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# Understanding the Quality of Life of Indian Elderly During COVID-19 Pandemic from Universal Design Perspective

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**Abstract.** India is rapidly growing towards a demographic future where a significant proportion of the population is over 60 years and above. In the COVID-19 pandemic, the restrictions imposed to minimize the virus transmission have a detrimental effect on the Quality of Life (QoL) of the elderly, limiting their mobility and social interaction. As a result, social isolation and loneliness have become significant health issues. This study attempts to understand the QoL of Indian elderly during COVID-19 pandemic from universal design (UD) perspective. The objectives were: (a) Discuss the QoL of Indian elderly during COVID-19; (b) Identify the factors affecting QoL of elderly during pandemic; (c) Find the link between factors associated with QoL and UD philosophy. These objectives were achieved by desk-based literature review and a pilot study of Solanipuram, a typical urban neighborhood in Roorkee located in Northern India. Personal in-depth interview sessions with limited number of (n=20) participants aged 60 years and above; belonging to upper-middle income group, are conducted and analyzed using the inductive thematic technique. The previous research suggests that, to date, QoL has been described as well-being resulting from physical, functional, emotional, social, and environmental factors. Whereas, UD allows for the inclusion of the 'cultural' dimension into the discussions. Especially in a country with diversity like India, where elderly discusses the impact of physical distancing, limited mobility, and social interactions on their QoL during COVID-19. This study indicates that the application of UD philosophy in response to pandemic can promote well-being and enhance the QoL of elderly.

**Keywords.** Quality of Life (QoL), Elderly, Universal Design (UD), COVID-19, India

## 1. Introduction

The World Health Organization (WHO) declared COVID-19 an epidemic, and since then, people aged 60 and above, including those with comorbidities, have been at a higher risk of mortality from this pandemic disease [1, 2]. As a result, similar to many countries, India imposed rapid restrictions of physical distancing, border restrictions, recommendations to stay at home, avoid contact with others and unnecessary travels to mitigate the spread and impact of disease [3].

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## 2. Impact of COVID-19 on QoL of Elderly: *An Indian Scenario*

The economic ramifications of physical distancing due to COVID-19 are well known, but the cultural implications are largely unexplored [4]. Therefore, it is necessary to have an insight into the perspective of Indian elderly on QoL. The first objective was achieved by understanding the impact of COVID-19 pandemic on QoL of elderly in Indian context.

Elderly have a higher risk of contracting COVID-19, due to which remaining active, and healthy can be challenging for them. This can complicate their situation and increase their dependence on others, including family members, health providers and care givers [5]. Physical distancing, limited mobility and social interaction will likely affect the independence and QoL of elderly by intensifying their physical and social isolation [6, 7]. Moreover, due to this pandemic, isolation and loneliness from social distancing have restricted their mobility and socialization with friends and neighborhoods [8]. The increased loneliness due to COVID-19 restrictions may impact social networks and social contacts [9]. These changes has a significant psychological impact on the elderly, affecting their well-being and QoL [10]. The WHO defines QoL as an individual's perception of their position in life in relation to their goals, expectations, standards, and concerns, as well as the culture and value systems in which they live. The concept of QoL includes physical, psychological, social and environmental domains [11]. In countries that imposed strict lockdowns and other restrictive measures during the pandemic, QoL has decreased significantly from pre-pandemic levels [12].

In India, family has remained the fundamental organizing unit for economic support, physical care, and social security. However, as families transform, intergenerational relationships and the role of women in the family have changed significantly, affecting elderly care and welfare [13]. Furthermore, their socio-economic conditions have changed, necessitating changes in their living arrangements. People prefer to live in their independent homes as a result of cultural shifts toward individualistic lifestyles, resulted in the increase of one-person households in India. There is a growing trend of living alone or with a spouse only which is becoming more common in India [14].

According to a survey conducted by Help Age India, approximately 6 percent of the elderly live alone, while 10-20 percent of the elderly suffer from loneliness [15]. In India, the older population is more vulnerable since the pandemic has exacerbated the psychological and behavioral health. As a result, the problem intensifies in terms of social isolation and loneliness [7]. Although previous studies have explored on contributing factors to QoL, the COVID-19 pandemic presents a unique context in which new associations may emerge.

India has a unique and diverse social fabric, which distinguish it from other countries in terms of culture and tradition [16]. Therefore, UD principles in Indian context were developed, focusing on Indianness, inclusivity and social differences related to culture, age, gender and disability. These principles are now part of revised “Harmonised Guidelines & Standards for Universal Accessibility in India, 2021” (MoHUA, Government of India). It aims to create inclusive environments for all, including elderly, through universal design approach [17].

## 3. Research Methodology

### *3.1. Study Context*

The second objective was achieved by conducting a pilot study of Solanipuram, a typical urban neighborhood in Roorkee, a Tier III city in the northern state of Uttarakhand, India. The total area of Roorkee is 1066.83 sq.km. with a population density of 934 per square kilometer, and total population of 9,96,344 persons[18]. The study area is located in "Solanipuram", a typical urban neighborhood of Roorkee. The housing typology can be categorized as single-detached, low-rise structures (G+1). Besides residential plots, the neighborhood also comprises distinct infrastructure and service typology. (Figure 1) shows the location map of participants in the study area of Solanipuram, Roorkee.


**Figure 1.** Location map of study area, Solanipuram, Roorkee

### *3.2. Participants*

Participants were selected using a purposive snowball sampling approach. Individual interviews with participants (n=20, ≥ 60 years) living independently in a residential setting were conducted. The exclusion criterion was elderly with any underlying severe medical conditions and those in need of assistance with daily living activities.

Participants were between 60 and 85 years (mean = 70.45 years) and predominantly female (55%). Participants belonged to upper-middle-income socio-economic group, fluent in Hindi or English. However, the group composition was kept culturally homogenous. Table 1 is the demographic characteristics of the elderly participants.

### *3.3. Data Collection*

The study was conducted using a qualitative survey methodology. In-depth interviews were conducted to explore the factors affecting QoL of elderly during pandemic. Participants were informed of the audio recording and assured of anonymity and confidentiality. Verbal consent was obtained before the commencement of the interviews. Each interview was completed in the individual's home environment, lasting 45-60 minutes, and was audio recorded using a phone recorder and transcribed verbatim. A predetermined list of broad, research-driven questions was developed based on insights gained from a literature review. Each interview started with an explanation of purpose of the study, followed by open-ended questions based on the impact of ageing

on their lives, their views on QoL, the impact of COVID-19 on QoL, and their neighborhood experiences. At the end of the discussion, participants were encouraged to include additional information.

**Table 1.** Demographic characteristics of the elderly participants (n=20)

| Characteristics | Number (n) | Frequency (%) |
|---|---|---|
| **Age (years)** | | |
| 60-64 | 02 | 10 |
| 65-74 | 13 | 65 |
| 75-84 | 05 | 25 |
| **Gender** | | |
| Male | 09 | 45 |
| Female | 11 | 55 |
| **Marital Status** | | |
| Married | 16 | 80 |
| Widow/Widower | 04 | 20 |
| **Education** | | |
| Graduate | 07 | 35 |
| Post graduate and above | 13 | 65 |
| **Occupation** | | |
| Retired | 13 | 65 |
| Home-maker | 07 | 35 |
| **Type of Family** | | |
| Joint | 04 | 20 |
| Nuclear | 16 | 80 |

### *3.4. Data Analysis and Interpretation*

The analysis of data generated five codes: limited mobility, fear and anxiety, physical distancing, social interaction, and neighborhoods. These codes are categorized into four factors: physical, psychological, social, and environmental.

Inductive thematic technique was used to analyse the data. Transcripts were coded in NVivo 12 to generate individual categories called “nodes/responses”. Data saturation was attained, whereby no new codes were presented upon reviewing new comments.

## 4. Results and Discussion

The key data point extracted from the interviews in the form of direct evidence, such as quotes and responses. The evidence from the data is moved, grouped and sorted into various codes. These codes are categorized into factors affecting QoL of elderly during COVID-19 as: physical, psychological, social and environmental factors. The key findings are discussed individually in following section. Table 2 summarizes the codes and categories generated from thematic content analysis using NVivo 12 software.

### *4.1. Limited Mobility*

Maintaining independent mobility is key to active aging [19]. Previous study has linked a decline in elderly mobility to a decrease in participation in activities that allow them to interact with their community and society, affecting their QoL [20]. Mobility has also been identified as a well-being facilitator among the elderly [21].

**Table 2.** Summarization of the findings from Thematic Content Analysis using NVivo 12

| **Theme** | **Factors affecting QoL of elderly during COVID-19** | | | | |
|---|---|---|---|---|---|
| **Factors** | **Physical** | **Psychological** | **Social** | | **Environmental** |
| **Codes** | **Limits Mobility** | **Fear and Anxiety** | **Physical Distancing** | **Social Interaction** | **Neighborhoods** |
| **Interview Extracts/ Responses** | Change in physical activity routine | Fear of getting infected with COVID-19 | Inability to meet family, and friends | Inability to interact with people | Safety and security due to familiarity |
| | Lack of independence | Fear of being more vulnerable | Socially isolated due to physical distancing | Inability to attend social gathering | Attachment to the place due to known neighborhood |
| | Affects physical and mental health | Concern about family members | Inability to meet and greet physically | Lack of Social support due to decrease in interaction | Sense of belonging due to connection with people and place |
| | Restricted movement outside home environment | Lack of appropriate information | Feeling of loneliness and depression | | Familiarity with the place |

*"Since COVID-19, there is a fear in us. What if something happens? I don't feel like going out and meet anybody. And people don't visit now, may be due to the fear of contracting the virus. All this has not only affected my physical health but also impacted me psychologically."* (72-year old, retired male, living in nuclear family)

*"Earlier I was very active and independent. Going out for a walk or for grocery shopping in the evening was my daily routine. Since I am not a mobile person, I prefer to walk most days except for days when I take battery rickshaw. But everything changed since pandemic. Now, I avoid going out alone. I can't walk much. These restrictions and isolation from the outer world affected my level of independence a lot."* (67-year old, retired female, living in nuclear family)

Majority of the elderly (72%) reported that home confinement and lockdown restrictions had a significant impact on their physical activities. Elderly gradually lost interest in interacting with their friends and neighbors (60%), affecting their mental well-being.

### *4.2. Fear and Anxiety*

Majority of the elderly (92%) reported a sense of fear and anxiety due to COVID-19. The situation got worse due to lack of appropriate information about the preventive measures from this disease. There was a fear of getting infected and concern about their family members.

*"I was shattered after losing my husband to COVID-19. Since then, I had a constant fear of getting infected which created so much anxiety and stress in me that even a minor cold or cough seems like COVID-19 to me."* (70-year old female, living in nuclear family)

Majority of the elderly (89%) expressed 'uncertainty' about the current pandemic situation, which has added anxiety and mental stress. As a result, one of the elderly (76-

year old, retired male) stated that they miss their lives prior to COVID, and that the incorrect and incomplete information on social media had only increased our fear as the most vulnerable group in society.

### *4.3. Physical Distancing and Social Interaction*

COVID-19 has impacted not only the economic but also the cultural aspects, which are mostly unknown. As a result, the psychological well-being and quality of life of elderly are affected [22].

> *"Before COVID-19, I had a fixed routine of morning and evening walk with my peer group. But now I am only confined to my home."* (61-year old female, living in nuclear family)
> *"I used to do all my work by myself like banking, grocery shopping, medical requirements, if any, until pandemic. But now, my family don't allow me to move out of the house for any work. If I need anything, I should let them know but restrict myself from going anywhere due to my age and vulnerability to the COVID-19."* (74-year old, retired male, living in joint family)
> *"Both of my sons are settled in the United States. It was a ritual to get together twice or three times a year. Being a doctor, my life was going as a routine, and the situation was relatively better than it is now. But this is the first time since pandemic, I could sense the desperation and anxiety of being away from them. We connect via WhatsApp and video calls, but I want to be with them, near them. I have never missed them more than I do right now."* (75-year old, retired female, living in nuclear family)

Various codes such as inability to meet friends, family, and neighborhoods (75%), social isolation (80%), inability to meet and greet physically (55%), inability to attend social gathering (90%), feeling of loneliness and depression (60%) depicted the implications of physical distancing, as expressed by the elderly.

### *4.4. Neighborhoods*

COVID-19 pandemic has significantly changed neighborhood environments and the way elderly age in place. It was found that some elderly (25%) reported less social interaction with their neighbors, while others (75%) reported more. Majority of the elderly (80%) experienced social and mental support, and concern for well-being from their neighbors.

> *"We live in a neighborhood where most of us belong to the same socio-economic background. During COVID-19, neighbors keep an eye on the people like us; of our age, especially those who are medically vulnerable."* (68-year old, retired male, living in nuclear family)
> *"Due to COVID-19, I am confined to my home and therefore depend on my family to meet my basic needs, such as purchasing medications and groceries, etc. I am not allowed to go for a walk or meet my friends or neighbors. Nor anybody is allowed to visit me. Though I am in contact with them via phone calls, and text messaging, but there is no emotional attachment. And this feeling creates a lot of mental distress."* (69-year old female, living in joint family)

## 5. Conclusion

The third objective is accomplished by utilizing the UD philosophy to the findings of the second objective. Table 3 establishes link between factors associated with QoL of elderly and UD principles through design strategies.

**Table 3.** Relation between Factors associated with QoL and UD principles through Design Strategies

| S.No. | Factors associated with QoL | Principles of UD | Design Strategies |
|---|---|---|---|
| 1. | **Physical factors –** *Limited Mobility* Restricted movement; change in physical activity routine; affects physical and mental health; impact well-being and independence. | **(1, 2, and 7)** *Equitable Use* *Flexibility in Use* *Size and Space for Approach and Use* | Spaces can be re-arranged and modified to accommodate the change in daily activities; change in layouts and functionality of interior spaces can create walking areas; an unobstructed view of outside. |
| 2. | **Psychological factors –** *Fear and Anxiety* Misinformation or lack of appropriate information; fear of getting infected with COVID-19; increasing concern for family members. | **(5 and 6)** *Tolerance for Error* *Low Physical Effort* | Designating separate entrances to encourage physical separation of visitors and family members; designate the signage's or symbols related to exit, entry, pickup and drop items outside the home environment to limit the error of visitors and family. |
| 3. | **Social factors –** *Physical Distancing & Social Interaction* Inability to meet and greet family and friends; decreased interactions; and inability to attend social gathering; feeling of loneliness and depression. | **(1, 2, and 7)** *Equitable Use* *Flexibility in Use* *Size and Space for Approach and Use* | Changing the layout and functioning of the spaces ensure safer meeting place;; reduce furnishings provide more space to create interactive areas; re-arranging and accommodating the existing space making it adaptable to specific needs of elderly. |
| 4. | **Environmental factors –** *Neighborhoods* Familiarity and connection with people and place; safe and secure environment; attachment to the place; sense of belonging. | **(3 and 4)** *Simple and Intuitive Use* *Perceptible Information* | Making navigation through the public spaces more easy, allow the use of public spaces more efficiently. |

The study revealed that implementing UD strategies within home environment and in public spaces, may reduce the isolation and enhance QoL of elderly. Small open sitting areas with restricted capacity can help elderly to physically connect with their friends, family, visitors and neighbors in order to maintain their social and emotional well-being. Also, the layout and functionality of spaces can be re-arranged and modified to accommodate specific needs of Indian elderly thus reflecting equitable use. So, to accommodate the change in their physical activities requires both flexibility for use and size and space for approach and use.

Thus, UD is a promising philosophy that requires attention from architects, planners, designers, and decision-makers. The issues faced by Indian elderly during the pandemic can be resolved by implementing UD principles at architectural and spatial levels. Even though the daily activities of elderly were affected in both private and public settings, there are still spaces where interaction occurs, such as marketplaces, streets, courtyards, and areas outside of homes. As a result, future research is necessary to make physical environment safer and more accessible for the elderly in view of this and foreseeable crisis.

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