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Thermal Perception by Older People in Open Spaces in Madrid: Relationships between Weather Parameters and Personal Characteristics

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Abstract : One of the challenges facing 21st century cities, is their adaptation to the phenomenon of an ageing population. International policies have been developed, such as the "Global Network for Age-friendly Cities and Communities". These cities must recognize the diversity of the elderly population, and facilitate an active, healthy, satisfied aging and promote inclusion. In order to promote active and healthy aging, older people should be encouraged to engage in physical activity, sunbathe, socialize and enjoy the public open spaces in the city. Some studies recognize thermal comfort as one of the factors that most influence the use of public open spaces. However, although some studies have shown vulnerability to thermal extremes and environmental conditions in older people, there is little research on thermal comfort for older adults, because it is usually analyzed based on the characteristics of the ¨average young person¨ without considering the physiological, physical and psychological differences that characterize the elderly. This study analyzes the relationship between the microclimate parameters as air temperature, relative humidity, wind speed and sky view factor (SVF) with the personal thermal perception of older adults in three public spaces in Madrid, through a mixed methodology that combines weather measurements with interviews, made during the year 2018. Statistical test like Chi-square, Spearman, and analysis of variance were used to analyze the relationship between preference votes and thermal sensation votes with environmental and personal parameters. The results show that there is a significant correlation between thermal sensation and thermal preference with the measured air temperature, age, level of clothing, the color of clothing, season, time of the day and kind of space while no influence of gender or other environmental variables was detected. These data would contribute to the design of comfortable public spaces that improve the welfare of the elderly contributing to "active and healthy aging" as one of the 21st century challenges cities face.

Keywords : healthy ageing, older adults, outdoor public space, thermal perception
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