [1], sexual abuse [3], job loss [10], pregnancy loss [2], relation breakups [19],

death of loved ones [21] [6] – and fosters social support and better mental well-being [3] [20]. Recent research also indicated that, irrespective of the level of positive or negative impact of technology on mental health [31], the mindful and intentional usage of technology could be beneficial during the pandemic and can be an efficient coping tool in social isolation [14]. Notably, social isolation due to COVID-19 is a unique life incident – particularly for the elderly population – that creates decreased social life and fewer in-person social interactions associated with reduced quality of life and increases depression [26]. However, in this difficult life incident, how technology can facilitate support for this vulnerable population is yet to explore.

### 2.3 Cultural influence and vulnerability of mental health for the elderly women of southeast Asia

While social isolation policies are different across societies, some significant differences in response to the COVID-19 social isolation may be better explained through cultural influences. A rich body of work investigated the differences in the cultural context and the perception of social interdependence among Asia and non-Asian countries [25], [41]. Although the elderly people are closely integrated into families in south-east Asia's collectivist cultures [11], their relationship with other family members is evolving with the fundamental changes in the social, economic, and political structure over the past three or four decades [23] [17]. These evolving surroundings of social roles and status, gender disparities, patriarchal kinship, and financial dependencies in relations make these elderly women more vulnerable toward mental distress [34]. Moreover, the differences in education and employment levels and the culture of female dependency on their husbands and sons result in their limited freedom of movement, limited opportunities to make household decisions, little control over economic resources, and minimal inheritance rights for the elderly women in this region [33], [34]. In this social context, how elderly women of this region coped up with the social isolation during the COVID-19 pandemic is yet to explore. Our research tries to get a more in-depth look into this scenario and explore how the elderly women population used technology to mitigate this unusual distress and anxiety resulted from the social isolation due to the COVID-19 pandemic.

## 3 METHODOLOGY

We investigated the affect of social isolation of urban elderly women in southeast Asia during COVID-19 pandemic and explored the potential for HCI intervention. We designed a qualitative study where, we conducted 19 semi-structured interviews with the urban elderly women from six different countries of southeast Asia.

The researchers – all-female and from southeast Asian origin – got connected to the participants through trusted contacts, which initially started among close circles from various networks, who met the initial criteria. The criteria included (a) more than 60 years of old and from an urban middle-income family, (b) access to and familiarity with digital technologies, and (c) willingness to participate in our study and comfortable in sharing their experience with the research team. We continued recruiting participants until we reached saturation in findings. The trusted link was essential to

have a long conversation with the participants as it added an untold bond among the researchers and participants. All participants' are at least grade ten graduated, and many of the participants are actively working or have retired from work. The details demography, occupation, education level, and the family structures are provided in Table 1.

The study was conducted from May 2020 to October 2020, during the first phase of lockdown in Southeast Asian countries. We had eight participants from India, six from Bangladesh, two from Pakistan, and one from each of the following countries: Afghanistan, Maldives, Sri Lanka. Initially, we asked the participants about their preferred online platform to reach out to them. The preferred platforms varied among WhatsApp, Facebook messenger mainly with video calls. Most of the interviews took place in the native language of the researchers and participants: Bengali and Hindi, while some conversations took place in English. In three interviews (with P4, P11, and P15), the participant's daughter or son translated the conversation to the participant's native language. The interview time-length ranged from 60 - 75 minutes. The meeting times were chosen based on the participants' preferences. The discussion topic covered the daily routines, how routines have changed during the current pandemic, and understanding the impact and influence of technology at homes. Two researchers conducted each interview - one interviewing while the other took notes; interviews were audio-recorded only when the participants agreed to that. Participation in the study was voluntary, and no monetary incentive was provided.

Around 20 hours of audio records were transcribed and translated into the English language on a shared Excel sheet between authors. The process followed an inductive content analysis method for coding to identify notable responses [7]. The authors coded the interviews independently and converged to common themes over several meetups, which had around 15 different codes. After multiple iterations of coding, the major themes were refined through discussions and clustered thematically and iteratively. After each iteration, the authors reviewed together to verify the consistency and made necessary adjustments. By the end of the process, we identified three high-level themes: *enhancing inter-personal bonding, self-care, and creative outlets*, and *leveraging positiveness* as participants' coping mechanisms (discussed in the next section) through using technology during the COVID-19 pandemic.

## 4 FINDINGS

Our analysis revealed three major themes from our participants' experiences with technology during the COVID-19 social isolation period. The themes are (1) enhanced inter-personal bonding to reduce mental distress, (2) mental health care with improved self-care and positive outlets and (3) leveraging positivity among social circles using technology. We discuss these themes in this section.

### 4.1 Enhanced inter-personal bonding

Our analysis found that all of our participants used technology for enhancing inter-personal bonding during the social isolation period to reduce the mental distress. All participants mentioned that the scope of "work from home" and "online education" during the social isolation period allowed them to spend more time with their children and family members. Participants mentioned that they had

more time to listen to music, watch TV, pray or cook with their family members. For instance, according to P10 *"My husband and son mostly had work from home. Otherwise, they helped me in household work, which is a good thing. We were all tensed, but as we were together, we could mitigate our tension."* Our participants also created enhanced connections and developed responsibilities of other family members - who did not reside in the same household - to reduce the mental distress and uncertainty during the COVID-19 social isolation period. Participants P1, P2, P10, P18, and P20 - whose sons or daughters were residing outside of the country for study or work purpose - learned different communication technology, enhanced the communications and put additional efforts to know their loved ones whereabouts. P18 described how she frequently communicate (several times a day) with her USA-living daughter through her(P18) own Facebook messenger. Before pandemic, P18 did not have her own Facebook account and her daughter used to make the calls to her (daughter's) father's account - thus, P18 did not find it necessary to learn making calls using Facebook; but during the pandemic, P18 opened her own account in Facebook to call her daughter by herself to mitigate her stress and be sure about her daughter's well-being. Similarly, P2 learned to use Viber for the first time during the pandemic to communicate with her close family members and friends to reduce her stress: *"I do not know much about tech. My nati (grandson) helps me to learn Viber. I am comfortable to talk with my family (staying other places) over viber. Nati helps me when I connect with my school friends. Nati gives me much time, helps me a lot."*

Although technology could not compensate for the loneliness and the lack of interactions of being in the same physical place with their children and loved ones, participants found that they had established some stronger bond with them, staying a thousand miles apart during the pandemic. P1 stated: *"I do not feel comfortable talking over the video calls with my daughter and my grand sons during the isolation. At some point we do not have anything else to say. If they were here with me, it would be better. But when I talk with my youngest grandchild (less than a year old) over video call, he tries to touch me, he wants to see me. So, I feel very good. I like to talk with him."* Additionally, all of our participants mentioned having more substantial connections and contacts through phone calls and social media with distant relatives and friends. Through Facebook Messenger, WhatsApp, and different social media groups, participants made stronger bonding of empathy, which strengthens them emotionally and helped them to reduce the mental anxiety. According to P18: *"There is no good news anywhere. Everyone is scared only about this Corona thing. In this period, my communication with everyone increased significantly. Even now I am talking with relatives a lot with whom I usually do not talk regularly. Then I feel good."*

### 4.2 Improved self-care and creative outlets

We found that all of our participants emphasized better physical and mental health care and cultivating different creative outlets during the COVID-19 pandemic. Most of the participants mentioned adopting a healthier lifestyle such as changing food habits, doing an increased amount of exercise, etc. inspired by different social media posts. For example, participant P1, P2, P3, and P13 stated

**Table 1: This table shows the participants demographics, occupation, academic level, and their family details. It is important to note all of our participants' age are more than 60**

Index	Country	Occupation	Education Level	In House Family Members
P1	Bangladesh	Retired School Teacher and Poet	Masters	Son
P2	Bangladesh	Home Maker	Bachelors	Husband, Daughters, Grandsons
P3	Bangladesh	Entrepreneur	Masters	Husband, Son
P4	India	Home maker	Grade 10	Husband
P5	Bangladesh	Home Maker	Bachelors	Husband, Sons and their wives, Grandson
P6	India	Home Maker	High School	Husband, Husband's brother and his wife, Nephews
P7	Pakistan	NGO Worker	Bachelors	Husband, Daughter, Grandson
P8	Afghanistan	Home Maker	High School	Husband, Daughter, Son and his wife, Grandchildren
P9	Bangladesh	Entrepreneur	Masters	Husband, Daughter
P10	India	Home Maker	Masters	Husband and Son
P11	India	Home Maker	Grade 10	Husband, Son and his wife, Grandson
P12	Bangladesh	Artist and Dance School Teacher	Masters	Husband, Daughter and her husband, Grandsons
P13	Maldives	Retired School Teacher	Bachelors	Husband and Daughter
P14	Sri Lanka	Retired College Teacher	Bachelors	Lives alone
P15	India	Home Maker	Grade 10	Son
P16	India	Entrepreneur	Masters	Son
P17	India	Medical Doctor	Bachelors	Husband and Sons
P18	India	Home Maker	Bachelors	Husband
P19	Pakistan	College Teacher	PhD	Daughter

that they learned from social media to be more protective against CORONA infection by taking more vitamin C containing foods, hot water, ginger water, and different herbal remedies. Additionally, participants used Facebook, Facebook messenger, YouTube, and WhatsApp to know more about healthy eating practices and different home exercises, which helped them take care of their overall health. As P3 mentioned: *"When I am depressed, I would turn on YouTube, and I would start doing work out."*

Furthermore, most of the participants engaged themselves in different creative activities through Facebook and WhatsApp groups such as learning new skills, participating in cultural activities, creating innovative ideas, etc. For instance, P6, who used to perform in stage dramas long before her marriage, attended an online audio drama competition after many years through Facebook groups. She got inspired to nurture her long-lost dream of performing in cultural shows through online tools during the pandemic's distress. Similarly, P2, P3, P4, P10, and P18 mentioned learning new recipes from YouTube channels and trying them for their family members. Similarly, in addition to cooking videos, P10 learned painting potteries through the YouTube videos; *"I watched cooking shows in YouTube. I made pizza and golgappa (Indian snacks) after watching the videos from YouTube. Also I love to watch the art and craft things on YouTube. I painted pots after watching those videos"*.

Also, participants invested in their spiritual learning and mental health through different social medial posts, blogs, and online courses during the social isolation period. In addition to her regular

religious practices, P5 explained how Facebook groups helped her gain more religious and spiritual knowledge while she could not go out due to the pandemic. Similarly, P19 mentioned that she took an online short course on self-growth and mental health, which let her know the importance of focusing on mental growth and energy. The following example quotes from the participant P5 illustrate the observations as mentioned above: *"Book is written only by one – but in Facebook (religious) groups – you get posts from so many noble people. It is helping me a lot. I do not have to read a book – do not have to go to a guru (spiritual leader)"* (P5). P19 also reflected: *"It [online mental health course] was good. I feel very relaxed. I was focusing on self growth, we forget to focus on ourselves, we focus on others."* Thus, our participants took the initiative and put efforts to keep themselves positive through better self-care and creative activities. Participants' technology usage was crucial for their self-care and creative activities, which significantly helped them in their mental well-being during the pandemic scenario.

### 4.3 Leverage of positiveness

During the social isolation period of pandemic, our participants participated in different activities that notably propagated positivity throughout the online and off-line community. Using technology as a tool, we found that participants explored opportunities to be more inclusive in spreading knowledge, reaching out for remote participation, and supporting communities through various charity activities.

First, regardless of being housewives, teachers, businesswomen, or social workers, our participants exhibited their efforts to be more inclusive towards the community during the pandemic. Participants' enthusiasm in sharing experience and knowledge, connecting with distant and rural participants through Skype, Zoom, Google Meetup, and different social media, was visible regardless of their location and education level. There were examples of redesigning the teaching curriculum, modeling new business approaches, and organizing new models of social activities that surfaced participants' intention to reach more people in the community. For example, P12, a dance teacher, expressed how she explored the opportunity to include a more diverse population in her dance classes through video conferences. She shared her plans of redesigning the curriculum through technology so that indigenous people can join her classes who live in far distant places. Similarly, P9, a businesswoman, shared her remodeling of the business structure so that her employees could work remotely throughout the social isolation period. Another participant, P16, who was a social worker, described the brighter sides of organizing online social activities and mentioned feeling more empowered and inclusive through technology. According to her (P16): *"Now I am doing all online Workshops, and webinars. In webinars, we had 200 audiences initially; then, thousands join later. Previously, If I did a seminar, only 40 to 50 people would come. There was no sharing of talk in most of the cases. Today I gave a talk on Facebook Live for the first time in Punjabi (one language of India). Within 4.5 hours, 400 people watched, and 100 of them shared it. Now thousands of people are sharing it on Facebook."*

Second, we found that most of our participants were keen on creating a positive environment within their home and tried to disseminate that positive vibe among their online networks during the stressful social isolation period. Participants mentioned that they intended to engage their distant family members, relatives, and friends within their creative activities to cheer them up. For example, participant P20, who never got the chance to get involved with music, took her first step to record her song and shared it with her relatives over the WhatsApp group. This effort encouraged her relatives to initiate similar activities within that WhatsApp group, resulting in lots of fun among themselves and ease of everyone's stress during the pandemic scenario. Similarly, P2 explained how she got more engaged with her old friends over Facebook and WhatsApp groups and encouraged others to share their thoughts and experiences daily. P2 mentioned that her small act of positivity within those groups provided her friends with a profound sense of belonging and positiveness. Likewise, P1 described how she tried to be more productive during social isolation and spread the spirit of positivity among her online friends: *"As I write poems, I am trying to write poems with positivity in this period. I wrote three or four poems in a month. When I write a poem I post them on Facebook for my friends."*

Third, some participants mentioned being more thoughtful and thankful for their blessed life and health during the uncertain pandemic scenario and participating in different charity activities to propagate society's gratefulness. For example, P1, P2, P14, P17, P18, and P20 mentioned their concerns about the less fortunate and needy people around them, neighbors, and their maidservants. As the economic situation was getting worse, they tried to help people financially in different ways. P1 explained her activities through

Facebook groups where she continuously helped different charity organizations who works for the road side children. She expressed that despite feeling mentally distressed during the lock-down period, she felt good and relieved that she could help the less fortunate people with the help of technology. Similarly, P2 expressed her gratitude as she could help some of similar less-privileged people with the help of social media platforms: *"We all got more social [though social media]. We are human, we have emotion – we want to live together. We want to care for others. We cannot stay well without others. This is my learning from this COVID thing"*. Taken together, our participants fostered positiveness around their social circle using different technology tools to improve their mental well-being during the pandemic distress.

## 5 LIMITATIONS

In our work, we considered only the urban elderly women in Southeast Asia and taking care of their mental health during the COVID-19 isolation period. While this is an interesting segment of the society, we acknowledge that other socio-economical group may reveal other different and interesting aspects. As a future direction, we hope to expand this work to more diverse groups in both rural and urban settings.

## 6 DISCUSSION

COVID-19 has caused unprecedented anxiety and panic globally. Although the infection appears to affect people of any age group, the elderly are at a higher risk [16]. In light of our findings, elderly women in southeast Asia demonstrated considerable adaptability to take care of their mental health using different technology platforms during the COVID-19 social distance period, despite anxiety and uncertainty. We demonstrated how the participants, irrespective of their educational level and occupation, mitigate the uncertainty and distress through enhancing inter-personal bonding, improving self-care and creative outlets, and leveraging positiveness towards the community. It is possible that elderly women from different geographical locations and backgrounds may have different experiences and coping mechanisms during the COVID-19 pandemic. Nevertheless, the findings we report in this paper can represent how elderly women of Southeast Asia manifest their adaptability and positiveness during adversity and point us to relevant HCI connotations that can advance research in this field.

Our findings point to the affordance of technology to provide an additional lens to help HCI designers understand how the elderly population can be included in achieving social outcomes of technology usage and diffuse sociality [9]. Here we explain the possibilities of online technologies to empower the elderly population regardless of occupational status or educational level, potentially mitigating their social isolation and loneliness [29, 30]. In addition to designing assistive technologies for better access and skills, we argue that HCI has an ethical responsibility to include the elderly population's knowledge and experiences to make them a valid and respectable citizen of the digital society [39]. Although our study focused on the unique scenario of the COVID-19 pandemic, the HCI researchers can investigate this design space by looking at differences in outcomes in different courses of events.

Our study also builds evidence that technology has the possibilities to create positive impacts on mental health during the adversity of natural calamities. During the COVID-19 pandemic, the elderly community worldwide was subjected to steeped into the ideas of "rugged individualism," which caused distress rooted in feelings of alienation [43]. Unlike the western developed world, where initiatives were taken by the government and other NGOs, such as online therapies and specialized social networks during the COVID-19 pandemic to keep the elderly community mentally healthy and connected [8], there were minimal initiatives for the elderly community in the developing countries of Southeast Asia [18]. However, corroborating with Grover et al. [18], we found that our participants experienced positive impacts on their relationship dimensions with the help of technology during this pandemic period such as the relationship with children, spouse, relatives, friends and other social circle, which helped them to better cope with the uncertainty and anxiety. Thus, our findings are also aligned with many other similar research findings, where participants explored strategy to cope with the pandemic scenario by realizing the value of re-connecting with families and improving the family relationships [13]. Although there are disparities in technology literacy and abilities within women in the global south [37], they pose high motivation and robust enthusiasm to learn and use technology, irrespective of their age, when the question and concern come regarding their loved one's well-being. Therefore, our study exhibits the importance of design interventions for this population in longer-term programs through ethnography and community engagement to make them more empowered and capable of upholding their positive-spirit during crisis and non-crisis scenarios.

## 7 CONCLUSION

In this paper, we have explored the technology usage of elderly women in Southeast Asia for mental well-being during the social isolation period of the COVID-19 pandemic. We have highlighted enhancing inter-personal bonding, improving self-care and creative outlets, and leveraging positiveness towards the community as the primary mechanism of mitigating uncertainty and distress where technology was a crucial medium. Our research has depicted that designing for the elderly population is not limited to assistive technology – however – it may have the opportunity to empower them for mental well-being within the familial and societal boundaries that are substantially integrated with cultural norms. As per the HCI research perspective, we highly encourage researchers to examine those design contexts to accommodate these different populations through different cultural aspects.

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