

Mapping summer energy poverty geographies of older people



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Rationale

We conducted research on summer energy poverty. Several studies have highlighted that summer conditions have been underrepresented in energy poverty definitions and evaluation methodologies. Unlike winter conditions, which entail higher expenditure on energy and aggravated poor insulation in buildings, summer overheating is highly dependent on urban scale, as well as the passive strategies deployed by householders to adapt to situations of thermal. By engaging the community in collaborative research, we try to render visible key aspects of the urban microclimate, such as adaptative behaviours, usage of climate shelters, and other citizen relations with public space driven by the need to deal with heat exposure. Unlike other ways of characterizing the Urban Heat Island (UHI) phenomenon, the outcomes we study are not quantifiable by direct measurement, as they belong to the lived experience. This community-based approach brings relevant insights at the scale of the neighbourhood, related to social categories, recognition processes, and climate contextualization. The work is focused on working with older adults as they arise as one of the most vulnerable groups to suffer the consequences of exposure to extreme temperatures (López-Bueno et al., 2020). In this case, they also know the territory and the changes it has experienced, as well as having experienced the summer season for several years without using air conditioning.

Key research aims.

1. To create a collaborative map that graphically reflects personal and collective adaptive strategies of older adults suffering summer energy poverty.
2. To raise summer energy culture by making collective reflections of all the actions and shared knowledge in connection with coping with the excessive heat.
3. To bring to light the connection between social categories such as sex, race and age with summer energy poverty.

Summary of research activity

Workshops and activities were scheduled into the Municipal Centres for Older People's calendar of activities. In these centres, they have an engaged and participative community that ensured the participation and the viability of our project. Two collaborative mapping sessions and a participative walk were conducted.

Mapping sessions: For the first of the participatory methodologies, participants divided into small groups and asked to reflect, using narratives and drawings, on how they perceive and use the public space during summer (Figure 1). Coordinators conducted the workshops and created a dialogue between participants to share the insights (Figure 2).



Figures 1 and 2 - Collaborative mapping sessions

Walking-led neighbourhood tour: From the practices and places described during the collaborative map, a participative walk was designed. The idea was to generate dialogues associated with specific locations and increase the information captured during the mapping activity (Figure 3, Figure 4).

The exhibition with results, photographs, maps and videos was located at the School of Architecture at the Polytechnical University of Madrid. Visiting the exhibition was offered as an activity within the Marie Skłodowska-Curie Actions European project 'European night of researchers 2022' and also was available during 'Architecture week 2022'. We estimated that the exhibition was visited by more than 5000 people, including participants from Municipal Centres for Older People, students from the university, policymakers, and general audience.

Methodologies

Qualitative; participatory action research; collaborative mapping; participative walks.

Findings

1. Summer energy poverty and social categories. During the activities, it has been possible to gain a deeper understanding of the feminization of energy poverty - how it is more severe for women and how it is articulated for the summertime season. As we investigated in previous projects, the feminization of energy poverty is a problem that could have better characterization by using qualitative approaches (Gayoso Heredia et al., 2022; Sánchez-Guevara Sánchez et al., 2020). During summertime, the use of passive strategies to get thermal comfort is more extended than during wintertime: shading and blocking the sun, ventilation, strategies at body scale (for example, showers and light meals). The management of these activities has been demonstrated to be an addition to the daily caregivers' tasks. Also, a lack of refrigeration, similar to what happens during the winter season involving heating, is linked to a gender perspective: most of the woman do not use air conditioning until there is someone else in the dwelling.

Also, not only gender but also older age has been proven to be relevant and a social category that is overrepresented within those households that suffer from energy poverty (Ba et al., s. f.; O'Neill et al., 2006).

Although winter energy poverty conditions have been explored with qualitative research methods to understand the connection between energy poverty during winter and social categories, summer energy poverty is still an



Figures 3 and 4 - Participative walks. The participants were provided of an umbrella to block the sun, a fan and a water diffuser

overlooked issue and there are no previous experiences exploring these connections. In this project, after the activities have been conducted, some findings have arisen that connect sex, race and age with summer energy poverty.

Most of the participants were women (Table 1). Older women, as caregivers, described outdoor space as intimately connected with caregiving tasks. Their everyday walks were more complex (with more stops between the starting point and destination) than those described by men. During summertime, these paths were different: the better path is not the shorter, but the one with more shade. This has several implications for urban design and policy recommendations.

Activity	Total Sample	Gender
Mapping 1	8	Female 6 Male 2
Mapping 2	12	Female 10 Male 2
Walking	10	Female 10

Table 1: Composition of the mapping and walking groups.

Although not a large enough sample to make generalized observations, some gender-related issues were identified during the activities. While women described outdoor climatic shelters such as the church, the market or the seniors' centre, men's narratives were more focused on the description of those main social milestones and spaces where they had historically participated (while women were at home undertaking caregiving tasks). Social centres, cinemas, sports centres, and important monuments are places full of activities that also work as climatic shelters for this population.

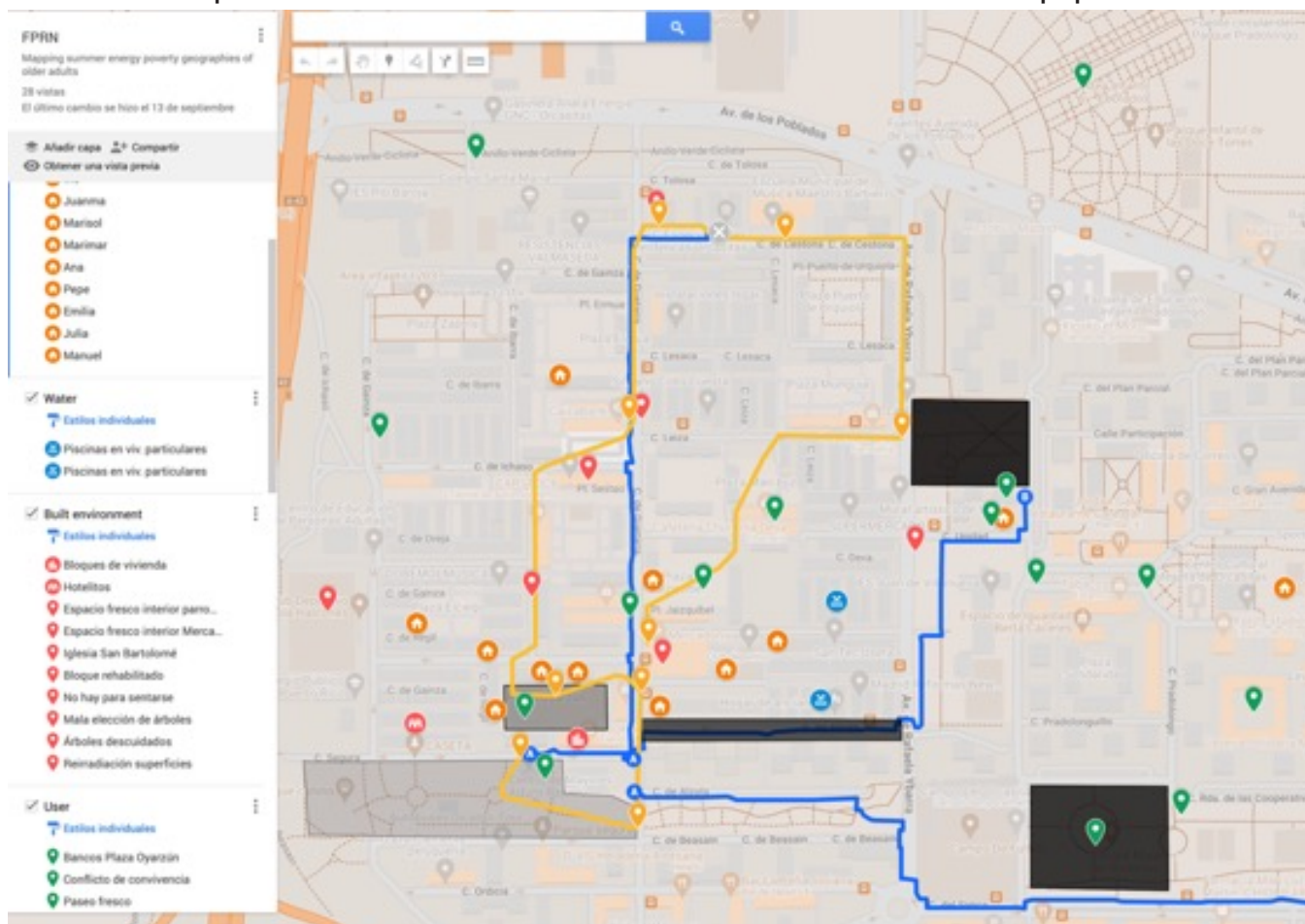


Figure 5. Collaborative online map. Orange: participative walk

Regarding other social categories such as race and income level, the experience of summer energy poverty and the use of outdoor space is also conditioned. Those people that spend time and modify public spaces (bringing chairs or sun shade fabric) to get climatic shelter are the same people who did not feel welcome in some commercial or non-public climatic shelters (shopping malls, churches) as they belong to other cultures/religions or they do not have access or resources to consume at private places. For those people, public swimming pools, libraries or cultural centres are essential in alleviating the exposure to high temperatures at their homes.

2. Co-researching and co-production of knowledge. Some previous works highlight the importance of 'recognition' in energy poverty (Simcock et al., 2021). Older people are underrepresented within society, and their narratives are not present within public debates and media. Besides, a huge number of experiences that include qualitative methods to study energy poverty do not integrate participative dynamics: the people who participate in interviews or focus groups are not connected with conclusions or insights that arise out of this research.

With this project we wanted to allow older people to generate a conversation about their lived experience and to share it with their community. By sharing information, they were creating the knowledge that was useful for them to alleviate the exposure to high temperatures during summertime. The only thing we facilitated was to display all the information and give them feedback in a constant dialogue.

This approach had a positive impact on their self-esteem, as participants felt the recognition (Simcock et al., 2021) of giving value to their lived experience. During the collaborative mapping sessions, participants identified places and recounted stories about them. All the experiences and places they described referred to their own personal history. The participative walks allowed them to embody these narratives and connect with emotions and territory.

3. Characterizing urban heat through lived experience: climate shelters. This project has been presented as an example of practical action research on collaborative mapping and cartographies of urban overheating. Unlike indoor thermal comfort of dwellings, urban heat exposure has been traditionally assessed via quantitative methodologies, mainly focusing on heat-related parameters. We can commonly find Urban Heat Island maps showing operative, dry or mean radiant temperatures for instance (Vardoulakis et al., 2013; Rota et al., 2019), as well as solar insolation or shadowing cartographic outputs. Other studies combine different factors, such as temperature and relative humidity or air streams, to map outdoor thermal comfort values (di Napoli et al, 2018). Other quantitative approaches to urban overheating highlight green or blue infrastructure for its cooling potential (Park et al, 2021). These documents show a very precise and relevant part of the urban microclimate, from exposure to alleviating factors. What is needed, as we understand, is deeper understanding of how people cope with extreme heat, how they adapt their usage of public spaces, schedules or behavioural patterns. In order to 'capture' this embodied knowledge, 'Mapping older adults geographies' proposes a novel methodology as a combined action research exercise entailing mapping and visiting key places for the summer in the neighbourhood.

One of the most important findings from this perspective is the presence in the neighbourhood of several climate shelters that would be very difficult to identify without the people's testimonies. For instance, the local church was frequently pointed out as a key place to use to cope with extreme temperatures. This is motivated by its thick massive walls, which produce a thermal inertia effect, minimizing higher temperature peaks. Other climate shelters were the indoor market and the older adults centre. For the attractiveness and usage of these spaces, people considered it important to feel

active when visiting, as they could fulfil other needs at the same time, such as leisure or sociability. Active users should, therefore, be considered for the scalability of climate shelters in the city. This has implications for urban planning and public management of the city's microclimatic resources. A closer approach to the lived experiences of citizens, through consultations and participatory diagnostic processes, can lead to low-cost solutions based on the management of shared spaces.

Recommendations

1. Incorporate within research qualitative methods that allow the exploration of collective experiences in order to gain a better characterization of summer energy poverty.
2. Include summer energy perspectives in urban intervention projects in order to ensure accessibility to climatic shelters.
3. Improve those paths used for caregiving tasks, ensuring the presence of shadows and street furniture such as benches and fountains that could mitigate high temperatures.
4. Improve methodological assessment for experiences of urban thermal stress: surveys, questionnaires and geolocalization of problematic spots.
5. Promote participatory processes for collectively thinking about public space and health-related impacts.
6. Indicators for summer energy poverty should incorporate the forms of data developed in this project.

Outputs

1. Exhibition during 'Architecture Week 2022' and Marie Skłodowska-Curie Actions European project 'European night of researchers 2022': [website of the event](#).
2. Briefing sessions: methodologies incorporated in Technical Assistance for Lorca City coordinated by EPAH; also to COOLTORISE project H2020.
3. Scientific paper (pending translation into English). Title: Mapping Summer Energy Poverty: The embodied experience of older adults in the city of Madrid; to be submitted to Energy Research & Social Science.

Title: Mapping Summer Energy Poverty: The embodied experience of older adults in the city of Madrid.

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Abstract: Summer energy poverty has been identified as an overlooked issue within energy poverty research. Although there is a growing interest in characterizing the urban scale of phenomena by studying Urban heat Island, passive urban mitigation or urban microclimate, there is not yet qualitative research focused on characterising relationships and community strategies to cope with excessive heat. During summertime, cities located in southern Europe, such as Madrid, experience an increase in social activities in public spaces that may respond to a need to find climate shelters and avoid indoor extreme temperatures for those vulnerable households that suffer from summer energy poverty. This paper shows the results of the participatory action research "Mapping summer energy poverty geographies of older adults" developed during summer 2022 in Usera district, where older people arise as one of the most vulnerable groups to suffer energy poverty. Two workshops focused on collective mapping and neighbourhood-led walking tours were conducted, in order to create a participatory cartography that reflects the personal or collective strategies, initiatives and geographies embodied by older adults and driven by summer energy poverty. Conclusions summarize common narratives of older people coping with heat during summertime and offer new resources for policymakers and practitioners.

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About the Funder

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