Original Article
ISSN (Online): 2582-7472

ShodhKosh: Journal of Visual and Performing Arts
January-June 2022 3(1), 855–861

BOTANICAL CONTRIBUTIONS TO HUMAN FLOURISHING: A PERSPECTIVE ON THE ROLE OF PLANTS IN ENHANCING HAPPINESS AND FOSTERING VISUAL ART AND SUSTAINABILITY

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ABSTRACT

The World Happiness Report 2022 issued by UN Sustainable Development Solutions Network, based on the effects of COVID-19 on the well-being of people worldwide and how they have progressed was released on 18th March 2022. India has been ranked 136 out of 146 countries on the list, far below the neighboring countries like Pakistan (121), Bangladesh (94) and China (72). In this scenario, various methods and parameters to enhance welfare and happiness must be explored and an analysis of the Gross National Happiness should be accomplished. In a society, if everyone works towards a specific workable goal, then the cumulative effect is larger. The Sustainable Development Goals (SDGs) are an example of such an assemblage of 17 intertwined global goals premeditated to be an outline to accomplish an improved and more sustainable future for all people and the world by 2030. To partially fulfill some of the sustainable development goals (https://sdgs.un.org/goals) such as SDG3 Good Health and Well Being, SDG14 Life Below Water, and SDG15 Life on Land, the potentialities of plants need to be fully established and discovered. Botany has long been recognized for its contributions to human well-being, but its role in enhancing happiness, fostering visual art, and promoting sustainability is multifaceted and profound. Many factors influence happiness like genes, circumstances, achievements, marital status, social and professional relationships, and even food. Then, there are some hormones, proper balance of these in the body aids in overall well-being.

Plants have the power to uplift and inspire, as evidenced by the burgeoning field of horticultural therapy, which leverages the therapeutic benefits of plant interaction to improve mental health and cognitive function. Moreover, the intricate patterns, vibrant colors, and diverse forms of plants have inspired countless artists, architects, and designers throughout history, influencing the development of visual art and informing sustainable design principles. It is believed that regularly indulging in small pleasures like having a hobby of planting trees, taking a nature walk, protecting plants etc; challenging activities like growing own foods from plants, collecting medicinal plants from the wild, identifying various plants, etc; meeting goals, maintaining close social relationships, and finding purpose beyond oneself - all increases life satisfaction. Sustainable plant cultivation techniques, which are technology-based and environment-friendly, such as urban farming, agroforestry, or easy operative, nature-based, age-old organic farming conducted on any scale, from household to industrial can act as an agent of a sustainable economy. As we navigate the complexities of the Anthropocene, the botanical sciences offer a unique perspective on the interconnectedness of human and environmental flourishing, highlighting the critical role of plants in fostering resilience, creativity, and sustainability.

Keywords: Plants, Sustainability; Happiness; Interconnectedness; Bio-Resources; Visual Art

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DOI
10.29121/shodhkosh.v3.i1.2022.4496

Funding: This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

1. INTRODUCTION

It is a dilemma for many what happiness is. For many happiness is an exciting and mysterious state whereas, few believe, happiness is a condition where the person not only remains in good mood but achieves a state of well-being that involves living a good life, one with an objective and profound pleasure. Why Happiness is important**?** It can improve:

- Physical health (Veenhoven, 2008)

- Better cardiovascular health (Yanek et al., 2013)
- Immune system (Barak, 2006)
- Blood pressure (Blanchflower and Oswald, 2008) and many other things.
- Happiness is linked to a longer lifespan as well as a higher quality of life and well-being.

The World Happiness Report was released on 18th March 2022, based on three main well-being indicators: life evaluations, positive emotions, and negative emotions. Finland has been ranked as the happiest country in the world, followed by Denmark, Iceland, Switzerland, and The Netherlands. Luxembourg, Norway, Israel, and New Zealand are among the top 10 countries.

India has been ranked 136th out of 146 countries in the list, far below the neighbouring countries like Pakistan (121), Bangladesh (94) and China (72). In this scenario, various methods and parameters to enhance welfare and happiness must be explored and an analysis of the Gross National Happiness should be accomplished. The idea of "Gross National Happiness" suggests that sustainable development should approach conceptions of progress holistically and give non-economic components of welfare equal weight. Many factors influence happiness like genes, circumstances, achievements, marital status, social and professional relationships, and even food. Then, there are some hormones, proper balance of these in the body aids in overall well-being.

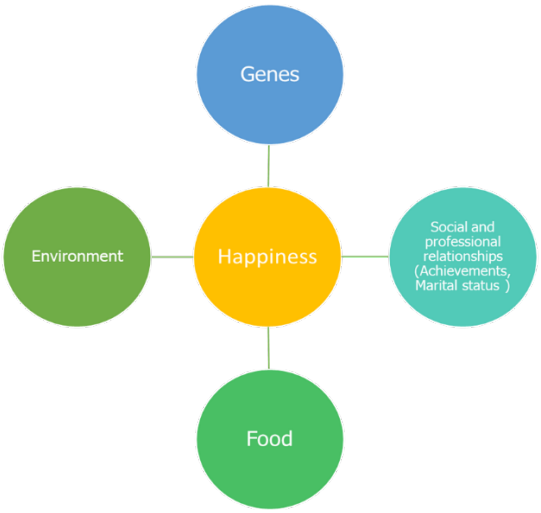


Figure1. Model showing factors directly influencing happiness in humans

There are many parameters for happiness mainly, relationships, Career/Money, Mindfulness, spirituality, and Religion.

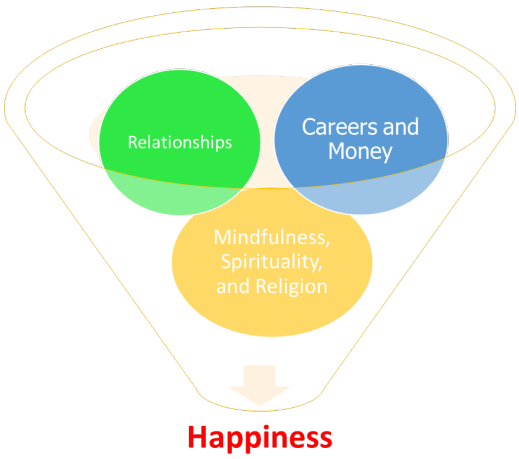


Figure 2. Model showing parameters for happiness.

Happiness can be achieved on two levels: 1. Individual and 2. Societal

Plants as a tool for happiness:

Plants are vital for human survival, providing us with oxygen, food, and countless resources, similarly, they also contribute to our happiness and well-being. Therefore, incorporating plants into sustainable development initiatives is crucial for achieving the United Nations' Sustainable Development Goals (SDGs).

The presence of plants in human environments has long been associated with enhanced well-being, both psychologically and physiologically. Research in environmental psychology suggests that exposure to greenery can reduce stress, improve mood, increase productivity, and foster a sense of connection with nature, thereby contributing to overall happiness (Kaplan & Kaplan, 1989). The biophilia hypothesis, proposed by Wilson (1984), posits that humans have an innate affinity for nature, which may explain why interactions with plants elicit positive emotional responses. Studies indicate that indoor plants can lower anxiety and depression levels, as demonstrated by Lohr et al. (1996), who found that the presence of plants in office spaces led to reduced stress and increased productivity. Similarly, Shin et al. (2018) highlight how horticultural therapy—engaging in gardening or plant care—can enhance mental well-being, particularly for individuals experiencing psychological distress. The physiological benefits of plant exposure are equally significant; for example, Park and Mattson (2009) found that hospital patients with plants in their rooms exhibited lower blood pressure and reported higher satisfaction during recovery. Furthermore, urban green spaces have been linked to increased social cohesion and reduced feelings of loneliness, as reported by Kuo (2015), emphasizing the broader societal benefits of integrating plants into everyday life. In sum, scientific evidence strongly supports the notion that plants serve as a valuable tool for enhancing happiness, underscoring the importance of incorporating greenery into personal and communal spaces like urban planning and design, workplaces, and public spaces for improved mental health and overall well-being.

How to Be Happy by making plants as part of life?

1. Psychological Benefits of Green Spaces

Research has shown that exposure to plants and green spaces significantly enhances mental well-being. According to Kaplan and Kaplan's (1989) Attention Restoration Theory (ART), natural environments help reduce mental fatigue and improve cognitive function by allowing the brain to rest and rejuvenate. Similarly, Ulrich's Stress Reduction Theory (SRT) suggests that natural settings, particularly those with vegetation, promote relaxation and reduce stress by triggering positive physiological responses (Ulrich et al., 1991).

Green spaces in urban environments have been linked to lower levels of anxiety, depression, and stress (Bratman et al., 2015). Activities such as gardening, forest bathing (Shinrin-yoku), and exposure to houseplants have been found to boost serotonin and dopamine levels, neurotransmitters associated with happiness and emotional balance (Koga & Iwasaki, 2013).

2. Cultural and Spiritual Connections

Plants also contribute to human happiness through their symbolic and spiritual significance. Many cultures associate specific plants with positive emotions and well-being. For example, in Japan, cherry blossoms (Sakura) symbolize renewal and transient beauty, while in Hindu traditions, the Tulsi plant is revered for its purifying and healing properties. Aromatherapy, which harnesses plant-derived essential oils, has been shown to alleviate stress, enhance mood, and improve sleep quality (Moss et al., 2003).

3. **Botanical Inspirations in Visual Art**

- ***Nature as a Muse for Artists***

Throughout history, plants have served as a primary source of inspiration in visual art. From ancient botanical illustrations to modern eco-art, plants have influenced artistic expression in diverse ways. Renaissance artists, such as Leonardo da Vinci, meticulously studied plant structures to incorporate botanical accuracy into their paintings. Similarly, Vincent van Gogh's Sunflowers series reflects the emotional depth and aesthetic vibrancy of flora.

- ***Eco-Art and Environmental Aesthetics***

In contemporary art, plants are central to eco-art, a movement that integrates nature into artistic expression to promote sustainability and environmental awareness. Artists like Andy Goldsworthy use natural materials, including leaves, flowers, and stones, to create ephemeral land art that highlights the interconnectedness of humans and nature.

Vertical gardens and living sculptures, such as those by Patrick Blanc, blend botany and art, transforming urban spaces into green sanctuaries.

4. **Plants as Pillars of Sustainability**

- ***Ecosystem Services and Environmental Health***

Plants play a fundamental role in sustainability by providing essential ecosystem services, including carbon sequestration, air purification, and biodiversity support. Trees and vegetation act as natural air filters, absorbing pollutants and releasing oxygen, which improves urban air quality (Nowak et al., 2014). Green roofs and urban forestry initiatives contribute to climate resilience by mitigating the urban heat island effect and reducing energy consumption.

- ***Sustainable Agriculture and Food Security***

Botanical advancements in sustainable agriculture, such as permaculture and agroforestry, enhance food security while preserving ecological balance. Indigenous knowledge systems emphasize the coexistence of diverse plant species to maintain soil fertility and reduce the need for chemical inputs (Altieri, 1995). Moreover, plant-based diets have gained attention for their lower environmental footprint compared to meat-based diets, promoting both human health and planetary well-being.

In summary, the following practices can contribute to a fulfilling and gratified life:

- **Regular engagement in simple pleasures**: Cultivating hobbies such as tree planting or taking nature walks.
- **Immersion in stimulating activities**: Engaging in the process of growing one's own food from plants.
- **Establishing and achieving goals**: Gathering medicinal plants from the wild, acquiring knowledge about them, and identifying various plant species.
- **Fostering strong social connections**: Not only with fellow humans but also with other living organisms.
- **Seeking a purpose beyond oneself**: Adopting conservation strategies, protecting plant life, and contributing to the improvement of the world.

Each of these actions has been shown to enhance life satisfaction.

Sustainable Development Goals (SDGs) and Happiness

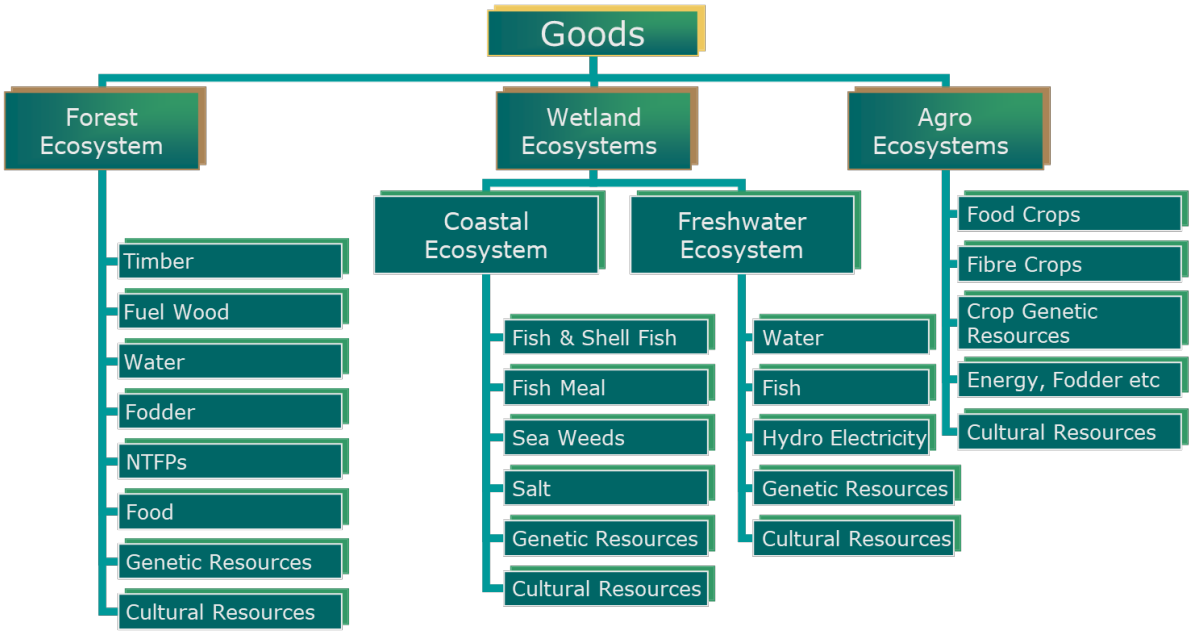
In a society, if everyone works towards a specific workable goal, then the cumulative effect is larger. The Sustainable Development Goals (SDGs) are example of such an assemblage of 17 intertwined global goals premeditated to be an outline to accomplish an improved and more sustainable future for all people and the world by 2030. To partially fulfilling some of the sustainable development goals such as SDG3, “Good Health and Well Being”, SDG14, “Life below Water”, SDG15, “Life on Land” - the potentialities of plants need to be fully established and discovered.

Plants also play a significant role in achieving the SDGs. Goal 2, "Zero Hunger," can be addressed with the help of plants, as they provide essential nutrients and sustenance. In fact, plants constitute the primary source of food for both humans and animals. By focusing on sustainable agriculture practices, such as organic farming and agroforestry, we can ensure that our food production systems preserve biodiversity, protect the environment, and provide healthy and nutritious food for all. Furthermore, plants contribute to Goal 13, "Climate Action," by mitigating the effects of climate change. Through the process of photosynthesis, plants absorb carbon dioxide from the atmosphere, reducing greenhouse gas emissions and combating global warming. Additionally, reforestation projects and the preservation of existing forests are crucial for maintaining a healthy planet and mitigating climate change. The importance of plants also aligns with Goal 15, "Life on Land," as they are an essential component of terrestrial ecosystems. Biodiversity conservation and restoration efforts largely depend on preserving and promoting the growth of plant species. Plants provide habitats, food, and resources for countless animals, thus contributing to the balance of ecosystems. By protecting plant species and their habitats, we ensure the survival of diverse ecosystems and the species that depend on them. Achieving Goal 12, "Responsible Consumption and Production," requires a shift towards more sustainable and eco-friendly practices. Plants offer a wide range of alternatives to conventional production systems and materials. For instance, plant-based alternatives to plastic, such as biodegradable and compostable materials derived from crops like corn or sugarcane, can significantly reduce waste and pollution. Additionally, incorporating plants into sustainable fashion practices, through the use of natural dyes and fibres, reduces the environmental impact of the clothing industry. Sustainable plant cultivation techniques, which are technology-based and environment-friendly, such as

- Urban farming: allotment gardens, community gardens, community farms, institutional gardens, commercial urban farms, Vertical farming, hydroponics
- Agroforestry
- Easy operative, nature-based, age-old organic farming conducted on any scale, from household to industrial.

- Can act as an agent of sustainable economy.

They also act as goods and service provider such as timber, wood, fish, NTFPs, genetic resources, cultural resources to name a few.



2. CONCLUSION

Happiness can be achieved by individual and societal levels. Individual can achieve happiness by indulging in small pleasures like planting trees, taking a nature walk, growing their foods from plants, collecting medicinal plants from the wild, identifying various plants, maintaining close social ties with other organisms, following Conservation strategies by protecting plants, or any other activity that increases life satisfaction. These purest of products that are produced from plants are prerequisites for a happy and healthy life. By producing and utilising bio-resources for delivering numerous amenities predominantly in the form of food, fodder, wood, medicine, raw materials, energy, etc. this can be achieved. Additional sources of income for rural and urban populations can be generated and food security can be assured. The focus must be on reducing consumption, and increasing sustainable use of bio-resources.

The role of plants in human flourishing extends beyond their biological necessity to encompass profound psychological, artistic, and environmental contributions. By fostering happiness, inspiring artistic creativity, and advancing sustainability, plants remain central to human well-being and cultural development. As urbanization and climate change threaten natural ecosystems, it is essential to prioritize botanical conservation and green initiatives to ensure a harmonious and flourishing future.

In conclusion, plants not only enhance our happiness and well-being but also contribute significantly to the attainment of SDGs. By integrating plants into various aspects of human life, such as urban planning, workplaces, and public spaces, we can promote happiness and mental health. Furthermore, plants play a vital role in achieving goals related to hunger eradication, climate action, biodiversity conservation, and sustainable production and consumption. Therefore, focusing on plants as a crucial component of sustainable development initiatives is paramount for a healthier and more prosperous future for both humanity and the planet.

CONFLICT OF INTERESTS

None.

ACKNOWLEDGMENTS

None.

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