



## KEY POINT SUMMARY

### OBJECTIVES

The goal of this study is to learn whether certain types of gardens will more positively impact elderly participants' mood and physiology (heart rate) than others.

## The Effect of Garden Designs on Mood and Heart Output in Older Adults Residing in an Assisted Living Facility

Goto, S., Park, B-J., Tsunetsugu, Y., Herrup, K., & Miyazaki, Y. 2013 | *Health Environments Research & Design Journal* Volume 6, Issue 2, Pages 27-42

### Key Concepts/Context

This research focuses on the impact that different garden designs have on people's mood and heart rate in a retirement community setting. The researchers had previously piloted a study focusing on elderly participants' aesthetic preferences for garden designs; they wanted to move beyond this to better understand where these preferences come from, and whether they are actually somehow hardwired in the brain from more innate psychological and biological responses, rather than cultural or learned. This comes from an evolutionary psychology perspective and is seen by the authors to have implications for the effective design of landscapes and gardens adjacent to independent living facilities and healthcare facilities. In this study, the specific types of gardens being compared are a Japanese garden, an herb garden, and a simple outdoor green space as a control.

### Methods

During a five-day study period, 19 elderly people (ranging in age from 62 to 93 and living in the retirement community) were exposed to three outdoor courtyard spaces adjacent to the community on three separate days, with the order randomized for each participant to avoid any biases: a Japanese garden with plantings of various heights, textures, and shade; an herb garden with an open, unshaded view of a variety of familiar plants and diagonal walkways for walking the garden; and an area that had a green lawn with a single tree (the control space). Participants completed the POMS (Profile of Mood States) Brief Form both before and after their 10-minute observation period of the particular garden space on each day. Additionally, heart rate was measured before and during the observation experience (for a total of 13 minutes) each of the three days. Both of these tests were used to ultimately measure participants' stress levels, and it was noted whether any participants used pacemakers or took heart medication. Descriptive



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statistics (mean and standard deviation) were summarized in tables, and a standard analysis of variance (ANOVA) was performed.

## Findings

The Japanese garden exhibited the largest improvement in mood scores of the three types of spaces for five of the six mood categories: tension, depression, vigor, fatigue, and confusion. In particular, there was a significant difference for the Japanese garden's score of depression compared with the other two garden spaces; others were trending in that direction but did not reach significance. Average heart rate (lower bpm) was significantly lower both before and after viewing the Japanese garden as compared with the two other spaces. The sympathetic nervous activity and average heart rate variability was particularly lower and significantly so, for the Japanese garden setting as compared with the herb garden.

## Design Implications

While there is much more research needed in this topic area, the findings suggest that certain types of gardens will have more beneficial effects on stress levels than other gardens and open spaces. Specifically, the Japanese-style garden positively impacted people's mood and heart rate, and this also agreed with the results of a survey of aesthetic preferences for this garden. The authors suggest this may have something to do with the "complex multi-layered view" within that garden, which may engage viewers more than other types of views. Additional research should be conducted to determine the features that specifically support these findings, to learn what it is about certain gardens that elicit more positive, calming reactions, both psychologically and physiologically. While this research specifically took place in a retirement community, there may be implications for a variety of healthcare settings as well.

## Limitations

The authors described a few limitations of the study. One was the short duration of observation time. Participants only viewed each garden for 10 minutes, which may have impacted the degree to which the garden affected the participants' stress levels and mood. Nonetheless, the authors point out that significant results were still found to exist. Another limitation was the short timeframe between the testing and retesting of the POMS measurement, rather than spreading them out over several days with repeated exposures. Finally, there were a small number of subjects (19), which may have limited the ability to find additionally significant variations between the two types of gardens and the control space.