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User Participation in the Architectural Transformation of Spanish Social Care Centres Towards the Person-Centred Care Model

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Abstract. The traditional architectural design of care institutions is characterised by limited privacy, autonomy, user involvement, and rigidity in scheduling. In contrast, the Person-Centred Care (PCC) model presents an alternative approach to care provision, emphasising the active participation of the care recipient, involvement of the family, flexible scheduling, as well as a close relationship between users and caregivers. This approach requires reorganising facilities into smaller, more compact, self-contained units, known as living units. In Spain, the public administration responsible for social and health care centres (Imserso) has initiated the process of adapting its buildings to enhance social integration and implement the PCC model at a national level. The aim of this study is to outline and analyse the participatory process involved in evaluating the architectural design for the transformation of two such buildings. The research design is a multicentred descriptive case study with data collected through group workshops. The results describe the findings of four workshops conducted with care providers and care recipients of both buildings. Incorporating a co-design process with building users should be a fundamental aspect throughout all project phases, as deinstitutionalisation involves empowering individuals to participate and be active agents in their environments.

Keywords. co-design; person-centred care model; long-term care; user participation.

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1. Introduction

The first global report on disability by the World Health Organization (WHO) highlighted that around 15% of the world's population lived with some form of disability [1]. This document also forecasted a potential increase in this percentage due to factors such as demographic ageing, the rise in chronic illnesses, and advancements in disability assessment methodologies. Recently, the WHO [2] revised this estimate, indicating that approximately 16% of the population, or 1 out of 6 individuals (1.3 billion), have disabilities. Furthermore, the report identified architectural barriers and difficulties accessing physical environments as significant inequalities faced by people with disabilities, urging member countries to address these issues.

In line with this, the European Strategy for the Rights of Persons with Disabilities 2021-2030 [3] has advocated for the integration of the rights of all people with disabilities across all policies and sectors, with a specific focus on improving access to healthcare, employment, public transportation and housing. Recently, the European Accessibility Centre (Accessible EU), was publicly launched to promote the implementation of accessibility policies in European Union member states, thereby enhancing the availability of more inclusive products, services and infrastructures throughout the EU [4].

Moreover, the International Convention on the Rights of Persons with Disabilities emphasised the imperative of full inclusion for people with functional diversity, deeming their current isolation from society unacceptable [5]. This social model of disability, shaped by the organisation and self-representation of people with disabilities, prioritises personal autonomy and the right to equal opportunities, non-discrimination, access to healthcare, and independent living, moving beyond the exclusively medical and paternalist rehabilitation model. Despite the existing legal framework in Spain [6,7], aimed at promoting public policies for the universalisation of human rights for this social group, historical exclusion persists, hindering equal access to opportunities [8].

1.1. Research gap, research question and aim of the study

Although there is increasing recognition of the rights of people with disabilities and the push for full inclusion through various international and national frameworks, significant architectural barriers and access issues persist. While the Person-Centered Care (PCC) model has gained prominence in the healthcare sector, there is limited research on its practical implementation in the architectural design and transformation of social care centres, particularly within the Spanish context. Additionally, there is a lack of detailed studies outlining participatory processes involving various stakeholders in evaluating and improving existing infrastructure to align with the PCC model.

Hence, the research question that this study addresses is: How can the participatory process be effectively utilized to evaluate and transform the architectural design of social care centres in Spain to align with the Person-Centered Care (PCC) model?

This study aims to outline and analyse the participatory process involved in evaluating the architectural design for the transformation of two Spanish social care centres, aligning them with the Person-Centered Care (PCC) model. The study will identify the needs and shortcomings of the existing infrastructure and define future architectural improvements to facilitate social integration and implement the PCC model through small-scale living units. This research is part of a broader project, developed by mita atelier sllp [9], aimed at adapting the infrastructure of 12 centers belonging to the

public administration Institute for Older Persons and Social Services (Imserso) to enhance social integration and implement the PCC model at a national level.

2. Background

2.1. Spanish context

In Spain, the most recent data from the National Institute of Statistics, gathered through the 'Survey of Disability, Personal Autonomy and Dependency Situations' in 2020, indicated that 4.38 million people living in households reported having some form of disability [10]. This accounts for 9.3% of the national population and shows a rising trend, as in 2008, the share was 8.4% [11]. The growing need for care among individuals with functional diversity and the elderly has become a priority for governments and institutions, necessitating the development of efficient systems to deliver high-quality care at an affordable cost [12, 13]. Additionally, the impact of the Covid-19 has highlighted the structural, functional and operational deficiencies of facilities and services intended for the care of these individuals [8, 14, 15, 16].

From a social perspective, Spain has responded by developing the State Strategy for Deinstitutionalisation to promote a good life within the community (2024-2030), which represents a commitment aimed at people with disabilities, among other groups, and a central element from the Recovery, Transformation and Resilience Plan by the Spanish Government funded by Next Generation EU Funds [17]. Within this strategy, the conceptual framework asserts that 'each person has the right to live independently and with dignity, to be included in the community, and to choose their place of residence and living arrangements'.

Moreover, reports from the Committee on the Rights of Persons with Disabilities (2019) in Spain [18] have highlighted several concerns. These include issues with institutionalization processes, limited access to personal assistance, and the absence of a personalized approach. Additionally, there are concerns about public funds being invested in constructing new residential institutions, the lack of a deinstitutionalization strategy, and the absence of an action plan to promote independent living for all people with disabilities within their own communities. Therefore, deinstitutionalization is perceived as a transition process towards a normalized life in the community, where accessibility and universality are fundamental characteristics of the local context. This entails the transformation of residential institutions and the development of personalized support services and attention. This vision empowers individuals to make decisions about their own lives and respects each person's diversity, making services accessible and adapted so that individuals can participate and contribute according to their preferences.

2.2. Person-Centred Care Model

The personalisation and adaptation to individual desires and preferences within the local context align with the Person-Centered Care (PCC) model, an approach that places person at the centre, ensuring continuity of care within their ecosystem. Since 2000, the PCC model has gained prominence in the healthcare sector, particularly in public health, health promotion, and socio-sanitary services. It impacts care provision, the involvement of the care recipient, family participation, flexibility in activity schedules, and the close

relationship between patients or residents and caregivers, whether in formal or informal roles.

These new organisational schemes require corresponding architectural and urban designs that facilitate activities and relationships within the spaces and integrate them into the local environment, affirming their social position within society [18]. In residential solutions, diverse typologies and management alternatives should be provided. For care homes or institutional buildings, small-scale living units are preferred to ensure homelike environments and integration within the neighbourhood and local community [19]. The sense of being at home is linked to feelings of safety, security [20], personal identity and independence. At home, care transcends specific support tasks and requires flexibility, empathy and closeness [21].

The social transformation towards a caring society also requires physical environments that facilitate community participation. Universal accessibility is crucial, ensuring that environments are usable, understandable, and practical for all individuals in safe and comfortable conditions. Such design promotes social interaction, independence, and autonomy while minimising limitations, thereby enabling individuals to remain present in their usual environments [22].

2.3. Participative methods

Integrating the PCC model approach into the architectural design process presents a novel partnership involving various stakeholders who offer valuable insights as experts by experience of existing buildings and spaces. Within the framework of Evidence-Based Design, a transdisciplinary approach is necessary. This approach engages not only academics, researchers, professional experts from design and healthcare fields, but also patients or users, their relatives and caregivers [23]. Holmes [24] further advocates for inclusive methodologies in the design process to develop inclusive and elegant design solutions that cater to everyone's needs.

By incorporating a co-design approach *with* users -rather than just *for* them- designers benefit from diverse perspectives, fostering innovation, creativity, and inspiration. This approach also establishes a framework for growth and catalyses the development of new services, products, and designs. However, it also entails collaborative design processes that employ simple language to facilitate understanding across the entire team at different levels, particularly concerning technical decisions.

3. Research methods

3.1. Research design

The research uses a multicentred descriptive case study methodology, which allows for a detailed description of specific characteristics of a phenomenon in real-world settings. [26, 27]. This approach involves a comprehensive analysis of one or several cases, utilizing multiple techniques to gather substantial data that aligns with the stated objective [24]. The broader project employed multiple techniques, including literature analysis, site visits, non-participant observation, focus groups, in-depth interviews, and group workshops. This paper focuses specifically on the group workshops conducted in two of the centres.

3.2. Research assumptions

The ontological assumption in this paper is relativism, which suggests that reality is contingent upon human interpretation and understanding [28, 29]. Epistemologically, the constructivist model is employed [28, 29]. This model assumes that scientific knowledge is inseparable from the human context and that studying a phenomenon requires considering the perspectives and context of the participants involved.

3.3. Sample

Two cases were selected for this study to facilitate comparison of the social and educational services offered by the centres, the professional categories of staff, and the user's age and length of stay (please see Figure 1).

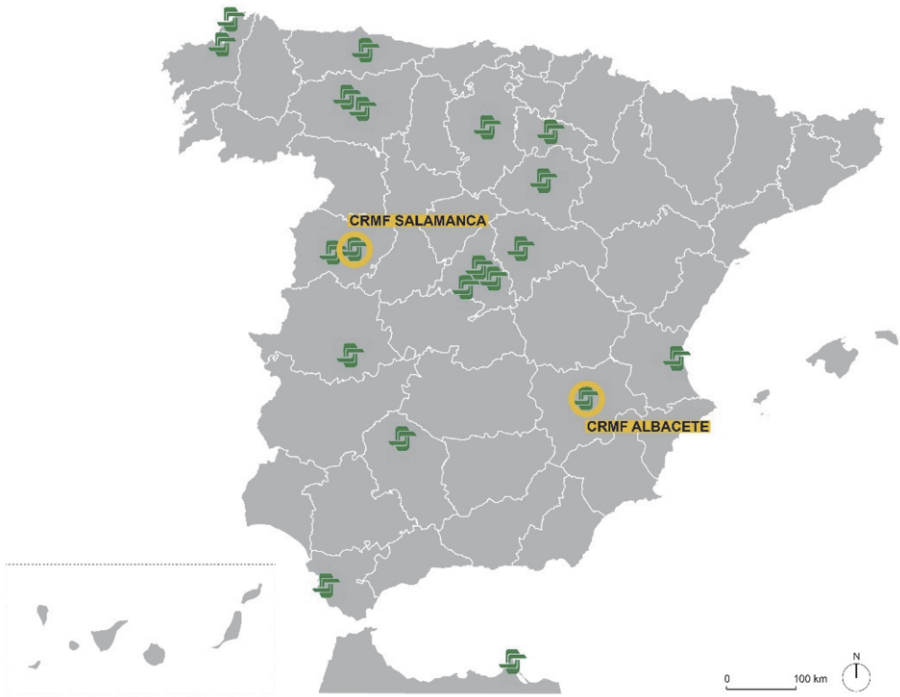

Figure 1. Locations of all sites belonging to the Imserso. The sites studied in this paper are highlighted in yellow.

3.3.1. The facility

3.3.1.1. CRMF Albacete

The "Centre for the Recovery of Individuals with Physical Disabilities" (CRMF) in Albacete, located in Castilla-La Mancha region, was built in 1975. The building consists of four floors and a basement, occupying a rectangular plot with small light courtyards within the built-up area. The main avenue is slightly set back from the building, and there

is a spacious rear area that includes a car park and communal facilities such as a sports centre and an old cafeteria.

Figure 2. Aerial view of the building CRMF Albacete.

In total, 29% of the building's floor area is dedicated to private spaces for resident users, primarily consisting of rooms. Another 20% is designated for private staff spaces, such as offices. Shared use areas, which accommodate therapy programs and are used by both professionals and users, account for 11% of the floor area. Community areas, intended for visits by associations, relatives, or family members, comprise 3%. Circulation space constitutes 25% of the floor area, while terraces and technical facilities each occupy 6% of the total area.

Figure 3. Ground floor CRMF Albacete.

Figure 4. Third floor CRMF Albacete.

Figure 5. Double bedroom for single occupancy CRMF Albacete.

Figure 6. Bathroom in double bedroom CRMF Albacete.

Figure 7. Dining room for all residents CRMF Albacete.

Figure 8. Computer classroom CRMF Albacete.

3.3.1.2. CRMF Salamanca

The “Centre for the Recovery of Individuals with Physical Disabilities” (CRMF) in Salamanca, located in the Castilla y León region, was built in 1977. It comprises four floors and a basement. The building occupies nearly the entire plot, featuring an inner courtyard around which the programme is arranged. Additionally, there is a setback on the main façade, where the entrance to the centre is located.

Figure 9. Aerial view of the CRMF Salamanca and its urban surroundings.

Private spaces for resident users, primarily consisting of rooms, occupy 19% of the building's surface area. Another 20% is dedicated to private spaces for staff, including offices and control rooms. Shared use areas, which accommodate therapy programs and are used by both professionals and users, account for 19% of the total surface area. Spaces open to associations and the community make up 6% of the total area. Circulation space constitutes 25% of the area. Additionally, terraces occupy 2%, and facilities take up 9% of the total area.

Figure 10. Ground floor CRMF Salamanca.

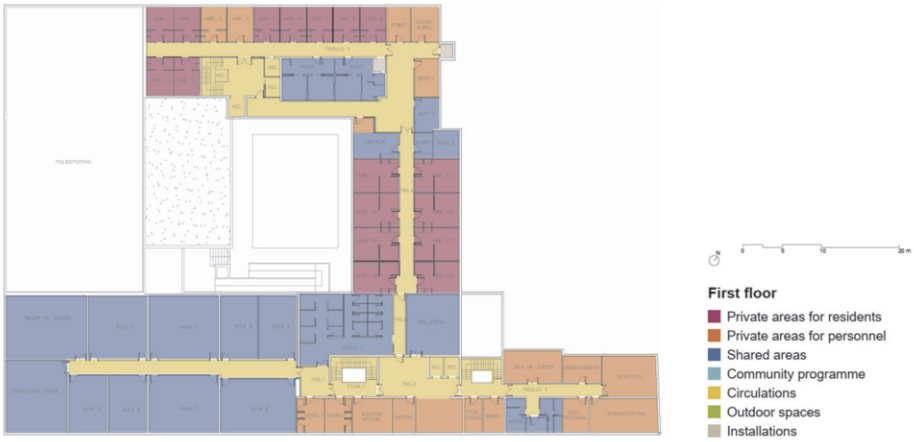

Figure 11. First floor CRMF Salamanca.

Figure 12. Bedroom CRMF Salamanca.

Figure 13. Bathroom CRMF Salamanca.

Figure 14. Dining room for all residents CRMF Salamanca.

Figure 15. Computer classroom CRMF Salamanca.

3.3.2. The people

3.3.2.1. CRMF Albacete

There are 33 individuals (70%) in the centre who stay full-time, while the remaining 14 (30%) stay part-time. Regarding gender distribution, 64% of the users are men and 26% are women.

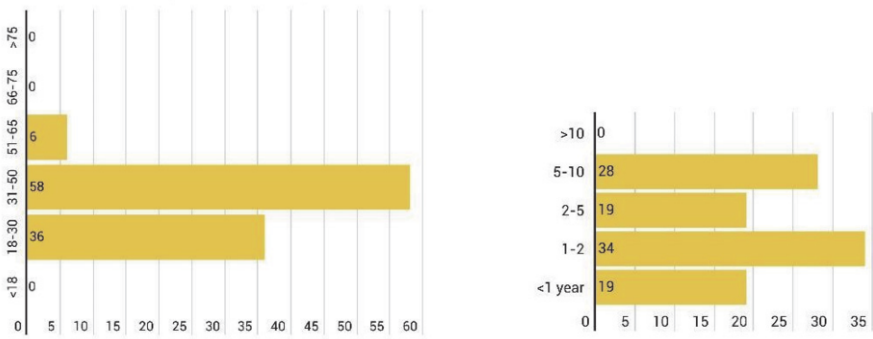

Figure 16. Age of full time and part time users and length of stay CRMF Albacete.

Visits to the centre are usually limited to accompanying individuals when they move to the centre or return from holidays. Regular visits are rare, as it is an open facility, and users have freedom of movement. Most people living in the CRMF of Albacete have completed secondary education (53%) or primary education (34%). Only 9% have no education, and 4% have completed vocational training. In terms of length of stay, most residents have been living in the CRMF for between 1 and 2 years (34%). Additionally, a significant percentage of individuals have resided there for between 5 and 10 years (28%), while the remainder have lived there for between 2 and 5 years (19%) or less than a year (19%).

3.3.2.2. CRMF Salamanca

There are 33 (80%) individuals in the centre who stay full-time, while the remaining 8 (20%) stay part-time. Regarding gender distribution, 71% of the users are men and 29% are women.

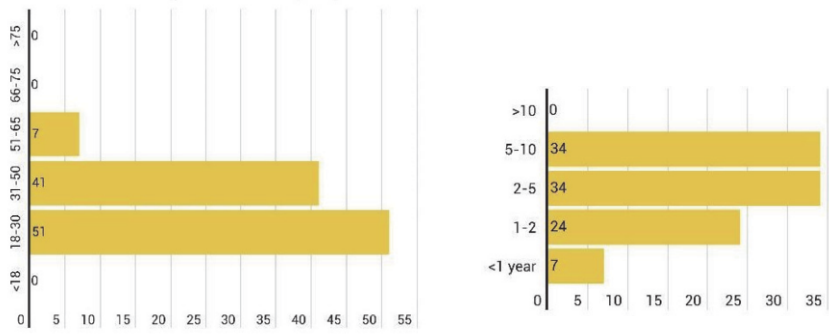

Figure 17. Age of full time and part time users and length of stay CRMF Salamanca.

It is an open centre, where people can come and go as they please, so the frequency of visits is not controlled. Most residents at CRMF Salamanca have completed secondary education (49%) or primary education (20%). None of the users lack any education, 24% have completed vocational training, and 7% have university degrees. In terms of length of stay, most residents have been living in the CRMF for between 2 and 10 years (69%). Additionally, a significant percentage of individuals have resided there for between 1 and 2 years (24%), with the remainder living there for less than a year (7%).

3.4. Data collection and analysis

The study utilised group workshop to collect data. Two distinct groups were organised: one for care providers (staff) and another for care recipients (full-time residents, part-time residents, and relatives). Table 1 presents the demographic data of the participants in each workshop. For each group, discussion topics were selected based on insights from other techniques used in the overall project, including literature analysis, site visits, non-participant observation, focus groups and in-depth interviews. The final selection of topics varied slightly for each centre and for each type of group (care providers or care recipients).

Table 1. Demographic information from participants of the workshops.

Centre	Workshop for Care recipients	Average	Workshop for Care providers	Average
CRMF Albacete	5 residents 1 family member	39 years old (residents) 5 years living at the centre	10 participants Nursing assistant, rehabilitation physician, psychologist, maintenance chief and officers, auxiliary nursing care technicians, administrative assistants.	60 years old 30 years of experience 17 years working at the centre
CRMF Salamanca	9 part-time users 2 family members	32 years old (residents) 6 years going to the centre	15 participants Speech therapist, caregivers, occupational therapists, physiotherapists, nurses, social workers, maintenance and cleaning technical workers, psychologists, and head of maintenance.	53 years old 25 years of experience 9 years working at the centre

A radial diagram was used as graphical material to represent each of the discussion topics. This diagram was inspired by "The Place Standard Tool" methodology [30], a validated tool for structuring conversations and participatory processes [31]. The diagram uses a five-point Likert scale to rate the level of satisfaction with each topic. Consequently, ratings can be visually represented, with scores closer to the perimeter of the circle indicating higher satisfaction and scores closer to the centre indicating lower satisfaction.

Figure 18. CRMF Albacete workshop with care receivers.

Figure 19. Participants during the workshop with care receivers at CRMF Albacete.

Each workshop lasted two hours, with its content structured as outlined in Table 2. However, the timing and content were slightly adapted to accommodate the specific characteristics of the participants.

Table 2. Workshop group script.

	Activity	Description
15’	Welcome	The facilitators welcomed the participants and organised them into groups.
5’	Introduction	The facilitator introduces the organising team, the project, the objective of the workshop, and the session schedule.
10’	Initial assessment	The facilitator describes the radial diagram developed with the selected workshop topics and invites the participants to individually assess their current level of satisfaction with each topic.
10’	Topic selection	The facilitator re-explains the workshop dynamics and asks the participants to select the topics they want to work on as a group.
20’	Teamwork	The participants in each group share their improvement proposals and write them on the worksheets.
50’	Joint assessment	The facilitator shares the joint radial diagram, showing the median values from the individual initial assessments. The facilitator analyses the ratings assigned to each topic to identify major shortcomings. Each group then shares their agreed-upon proposals for improvement, followed by an open discussion.
5’	Workshop closing	The facilitator announces the closure of the workshop and thanks the participants for their involvement.
5’	Workshop evaluation	Participants complete the self-evaluation sheet to rate five aspects: 1) workshop duration, 2) interest of the topics, 3) quality of the facilitators, 4) workshop dynamics, and 5) materials used. They can also indicate the aspects they liked the most and the least, as well as provide comments and suggestions for future improvements.

The workshops at CRMF Albacete took place in February 2023. The workshop for care providers involved 10 participants divided into two groups, with each participant choosing their group and topics. Each group comprised four to five individuals from different disciplines. The workshop for care recipients was structured around a single group, discussing all topics and incorporating contributions and different points of view from all participants.

On the other hand, the workshops at CRMF Salamanca were held in March 2023. The workshop for care providers was organised into four mixed and multidisciplinary teams of three or four people, incorporating contributions from all participants and gathering different points of view. The workshop for care recipients (residents, part-time

residents, and relatives) was structured into two groups of five and six people, respectively, incorporating contributions from all participants.

3.5. Ethical considerations

The study addressed the ethical considerations applicable to health research. Each participant received informed consent explaining the study's objective, the voluntary nature of participation, and the data collection techniques to be used, including photographs and recordings. The "Ley Orgánica 3/2018 de 5 de diciembre, de Protección de Datos personales y garantía de los derechos digitales (LOPD)" [5] was also taken into account during the capture, contact, collection, and analysis of data, ensuring the protection and confidentiality of all study participants.

The research protocol was submitted to both the Imserso and each of the centers for review and approval before data collection. Contributions received were incorporated, and the research was adapted based on the suggestions from each center. Each center participated in the final selection of participants, considering their availability, interest in the study, and ability to participate, while adhering to the recruitment criteria and profiles requested by the research team in all cases.

4. Results

4.1. CRMF Albacete

4.1.1. Workshop with care providers

The topics identified from the bibliography, guided visit to the centre and analysis of the interviews include: 1) work and routine; 2) meetings with colleagues; 3) informal meetings with users; 4) communicating information; 5) eating; 6) resting; 7) personal and professional development; 8) participation and decision-making; 9) enjoyment of the outdoors; 10) self-esteem and the external image of the centre; 11) welcoming activities of community agents; and 12) taking pride in one's work. Figure 20 illustrates the median for the initial assessment at each topic.

Figure 20. Results of the workshops with caregivers with the median of participants' rating for each topic at CRMF Albacete.

Table 3 presents the agreed-upon proposals for improvement, organised into three categories of analysis.

Table 3. Agreed proposals for improvement by caregivers at CRMF Albacete.

Proposals and actions for improvement of the centre CRMF Albacete by caregivers		
Functional programme	-	To create a multi-purpose meeting room for various professional profiles.
	-	To improve the sports and assembly hall to better host community activities.
	-	To establish more meeting points in corridors to facilitate informal conversations.
	-	To develop an informal and calm meeting area, both indoors and outdoors.
Liveability and comfort	-	To promote continuous maintenance of and basic equipment.
	-	To improve the air conditioning and temperature control throughout the centre.
	-	To improve the lighting installation and acoustics (especially in the canteen or classrooms).
	-	To improve the acoustics of the offices to preserve privacy.
	-	To prevent odours from the kitchen to leaking into other areas.
Warmth and wellbeing	-	To modify the industrial aspect of the main façade facing the city.
	-	To improve the main access to the centre: levelling the pavement, improving the lighting, remodelling the parking area, and improving bicycle parking.
	-	To create multi-sensory spaces with different smells, sounds, and plant elements.
	-	To create different atmospheres according to the areas of the building.
	-	To provide more homely and open areas to receive family and friends.
	-	To introduce green landscaped spaces and walking areas.
	-	To incorporate outdoor furniture with tables, chairs, and decorative elements.
	-	To include new furniture differentiated by zones, more homely and comfortable, with a variety of shapes, heights, and sizes.
	-	To change the decoration (murals, curtains, vegetation, table linen, etc.), incorporating non-infantilising elements and favouring opportunities for personalisation.
	-	To renew the kitchenware and other items, such as cutlery and crockery.
	-	To renovate the communication system (switchboard and carers' area).
	-	To improve communication and publication of information with non-invasive systems integrated into the design that respect the privacy of people (such as public address systems). Consider the functional diversity of users.

4.1.2. Workshop with care receivers

The topics identified from the bibliography, guided visit to the centre, and analysis of the interviews were: 1) Disconnecting and relaxing; 2) Informal meetings with colleagues; 3) Meetings with workers; 4) Meal processing; 5) Eating; 6) Personal hygiene and care; 7) Intimate encounters; 8) Training and job orientation; 9) Studying, reading, working; 10) Going online; 11) Physical activity/rehabilitation; and 12) Participating in the maintenance and care of personal belongings. The median for the initial assessment of each topic is shown in Figure 21.

Figure 21. Results of the workshop with care receivers with the median of participants' rating for each topic at CRMF Albacete.

In Table 4, the agreed proposals for improvement are presented, organised into three categories of analysis.

Table 4. Agreed proposals for improvement by care receivers at CRMF Albacete.

Proposals and actions for improvement of the centre CRMF Albacete by care receivers		
Functional programme	-	To ensure accessibility in the main access and greater integration with the terraces.
	-	To create more assisted flats.
	-	To have more rooms of similar sizes for equity reasons.
	-	To re-open the cafeteria or a room with equipment to prepare food.
	-	To create a living room for relaxation and unwinding.
	-	To create spaces for intermediate meetings to prevent dispersion of users.
	-	To create a small room with various zones for visitors.
	-	To create a room for wheelchair maintenance.
Liveability and comfort	-	To reduce bureaucracy to facilitate the agile maintenance of items.
	-	To review the fire evacuation system.
	-	To incorporate more natural lighting, especially in the study or reading areas.
	-	To install lifts that are accessible and voice operated.
	-	To improve the acoustics and air conditioning system of the centre.
	-	To prevent the odours from the kitchen into other areas.
	-	To incorporate technology and smart devices into the rooms (communication system, temperature and lighting regulation, doorbells, or blinds).
	-	To install internet and WIFI in the bedrooms and common areas.
	-	To promote communication systems to be better informed about events.
	-	To allow for the loading of motorised chairs inside the rooms.
Warmth and wellbeing	-	To renew the external image of the building so that it does not resemble a hospital.
	-	To adapt the bedrooms and bathrooms to the specific needs of the users.
	-	To provide wider beds (at least 105 cm instead of the current 90 cm).
	-	To incorporate homely and comfortable furniture differentiated by areas, with a variety of shapes, heights, and sizes.
	-	To install shelves, drawers, and other elements to personalise the dining room.
	-	To decorate the training areas with specific elements and decoration.
	-	To change the interior design (wall colours, furniture, and decoration) of the offices.
	-	To install lockers for the storage of personal belongings, refreshments, and food.
	-	To ensure privacy in the caregivers' room.

4.2. CRMF Salamanca

4.2.1. Workshop with care providers

The topics identified from the bibliography, guided visit to the centre, and analysis of the interviews were: 1) Individual work; 2) Direct attention to care receivers; 3) Multidisciplinary work; 4) Training; 5) Confidential meetings; 6) Resting; 7) Eating; 8) Communication and information; 9) Centre opening; 10) Outdoor spaces; 11) Storing; 12) Personal hygiene. The median for the initial assessment of each topic is shown in Figure 22.

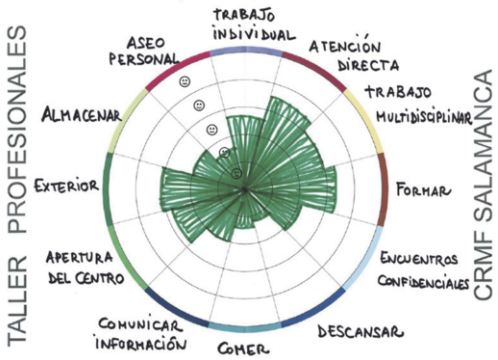

Figure 22. Results of the workshop with care providers with the median of participants' rating for each topic at CRMF Salamanca.

In Table 5, the agreed proposals for improvement are presented, organised into three categories of analysis.

Table 5. Agreed proposals for improvement by caregivers at CRMF Salamanca.

Proposals and actions for improvement of the centre CRMF Salamanca by caregivers		
Functional programme	-	To design a more habitable entrance, open to the neighbourhood (relocation of parking spaces and creation of a public square).
	-	To open the accessibility cabinet with an exhibition area and a workshop area.
	-	To design new visitors' rooms for relatives, friends, or couples.
	-	To create a leisure area for games.
	-	To include rooms with flexible sizes for different types of meetings (interprofessional meetings, training, or group therapy).
	-	To enlarge the bedrooms and bathrooms.
	-	To enlarge the physiotherapy office.
	-	To relocate the carers' room so that it is equidistant to the bedrooms.
	-	To create different areas in the carers' room: to rest, to meet with others in a private way, or to work.
	-	To enlarge the room for orderlies.
	-	To extend the canteen space for staff.
	-	To redesign the changing rooms and provide enough lockers.
	-	To improve the location of storage and reduce large, underused rooms.
	-	To review the old telephone area (now unused).
	-	To make use of the director's house and the basement spaces.
Liveability and comfort	-	To improve the air conditioning system.
	-	To improve the acoustics of the centre.
	-	To install ceiling lifts for easy transfers to the bed, toilet, and shower.
	-	To remove the public address system.
	-	To ensure accessibility in the communication system for deaf and blind individuals.

	-	To reconsider the installation of doorbells.
Warmth and wellbeing	-	To modify the exterior enclosure to make it more friendly and open to the city.
	-	To allow the adaptation and personalisation of the bedrooms to the users' needs.
	-	To name rooms in a neutral way for flexibility ("orange room" instead of "library").
	-	To improve the signage and orientation system inside and outside the centre.
	-	To design more welcoming offices.
	-	To incorporate modern and accessible furniture, such as tables in the dining room that are adjustable in height.
	-	To create a refreshment room with a (sofa, microwave, and fridge) for staff and users.
	-	To review the diet and products of the vending machines to ensure they are healthy.
	-	To ensure accessibility to recycling containers for all users.

4.2.2. Workshop with care receivers

The topics identified from the bibliography, guided tour of the centre and analysis of the interviews were: 1) Eating; 2) Personal hygiene; 3) Resting; 4) Storage; 5) Studying; 6) Training; 7) Communicating; 8) Intimate encounters; 9) Entertainment; 10) Sport; 11) Outdoor space; 12) Going out into the neighbourhood. The median for the initial assessment of each topic is shown in Figure 23.

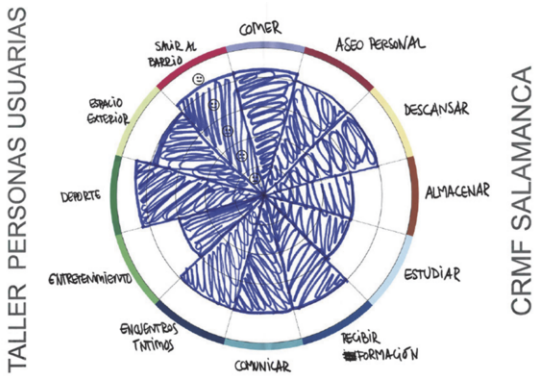

Figure 23. Results of the workshop with care receivers with the median of participants' rating for each topic at CRMF Salamanca.

In Table 6, the agreed proposals for improvement are presented, organized into three categories of analysis.

Table 6. Agreed proposals for improvement by care receivers at CRMF Salamanca.

Proposals and actions for improvement of the centre CRMF Salamanca by care receivers		
Functional programme	-	To reduce architectural barriers in the city such as shops with very narrow doors or low pedestrian crossings.
	-	To improve the pavements in the city, which are very narrow.
	-	To ensure adapted parking spaces in the surrounding area.
	-	To include the bathroom in the bedroom so that users do not need to cross the corridor.
	-	To standardise the floor area of the bedrooms for equity reasons.
	-	To redesign the circulation spaces to avoid long detours to reach the rooms.
	-	To eliminate unlevelled floors.

	-	To create a space for day centre or training centre users, including lockers (for coats and rucksacks), "welcome", and rest areas.
	-	To enlarge the training rooms.
	-	To enlarge the weight room in the gym.
	-	To install a calisthenics gym in the inner courtyard.
	-	To prioritise sliding doors instead of hinged doors.
Liveability and comfort	-	To install new lifts that are accessible and automatic, with audible signals.
	-	To include complete equipment in all bedrooms.
	-	To improve the ventilation and air conditioning system in the weight room.
	-	To improve the lighting system (training rooms and common areas).
	-	To widen the windows to allow more light in and to be able to see outside from a wheelchair.
	-	To improve the soundproofing of rooms.
	-	To install accessible and ergonomic furniture in the storage area.
	-	To include furniture that is accessible for wheelchairs of different heights.
	-	To install accessible shower heads and blinds.
	-	To include smart devices in the bedrooms (automatic blinds and doors).
	-	To include information systems with screens, as the public address system cannot be heard in all areas (or by all users) and interrupts.
	-	To install good internet and Wi-Fi access.
	-	To install a cinema area with a Smart TV in the leisure room.
Warmth and wellbeing	-	To redesign the main entrance area, including the location of the benches, shading, awnings and fixed tables.
	-	To renovate the inner courtyard and refurbish the ropes area, which does not provide shade.
	-	To expand storage space in the bedrooms with a secure option for valuable items.
	-	To include ergonomic chairs in study rooms (padded seating).
	-	To include Braille labels on lockers.

5. Discussion

This paper introduces a participatory approach to defining the functional program for the refurbishment of two centres in Spain, built in the 1970s and subsequently adapted differently according to varying criteria, serving as “Recovery Centres for People with Physical Disabilities”. This participatory process proved to be an effective method as we successfully identified the priority needs and deficiencies of the current buildings through the group workshops presented in this paper. The radial diagram for evaluation was designed to integrate the most relevant topics for discussion during the workshop, enabling the exploration of various options and perspectives from both care receivers and caregivers. The proposals for improving the architectural design and functional program of the buildings and their urban surroundings were then defined by the architecture team, guided by these insights (Table 7).

Table 7. Agreed proposals for improvement by care receivers and caregivers in both CRMF Albacete and CRMF Salamanca.

Agreed proposals by care receivers and caregivers in CRMF Albacete and CRMF Salamanca		
	Functional programme	
Care receivers	***Care givers***	***Both***
- To create more assisted apartments. - To create a room for the maintenance of wheelchairs.	- To create a multi-purpose meeting room for various professional profiles. - To relocate the carers' rooms so that they are equidistant to the	- To improve the sports and assembly hall to better host community activities. - To create of informal and calm meeting points both indoors and

- To reduce architectural barriers in the city, such as shops with very narrow doors or low pedestrian crossings.
- To include adapted parking spaces in the surrounding area.
- To redesign the circulation spaces to avoid long detours to reach the rooms.
- To install a calisthenics gym in the inner courtyard.
- To install a cinema area with a Smart TV in the leisure room.

bedrooms. To create different areas in these rooms for both work and rest, and to include changing rooms with adequate facilities and lockers.
- To improve the location of storage and reduce large, underused rooms.
- To open the cabinet for the promotion of autonomy, with an exhibition area and a co-design workshop area.

outdoors, to promote social interaction and more intimate conversations.
- To provide more homely and open areas to receive family, friends, or couples.
- To have more equal rooms in terms of size, ensuring they have private and accessible bathrooms. Offer the possibility to choose between private rooms (preferred) and double rooms (for couples, relatives, or close friends).

Liveability and comfort

Care receivers

- To implement universal accessibility in all the systems and services of the building to enable autonomy and independence (for example, lifts), as well as smart devices and technologies in bedrooms.
- To expand storage space in the bedrooms with a secure option for valuable items.
- To install internet and Wi-Fi in the bedrooms and common areas.
- To create a welcome and rest space for day centre or training centre users.

Care givers

- To review the fire evacuation system.
- To promote continuous maintenance of the basic equipment.
- To improve the wayfinding and signage systems inside and outside the centre, considering universal accessibility.
- To install ceiling lifts for easy transfers to the bed, toilet, and shower.

Both

- To improve the air conditioning and temperature control throughout the centre.
- To improve natural lighting, the lighting installation, and acoustics (especially in the canteen or classrooms, and offices to preserve privacy).
- To prevent kitchen odours from leaking into other areas.
- To allow for the charging of motorised chairs inside the rooms.

Warmth and wellbeing

Care receivers

- To provide wider beds (at least 105 cm instead of the current 90 cm).
- To introduce green landscaped spaces and accessible walking areas, with furniture, equipment, and decoration to promote their use.
- To improve the communication system integrated into the design, considering the functional diversity of users.

Care givers

- To promote healthy habits through the design, services and facilities offered.

Both

- To improve the main access to the centre and exterior enclosure, creating a public open space designed for people and with space for social interaction.
- To renew the external image of the building so that it does not resemble a hospital or an institutional building.
- To include new furniture differentiated by zones, encompassing all spaces and programs, to be more homely and comfortable, with a variety of shapes, heights, and sizes, including adaptable ones.
- To create different atmospheres according to the areas of the building, both for users and staff, and to incorporate multisensory spaces with various smells, sounds, and plant elements.
- To allow the personalisation of the bedrooms to the users' needs and preferences.

The comparison of the results from the four workshops held in the two buildings reveals interesting common agreement points. Regarding the functional programme, all building users agreed on the need to create distinct spaces for activities while also incorporating calm and private areas for more intimate meetings. The PCC approach emphasises the role of families, friends, couples, and the wider social ecosystem of the individual, necessitating spaces that accommodate and facilitate such meetings. Both groups underscored the importance of creating homely environments that value the identity of individuals and social groups, their preferences, and lifestyles. Additionally, it is noteworthy that larger rooms were not always favoured; on the contrary, care receivers advocated for more equitable room designs in terms of size, equipment, and orientation.

Concerning liveability and comfort, both groups identified basic requirements, yet care recipients expressed a desire for more autonomous solutions, such as smart devices and technologies in all services and equipment, to ensure barrier-free access to all areas of the building. Universal accessibility remains a challenge, particularly in devices that may not cater to individuals with visual or hearing impairments. Caregivers expressed particular concern about the fire evacuation system, indicating a heightened awareness of regulatory compliance, which may not be sufficient in a centre catering to this specific user group. However, it is important to note that prioritising risk prevention in design should not be a standalone approach but rather consistently ensured.

Finally, regarding the warmth and wellbeing of spaces, both groups agreed on the necessity of renovating the façade and main entrance to enhance the centre's interaction with its immediate surroundings. Urban accessibility challenges were acknowledged by both groups, although CRMF Albacete was highlighted as a notable best practice. Furthermore, all users proposed diversity in design, spaces, atmospheres, and furniture to personalise and create homely environments.

The refurbishment proposals integrated all these suggestions, as well as other elements necessary for energy efficiency, universal accessibility, and connectivity with outdoor spaces. The inputs from the co-creation processes facilitated the renovation of the existing programme, proposing new spaces and functions that align with the preferences and desires of the people who live and work in the building, while also envisioning innovative aspects that would work locally.

Figure 24. Proposal for the new building programme and reorganisation of the residential areas of CRMF Albacete. Ground floor.

Figure 25. Proposal for the new building programme and reorganisation of the residential areas of CRMF Albacete. Proposal for the new façade and entrance image of the centre from the main street.

Figure 26. Proposal for the new building programme and reorganisation of the residential areas of CRMF Salamanca. First floor.

Figure 27. Proposal for the new building programme and reorganisation of the residential areas of CRMF Salamanca. Proposal for the new plaza open space in the main entrance of the building.

5.1. Limitations

This work constitutes the initial phase of the project design process, in which the essence of the Person-Centred Care approach lies in giving voice to individuals who live in and use the building and collaborating with them to design proposals for the refurbishment project. Participants identified several challenges, notably the novelty of participating in a process where they were asked for input on changes or improvements to their built environment, which significantly impacts their daily lives. This lack of cultural participation in the design process marks the starting point for breaking away from the inertia of top-down design processes led by experts.

The decision to segregate professional workers from the people residing in the centres and their relatives was made to involve a larger number of people. Mixed groups would have required more time from all participants and more personal resources for workshop implementation. Additionally, the specific needs of care receivers required adapting the workshop with flexibility, sometimes needing more time or readjusting group divisions to allow each to work independently with fewer stimuli before sharing final conclusions collectively. Moreover, the management of working groups and development of the workshop materials were limited in terms of universal accessibility, as the facilitators did not anticipate functional diversity, such as the need for Braille materials for a blind participant who joined the workshop. These lessons will inform future projects to create more inclusive materials. Nonetheless, the radial diagram for evaluation proved to be a practical and straightforward tool for assessing various topics and subsequently discussing the results.

6. Conclusion

This study introduces a participatory methodology for both analysis and diagnosis of existing buildings, in order to implement the Person-Centred Approach by involving

building users from the outset. This approach seeks to initiate a process of deinstitutionalisation and environmental transformation from the project's inception.

Incorporating the co-design process with building users should be a fundamental aspect throughout all project phases. This initial diagnosis serves as a baseline for analysing outcomes and improvements once the refurbishment project is completed. However, incorporating a co-design method during the design process is essential to continue developing the programme and design in collaboration with the people who will utilise the new spaces daily. Additionally, conducting further research post-occupancy is highly recommended in order to learn from the experience and identify challenges encountered during construction management and processes, thereby incorporating the Evidence-Based Design process throughout the project lifecycle.

Finally, the deinstitutionalisation process involves empowering individuals to participate and be active agents in the daily life of these facilities. In this sense, innovation can extend beyond design and involve care receivers in co-designing services, programmes, activities, or any other social innovation projects. A new paradigm embracing care and diversity in our daily and normalised environments is emerging, necessitating new methodologies and collaborative working groups to be integrated into the design process.

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