



Lived Experience of Senior Citizens on Plant-Human Relationship: A Phenomenological Study of Therapeutic Wellbeing in Urban Nepal

Gita Khadka

Singhania University, School of Applied and Social Science, Rajasthan, INDIA

Megh Dangal

Kathmandu University, School of Arts, Kathmandu, NEPAL

Received: 1 March 2022 ▪ Revised: 11 June 2022 ▪ Accepted: 17 July 2022

Abstract

Ageing is a natural phenomenon, and it is inevitable. Everyone eventually grows, and this growth brings weakness and decline in the individual's physical, mental, and overall well-being. There have been many studies done regarding identifying the possible link between the plant-human relationship and its impact on the well-being of humans. This phenomenological study has provided the perspective of elderly people/senior citizens concerning their experience with plant-related activities. The foundation of this study is based on five key primary questions in the thematic area of "plant-health relationship for subjective wellbeing in later life of retirees". This study involved fifteen participants: four women and eleven men aged 60-80 years who were retired from 20 to 40 years of service in governmental, semi-, and non-governmental organizations. They were living with their families and had fairly similar physical and cognitive abilities. The interviews were recorded, transcribed, coded, and analyzed using the descriptive phenomenological method. Retired professionals from different sectors (education, police force, banking, agriculture, Army, engineering, nursing, community development, etc.) were found to be active, having a good understanding of plants and their relationship to human wellbeing. Most of them spent more than three hours daily in their horticultural activities (like kitchen gardening, rooftop gardening, terrace gardening, lawn or indoor plants). They utilized their competence and experiences gained from parents and ancestors, keeping themselves busy and productive after retirement. The narrative presented in this study directs towards a strong link between plant-human relationships and wellbeing.

Keywords: senior citizens, well-being, plant-human relationship, Nepal.

1. Introduction

The biological and demographic phenomenon of ageing is leading to an increase in the elderly population almost all around the world, making elderly health and wellbeing a major concern today. The gradual process of ageing is a universal and multidimensional phenomenon, leading all individuals through life in its course from birth to death. Those at the age of sixty and above in the process of ageing are referred to as "Senior Citizens." Fineschi and Loreto (2020) identified that human lead ecosystems in the current situation, particularly in urban areas bring

positive and negative relationships between plants as well as between plants and the human being, and other living organisms. In urban areas, there are natural as well as artificial elements in existence that act as a catalyst for maintaining plant-human relationships.

For older people who are living in their own homes, it is extremely important to understand how to help them continue to live happy and fulfilling healthy lives (Khadka & Dangal, 2021). There is some link that can be used to draw some inference that the relationship between plants and human have an impact on their overall well-being. Plants minimize carbon dioxides, greenhouse gases, and pollutants, reducing urban heat and acting as a natural cooling agent (Fineschi & Loreto, 2020; Chonody et al., 2014).

The World Health Organization (WHO) has defined healthy ageing as a process of maintaining functional ability to enable wellbeing in older age. The time frame between 2020 and 2030 has also been named “The Decade of Healthy Ageing” (WHO, 2020). According to a demographic projection, the number of people aged 60 years and older will be 34% higher by the end of this decade, increasing from 1 billion to 1.4 billion. By 2050, the global population of older people will have more than doubled to 2.1 billion (WHO, 2020). Similarly, in developing countries, the number of people aged 60 years and older will increase most rapidly from 652 million in 2017 to 1.7 billion in 2050 (WHO, 2020). Along with other nations, Nepal is experiencing a demographic shift towards an ageing population, presenting a challenging situation in the context of the wellbeing of senior citizens (Chalise, 2006). In the next few years, the sixty-and-over population is predicted to reach 10 percent of the overall population, congruent with global changes in the elderly population (Kandel, 2018).

During ageing or life after retirement, people tend to gravitate towards hobbies like playing card games, gardening, reading, traveling, social work, social gatherings, etc. to cope with retirement or reduce loneliness. According to Khadka and Dangal (2020), among these activities, the retirees who get involved with plants or in gardening do so out of pure interest without understanding the range of social-health benefits for their later life. Moreover, in developing countries like Nepal, limited recreational spaces at homes, lack of public facilities like parks, and the unavailability of elderly people-focused recreation centers for exercise and interaction with community members in urban areas have caused retired people to turn towards gardening activities like roof-top gardening, kitchen gardening, terrace gardening, lawn, and indoor plants at their homes as a pastime (Khadka & Dangal, 2021).

Plants have been present in history since the beginning of life on this planet and play a very crucial role in the life of every human being (Pouya, 2018). The reciprocal relationship between humans and plants through gardening can knowingly and unknowingly serve therapeutic benefits to promote wellbeing, especially hedonic and eudemonic wellbeing (Rae, 2013). Additionally, many studies have also found that a physically active lifestyle reduces the risk of developing cardiovascular disease, obesity, osteoporosis, dementia, several forms of cancer, and depression in health-conscious people who are residing in urban areas. Hence, Rappe (2015) highlighted the importance of finding ways to keep people physically active even after retirement.

With their colors, structures, aromas, tastes, forms, and occasionally, sounds, plants can provide stimulation of all five senses. Sensory stimulation is vital for dementia patients, helping their memory and enhancing their orientation. Plants have been shown to have positive effects on pain perception as well as health status perception. Ornamental plants have been shown to improve pain tolerance in laboratory tests. Subjects’ pain tolerance time, pain severity, and pain distress all improved when they were exposed to flowering plants (Rappe, 2005).

Reviewing the existing studies, available data, and information, it is observed that most retired people suffer mental stress immediately after retirement because they are used to active working lives and have no other way to engage themselves without their jobs. This is especially the case in the retired male population because most males in Nepalese societies are not

habituated or interested in doing household work. Therefore, this study aims to explore the lived experiences of Senior Citizens on plant-human relationships for the therapeutic wellbeing of retirees in urban areas of Nepal.

2. Research methods

2.1 *Study area*

As this is a phenomenological study to explore the experiences/practices of senior citizens on plant-related activities for their wellbeing after retirement, the researcher has collected the list of retirees from different sources. The participants are a fairly homogeneous group with a good understanding and experience of the phenomenon in question. The study is based in three districts of Bagmati State of Nepal, purposively selected for their representation as major cities of the country, where people are highly educated and conscious about their health and well-being in their retired life.

2.2 *Sampling*

Purposive sampling was conducted with 15 participants who have retired from their organizations (government organizations, NGOs, private companies, etc.). Out of the 15, 4 nos. i.e., significance percent (30%) female participants have been interviewed. The age range of participants falls in the 60-to-80-year category and all fifteen participants were living with family, possessing fairly similar physical and cognitive abilities.

2.3 *Research design and tools*

This study is a part of a larger qualitative research study that explores retirees' experiences of plant-human relationships from a well-being perspective. In the phenomenological interviews, we had one opening question, inviting the participants to describe a situation after retirement where he or she had experienced a sense of wellbeing (Bauger & Bongaardt, 2016). The research design consisted of open-ended and in-depth interviews, as well as field observations.

As the study was phenomenological, we originally prepared for face-to-face interviews but due to the COVID-19 pandemic, most of the participants were not open to meeting for an in-person interview. As per their request, we developed semi-structured questionnaires and sent them online. For the rest of the willing participants, face-to-face interviews were held after the lockdown of the second wave of the pandemic. The interview was conducted from April-December 2021, with the average duration of an interview being one hour for direct interviews. Similarly, live observations were made on their planting work during the interviews, and notes were taken after each interview.

2.4 *Data analysis and interpretation*

Data was collected using a themed interview. After completing data collection and field study, voice recordings through Viber and digitally recorded face-to-face interview, data were transcribed, coded, and organized thematically.

2.5 *Ethical considerations*

Firstly, to clear any doubts regarding the intent and reasons for this research, participants were informed about the study in writing and orally incomprehensible language before the interviews. Also, in the Nepalese context, most senior citizens still live with their spouses and children's families. Addressing their lived experiences may include personal details

of family life they may not like to share. For this reason, participants were allowed to choose or refuse to answer any questions that they may not be comfortable with.

Finally, all ethical principles should be based on esteem for human beings and their experiences which reduce harmful research (Hostetler, 2005). Also, high-quality research should be conducted in a way that will offer benefits and advantages to the research respondents and the wider area (Creswell, 2003).

3. Results

As the research method was qualitative, we separated information into two parts. In the first segment, demographic characteristics of the participants (*age, gender, caste/ethnicity, education level, family size, marital status, duration of work, position and field of experience and consumption of medicine, etc.*) were collected to help the researcher study the situation of the participants. The second portion consisted of semi-structured questionnaires based on five themes concerning the perception, knowledge, and practical experience of the senior citizens on plant-related activities including plants-human relationship, human health and wellbeing, the role of plants for elderly individuals in urban life, plants for therapeutic treatment and knowledge and experiences of plants in COVID-19 pandemic.

3.1 *The demographic characteristics of elderly who retired from different organizations*

Demographics are characteristics of the population of every study. In this research study, basic characteristics such as age, gender, ethnicity, education, profession, marital status, job duration, health status, etc. give clear information on the background of our research participants. All participants are senior citizens who have been purposively selected from the retirees' circle and are actively involved in plants or horticulture activities at the household level. Out of the 15 participants, 4 are female and almost all participants are living with spouse and son/daughter-in-law. All of the participants' education level ranges from minimum graduation level to PhD.

Traditionally, Nepalese society had joint and extended family structure and the society had norms and values of showing respect and looking after the elderly parents or grandparents of their family. In this study, we found that most of the participants had nuclear families and only a few were living in joint families. The participants also come from diversified professions such as Education, Agriculture, Police, Army, Banking (Governmental and Agriculture Banks), among others. Another very important characteristic of the participants is the fact that they have all served their organizations for 20 to 40 years. When asked about their health conditions, most of them suffer from blood pressure, thyroid problems, and diabetes.

3.2 *Perceptions of elderly on plants-human relationships*

People-plant interactions are defined as “the wide array of human responses (mental, physical and social) that occur as a result of both active and passive participation with plants” (Rappe, 2005). The participants are highly educated and have much experience in their profession, and are now engaging in plant-related activities after retirement. They have good knowledge about plants and their relationship with human beings. The participants have said that plants are an integral part of human life: plants cannot survive without human beings or bear good fruit without human intervention. During field observation and interviews, they presented their

plants in rooftop gardens, kitchen gardens, and terrace gardens that have been grown with enthusiasm and dedication in their day-to-day life.

In this regard, Mr. Wagley said: *“No plants – No human life. This relationship exists immediately from birth to death. Plants provide all basic needs for the survival of human beings. Human beings depend upon plants for life-supporting basic needs like food, fiber, water, timber, woods, leaves, shelter, and clean air, among others. Similarly, plants need support from human beings for their survival, growth, and care.”*

In today’s world where children are increasingly moving from village to city and from city to abroad in search of education or work, it is important to remain active, since only the elderly remain at home after retirement. In often cases elderly become lonely and have no one to interact with. In terms of the relationship between plants and human beings, Mrs. KC, 62, said: *“Both are living beings and there are some kinds of connection. Sometimes I talk with plants and I feel good. The relationship between plant and human is so close that our failure to respond to the plant needs in extreme circumstances such as moisture stress, waterlogging, heavy insect pest infestation, and the like leads to the death of a plant. Hence, regular observations on plant growth and change make us relate the plant life cycle to human life. It teaches us how sensitive our lives are.”*

The closer you get to plants, the more you learn new things and the more positive thoughts you gain from them. Another participant, Mr. Shah said: *“Playing in the soil is very beneficial to the body, which also disappears in the soil after death. Also, greenery seems to be of great help in keeping one’s eyes healthy as well as the body disease-free.”*

3.3 Plants for elderly’s health and wellbeing in urban environment

Logistically, a home garden provides easy day-to-day access to fresh vegetables, fruits, spices, ornamental (indoor & outdoor plants), and herbal plants. In the context of Nepal, home gardens have always been an integrated part of the landscape and culture for centuries. Unfortunately, the limited land and busy schedules in the life of urban people in recent years have limited the scope of the home garden to only leisure activity. At this time, home gardening has an increased significance as a way to support household food security, utilize time, ensure and enhance family bonds, contribute to mental health, health safety, and the overall contribution to the well-being of the people while creating green and healthy spaces (Dissanayake & Dilini, 2020).

In the interview, Mr. Paudyal stated: *“Due to increased urbanization and desire for purely organic food and desire for healthy and beautiful living, the urban gardening practice is on a high rise and getting popular day by day. However, certain difficulties such as no planned housing based on gardening features and weak house infrastructure have made rooftop gardening a challenge. Provision for assured good quality seed, manure, and other items have also made gardening difficult. The availability of water for irrigation is also at times not accessible.”*

In our life, most of the necessities in the kitchen are met by plants or kitchen gardens, therefore the cost of vegetables, spices, fruits, etc. has been reduced. In this regard, Mr. Nepal explained: *“Even though urban setting does not provide enough space for farming at commercial scale, production of vegetables and fruits for domestic use is possible. Some people produce sufficient for their consumption; my production so far is only supplementary.”*

Most elderly people express their desire to die in peace before having to depend fully on the next generation for minor issues and daily life requirements, expectations that form a part of “functionally able” ageing. Hence, functional stability and independence form core criteria of happy and healthy ageing (Chalise, 2006). In the urban areas, people do not have big farms due

to which they get less physical exercise, so gardening helps people remain engaged while being physically active.

For happy and healthy ageing, the participant (Mr. Shrestha) expressed the following about his experience while working with plants after retirement. The participant said: *“Avenue planting adds greenery, makes the environment beautiful, and reduces sound, dust, and air pollution. Roof-top and Pot-gardening supplements food in the kitchen, reduces stress, improves home surroundings, provides the best use of leisure time, and makes family members physically and mentally fit. Flower planting makes surroundings pleasant and beautiful, supports religious activities like worship by offering flowers to deities, reduces stress, makes the best use of leisure, and makes family members happy and healthy. Due to limited land area, only a few families have land for kitchen gardens. In such cases, it supplements food in the kitchen, reduces kitchen expenses, supplies safe and healthy food.”*

3.4 Role of plants in the urban life of elderly

Urbanization is also a major challenge faced by the ageing population. These challenges are because of the limited urban facilities, services, and unfavorable infrastructure for elderly people. The physical function of retired people is a major priority for people immediately following their retirement because they are conscious of their increasing health issues during the ageing process. In regards to human health, plants can have a positive impact on the functional and cognitive development of an individual.

One of the participants highlighted: *“Not only in human health but also in the health of Mother Earth, plants play a highly important role. Plants offer an environment for better growth via protection of soil, manures, moisture, and humidity, and the overall climate change process, a concern of the present time, can be minimized. From the urban perspective, the negative effects of carbon emissions can be minimized by planting trees and crops. The beautification and air cleansing process gets enhanced if every household takes care to keep some greenery and plantation around. In civic societies, greenery is symbolic of civilization as creativity gets enriched due to the green environment and there is the consumption of better-quality home-grown vegetables, fruits, and herbs. Under perfect conditions, even the environment for honey production can be established.”*

“Homegrown plants provide healthy and fresh plant-based nutrients which is very important, especially to urban dwellers.”

Environmental effects on health have been recognized in health promotion since the Ottawa Charter for Health Promotion in 1986 for which one main proposal was the creation of healthy environments (WHO, 2004). Likewise, plants and nature are also associated with better pain control. Improved pain tolerance when seeing plants or natural landscapes may derive from the strong attention-holding capacity of nature (Rappe, 2005).

One of the participants highlights the relation of plants with their health: *“From the very beginning of my retirement, I have been passionate about plants and I firmly believe that it helps maintain a clean environment, having a very positive impact on human health.”* Similarly, another participant points out the relation of plants with “focus” and “concentration”: *“I am physically active with gardening and it helps me with focus and concentration.”*

Likewise, this information can be associated with the argument made by Rappe (2005) regarding pain control and the power of a green environment. *“In my opinion, the urban population should try horticulture in kitchen gardens, rooftops, and plant pots for maintaining a green environment in their surroundings. People can relax watching the plants grow and they can pass their time with plants in a tension-free environment for pleasure and fun.”*

Furthermore, the participants draw the inference of how the role of plants has been understood in urban life and its growing popularity. *“Plants have positive impacts on both the physical and mental health of human beings. With the expansion of a concrete jungle in urban areas and the growing misuse of pesticides in crops, the importance of gardening and tree planting is increasing among urban dwellers. Hence, avenue planting, roof-top gardening, pot planting, and kitchen gardening is increasingly gaining popularity in city areas.”*

At the same time, the limitation and challenges are carefully mentioned by one of the participants: *“The importance is recognized by people but there is no such policy which promotes environment without pollution.”*

3.5 Experiences of plants in term of therapeutic treatment

The therapeutic garden environment has been documented since ancient times. According to the American Horticultural Therapy Association-AHTA, the first person to document the use of horticulture as therapy was Dr. Benjamin Rush who is also recognized as the “Father of American Psychiatry”. He reported the positive effects of gardening for individuals with mental illnesses. Later, in the 1940s and 1950s from the treatment of different types of diagnoses, the practice was used in the rehabilitation of war veterans (AHTA, 2020).

Mr. Paudyal, 68 years old retiree said: *“Movement of different joints and body parts is essential for food and oxygen circulation in different body parts. Any condition to provide such movement is a precondition for longevity and good physical and mental health. Yoga and related exercises offer that, but without producing vegetables, fruits, herbs, and greeneries, such outputs may be missed. Equipment such as exercise chairs, artificial walking, and running machines or bicycles can be other means to gain exercise. But all these methods cost money. In a poor country where they are to be imported, substantial money is required. These alternatives also do not lead to crop production. So, offering training and encouragement to grow plants in small urban spaces is highly desirable for engaging in physical exercise. Any support in this direction so far has been too little.”*

In ageing life, there is an increase in mental stress and physical illness. To reduce this and stay healthy and happy for longer periods, people need to change their lifestyles. Since the busy and healthy social lives of their working years tend to dissipate after retirement, many retirees are attracted to plants as they can plant them in their immediate surroundings and take advantage of them. This can also be supported by the experience shared by one of the participants: *“It can contribute substantially towards reducing stress, keeping people physically and mentally fit, arousing a sense of dignity of work, and improving the overall quality of life.”*

Most of them reported working in the garden both morning and evening, while some engaged only in the morning and the others only in the evening. They all agreed that it helps keep the body healthy. Mr. Ghimire said: *“Playing with plants feels akin to playing other sports in terms of gaining physical health benefits.”*

Horticulture is not a new therapeutic tool. Before psychiatry became a science, work in the garden was prescribed as a curative for the ills of the mind and nervous system. In 1768, Benjamin Rush maintained that digging in the soil had a curative effect on the mentally ill (Relf, 1973).

Relf (1973)’s argument was supported in the study where one participant mentioned: *“In some places within urban areas, it is understood that natural therapy also exists, but if I spend only one hour per day on plants and their nurture, it makes it much easier for me to get a good night’s sleep, improve appetite and stay energetic and healthy.”*

The traditional healers and elderly people were well experienced in the traditional method of using medicinal plants but they were worried about the negligence of people towards such traditional use of valuable medicinal plants (Thapa et al., 2013). But the study reflected that still, many older people value plants for medicinal purposes. One of the participants mentioned: *“Many plants have medicinal value. Growing some of them in the home garden will help promote good health and well-being of the people.”*

At the time of the interview, one of the participants focused on certain plant species, explained the benefits of the specific species, and pointed out how its blossoms provide relaxation. *“In urban life, for good health and human welfare after retirement, plants are used for therapy. If we use warm Titepati (Artemisia vulgaris) in our body, it reduces body pain and helps the runny nose. Uric acid is cured by drinking juice using the outer skin of guava, or by soaking fenugreek seeds and chewing it.”*

Most plant-related activities and gardening like digging, weeding, watering, fertilizing, training to prune, transplanting seedling, preparing seedbed and harvesting, etc. make it easier to spend excess free time. Mr. Dahal said: *“I become delighted seeing the flowering plants and some plants like basil are also used for treatment purposes.”*

3.6 Knowledge and experiences of senior citizens on plants and horticultural activities during COVID-19 pandemic

Connecting with nature is part of the human development process and, in times of social isolation, limiting access to green areas tends to aggravate the damage to people's physical and mental health (Reis et al., 2020). During the interview, one of the participants shared their experiences accordingly: *“Due to the COVID-19 pandemic, people are locked in their houses. Horticulture can help them remain physically and mentally fit by getting involved in kitchen or rooftop gardening. Some horticultural plants such as ginger and turmeric have medicinal value in the preventive treatment of COVID-19 patients. Growing indoor plants can also help them in these aspects.”*

For elderly people suffering from stress, plants can stimulate all five senses through colors, structures, scents, tastes forms, and sometimes by sounds which can lead to improved health (Haas et al., 2005). During the pandemic, when most people are in isolation, the elderly are an especially vulnerable group. In this situation, most of the elderly have started to plant in pots (indoor/outdoor), and manage gardens on their rooftops or terrace. Most of the research participants talked of gardening practice during the pandemic.

Another participant said: *“I think both mental and physical fitness has been achieved due to kitchen/rooftop gardening. A sense of pride and satisfaction is established. Food support in terms of vegetables is very high and the necessity to seek out small bits of herbs such as pudina (Mint) and flowers for worship or table decoration from the market has been minimized. The time saved from these market runs is used also for gardening. Kids are happy and so are we!”*

The COVID-19 pandemic has brought drastic changes to the routines of the world's population. Social isolation, one of the recommended practices to curb the spread of the disease, can lead to the development of several problems, such as depression, stress, apathy, and loneliness (Reis et al., 2020). As a result, people have tried to engage in productive activities like kitchen and rooftop gardening to push the mind towards positive thinking. One participant expressed: *“During the time of home isolation and home confinement, gardening helps people stay engaged in a better way, preventing negative and unnecessary thinking when we can focus on it.”*

Social isolation refers to the lack of physical contact with or separation from family, friends, and social networks as well as the lack of involvement in outside activities. During the

COVID-19 pandemic, where there are many social restrictions applied especially to elderly people, gardening can be a safe and extremely beneficial activity for them to stay engaged (Dangal & Maharjan, 2021). In connection with this reference, an experience of participant Mr. Ghimire: “*People are confined at home due to Corona scourge. We do not need to go into crowded green spaces when we have our own garden. The air is healthy. It has helped me to overcome the feeling of boredom.*”

Likewise, another participant said: “*As plants provide Oxygen and absorb Carbon Dioxide, they help Corona patients with good inhalation as well as mental peace.*”

WHO Regional Committee for the South-east Asia Region accepted the vital role of traditional medicine in the health care system and the meeting of the WHO Executive Board in 2009 aimed to promote the potential of herbal medicines in the national health system in the Region (WHO, 2009). This practice can also be seen in Nepal. One of the participants explained: “*In my experience, knowledge of horticulture has been of great help during the treatment of Covid-19. For example, Timur (Sichuan pepper), Jwano (Thyme seed), Clove, Turmeric, Ginger, Black Pepper, Cinnamon and salt are also cooked and drunk three times a day (in the morning, evening, and afternoon) while hot leaves of Titepati (Artemisia Vulgaris) and Narhari Buti (Epazote) is also useful during the corona pandemic.*”

4. Discussion and conclusion

The health and wellbeing of senior citizens are prominent concerns in the ageing process of a person's life, relevant to people all around the world. In this article, we have focused on senior citizens who are engaged in plants or horticulture-related activities and explored the phenomenon of wellbeing through their experiences in retirement. The main theme is separated into five sub-themes and framed around discussions of first-hand experiences from retirees. We observed several similarities and interlinks between these five sub-themes and the perceptions on plants-human wellbeing that individuals have based on their life experiences.

Moreover, this study helps to understand the knowledge and experiences of senior citizens in connection with their active involvement, and its effect on overall wellbeing in the context of therapeutic treatment. The strength of our article is in its inclusion of the feelings and experiences of people who are engaged in plant-related activities in their later life, and their knowledge and experiences are highly valuable for all age groups. Such experiential knowledge should be acknowledged by the family, society, and nation for greater mass awareness and applications.

Acknowledgements

This research did not receive any specific grant from funding agencies in the public commercial, or not-for-profit sectors.

The authors declare no competing interests.

References

- AHTA (2020, November 9). *American horticultural therapeutic association. History of Horticultural Therapy.* <https://www.ahta.org/>.
- Bauger, L., & Bongaardt, R. (2016). The lived experience of well-being in retirement: A phenomenological study. *International Journal of Qualitative Studies on Health and Well-being.* <http://dx.doi.org/10.3402/qhw.v11.33110>

- Chalise, H. N. (2006). Demographic situation of population ageing in Nepal. *Kathmandu University Medical Journal*, 3(15), 354-362. <http://www.kumj.com.np/issue/15/354-362.pdf>.
- Chonody, J. M., & Webb, S. N., & Ranzijn, R., & Bryan, J. (2014). Working with older adults: Predictors of attitudes towards ageing in psychology and social work students, faculty, and practitioners. *Australian Psychologist*, 49(6), 374-383.
- Dangal, M. R., & Maharjan, R. S. (2021). Health problems experienced in online learning during COVID-19 in Nepali. *International Journal of Online Graduate Education*, 4(1), 1-14. <https://doi.org/10.5281/zenodo.4509020>
- Dissanayake, L., & Dilini, S. (2020). COVID-19 outbreak and urban green space food security and quality of life: Case of urban home gardens in Kandy, Sri Lanka. *Open Journal of Social Sciences*, 8, 185-197. https://www.scirp.org/html/13-1763830_102981.htm.
- Fineschi, S., & Loreto, F. (2020). A Survey of multiple interactions between plants and the urban environment. *Review*, 3, 1-19. <https://doi.org/10.3389/ffgc.2020.00030>
- Kandel, R. (2018, December 6). Ageing and the elderly. Health. Kathmandu, Bagmati, Nepal: *The Kathmandu Post*.
- Khadka, G., & Dangal, M. R. (2021). The social life of senior citizens: A review of therapeutic effects of gardening for wellbeing in urban Nepal. *Open Journal for Sociological Studies*, 5(1), 21-30. <https://doi.org/10.32591/coas.ojss.0501.03021k>
- Pouya, S. (2018). The importance of horticulture therapy and gardening for older adults in nursing home. *Journal of Art and Design*, 8(2), 64-182. <https://doi.org/10.20488/sanattasarim.529734>
- Rae, D. (2013). Gardening and horticulture. https://www.researchgate.net/publication/285615750_Gardening_and_Horticulture.
- Rappe, E. (2005, May 6). *The influence of a green environment and horticultural activities on the subjective well-being of the elderly living in long-term care*. 1-51. <https://helda.helsinki.fi/bitstream/handle/10138/20703/theinflu.pdf;sequence=1>.
- Reis, S. N., Reis, M. V., & Nascimento, A. P. (2020). Pandemic, social isolation and the importance of people-plant interaction. *Ornam. Hortic.* 26(3). <https://doi.org/10.1590/2447-536X.v26i3.2185>
- Relf, D. (1973). Horticulture: A therapeutic tool. *Journal of Rehabilitation*, 39(1), 27-29.
- Thapa, L. B., Dhakal, T. M., Chaudhary, R., & Thapa, H. (2013). Medicinal plants used by Raji ethnic tribe of Nepal in treatment of gastrointestinal disorders. *Our Nature*, 11(2), 177-186.
- WHO (2020, Nov 26). Ageing. https://www.who.int/health-topics/ageing#tab=tab_1.

