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Living Space: The Contemporary Housing Environment as a Place for the Family

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Abstract

This paper discusses housing areas from the perspective of meeting the living needs of families. In recent decades, significant changes have been observed in Poland both in terms of the formation of new housing complexes and in social expectations regarding living conditions. The new housing complexes differ significantly from the traditional, typical ones with distinctive architecture and low-standard common spaces, commonly referred to as panel block housing estates. Previous research on housing environment quality generally points to the need to create developments that provide the highest possible quality of life. These studies focused on the problems of one particular group of residents, such as children, seniors or people with disabilities. However, families, which make up a significant portion of the population and are important users, have not been adequately addressed in urban planning studies to date. Therefore, this problem merits investigation and existing research methods or urban development concepts that can be used to evaluate residential areas should be identified as should factors and spatio-functional characteristics of residential areas that can influence the creation of high-quality space for families. This study, based on a literature review, evaluated two selected development models in terms of providing optimal living conditions for families. It was found that current proposals may be useful in determining features of family-dedicated space, yet they display a range of deficiencies that should be addressed. The study's conclusions can be used as a basis for further investigation and as recommendations in the context of planning and urban policymaking.

Keywords: Urban space, family, urban planning, housing environment, 15 minute city

1. Introduction

At present, discussion on the development direction of urbanized areas is particularly relevant. The effects of urbanization are widely seen and felt, from local to global scales, although the area occupied by the wider built environment is relatively small. According to a 2010 study, it is only 1% of the Earth's surface (Schneider, Friedl, & Potere, 2010). Nevertheless, cities now account for about 60% of all residential water consumption, 75% of energy consumption, 80% of wood used for industrial purposes and 80% of human greenhouse gas emissions (Grimm et al., 2008). Over the past fifty years, urbanization has not only accelerated at an unprecedented pace, but has also adopted and adapted new forms.

Globally, we are experiencing the largest-ever population growth, accompanied by an increase in residential development (United Nations, 2015). This leads, on the one hand, to the emergence of highly substandard areas, or even areas of informal housing such as slums (Dovey, 2015), and may contribute to greater diversification of housing forms and types on the other (Tasan-Kok, van Kempen, Raco, & Bolt, 2013) as a result of adaptation to the expectations and housing capacities of individuals and social groups.

Residential development is perhaps the most important manifestation of architecture. First of all, it creates a place for the fulfilment of essential human living needs: physiological, such as sleep and food, among others; security, i.e. providing shelter and privacy; or, finally, related to self-realization, by providing space for various activities, relaxation and rest. It thus constitutes a basic place to live, and its significance goes beyond architecture (Kurkowska, 2017). In a broader context, it is the dwelling place of the populations that make up cities and smaller settlement units. Related to this is also the importance it has for the spatial dimension, as residential development occupies the majority of urbanized areas, acting as the basic use type of development that shapes the form of cities. Because of its importance to the individual and society, residential architecture is also the subject of political and economic measures aimed at, among other things, improving the availability of new housing, increasing the amount of housing on the market, or facilitating new real estate development projects.

In the light of this significance, it is to be expected that this development's characteristics will be crucial in shaping the overall development of cities. Indeed, appropriate, sustainable and pro-social patterns of residential areas are important for driving sustainable development (Golubchikov & Badyina, 2012), including in developing countries (Olotuah & Bobadoye, 2009), or in areas that undergo redevelopment (Winston, 2009). From the point of view of society and the individual, sustainable housing areas are key to ensuring a sense of community (Baranowski, 2007), physical health and mental well-being (Jagiełło-Kowalczyk, 2010; Schneider-Skalska, 2019).

In light of previous considerations, housing is a basic social good – everyone has to live somewhere. Today, however, it is also a commodity to be sold as profitably as possible (Tomal, 2020). Various qualities of new developments are used for marketing purposes, including location (close to the centre, next to a park, etc.), high standard of finish, or smart technologies. Many times, inviting views of neighbourhood interiors steeped in greenery, offering lively and beautiful recreational spaces, playgrounds and leisure areas are also presented. Thus, based on a review of real estate developers' offerings, it should be inferred that for potential residents, the visual and functional quality of their housing environment matters when choosing where to live.

According to a survey by a commercial real-estate-related service, families with children form one of several buyer categories (JLL, 2023). In 2022, this group accounted for about 26% of potential buyers looking for apartments. Furthermore, the survey revealed that the preferred size of an apartment was a minimum of three rooms, with, paradoxically, the minimum acceptable floor

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area falling in the 30–39 m2 range, which is far too small for the preferred number of rooms. In addition, almost half of the families considered living in a suburban area, which was motivated only by financial considerations (cheaper, more accessible housing). This survey is very interesting from the standpoint of the issue under study, as it provides evidence that families – in this case, families with children – are a large, significant group of buyers, which makes insight into their preferences valuable. What this survey lacks is information on preferences related to the broader housing environment, such as proximity to a school, kindergarten or nursery, the presence of pedestrian infrastructure (sidewalks, squares, pedestrian public spaces), or the availability of everyday services.

The current housing situation in Poland indicates a shortage of housing, primarily accessible housing, namely housing that does not consume more than 30% of a household's income. Experts also point out the low diversity in forms of housing and their financing (Kisiel & Zielińska-Szczepkowska, 2021; Milewska-Wilk & Nowak, 2022). National family policy programmes revolve around the financial or procedural facilitation of property acquisition and home construction (Ministerstwo Rozwoju i Technologii, 2023), while issues related to the parameters of such housing for families are not addressed by any of the proposed programmes.

Going further, a review of academic and trade literature found that the problem of creating or revitalizing a family-oriented housing environment is relatively poorly investigated. Issues centred around the family generally do not extend beyond the social, legal, pedagogical or theological sciences (Kałdon, 2016). Housing needs, parameters and development standards, on the other hand, are a frequent focus of technical sciences, including architecture and urban planning (Stachura & Tufek-Memisevic, 2022). These two parallel paths very rarely meet, whether in theoretical studies or in practical recommendations and market research.

Given the existing research gap, the primary purpose of this paper is to highlight the problem of shaping housing space that considers family needs. By definition, families are a heterogeneous group that can include both young, working-age people, children and seniors. Families can be small – they can consist of two or three people, but can also be numerous and multi-generational. They also differ in terms of parenting model, economic situation, or national, religious or local group affiliation. In addition, both the concept of family and its functions are subject to constant transitions that are the result of social and worldview changes (Ruszel, 2010). Finding a common denominator for the housing needs of such a group is a complex task, but an important one from the point of view of creating an appropriate living space.

Therefore, the fundamental question that directed this study was: Are existing models of urban research useful in determining the characteristics of residential areas for creating a good living space for a family?

This paper presents preliminary research intended to identify a set of factors potentially relevant to families that can be used to assess the existing housing environment of housing estates and complexes, as well as provide guidance for design or directions for housing policy. This paper will present two conceptual models that have emerged in the current discourse on the development directions of urbanized areas. These models will be evaluated for their usefulness in shaping family-friendly housing areas.

2. Method and materials

To determine the characteristics of housing estates that are desirable to families, it is critical to adopt a holistic approach. The research problem under study is complex and covers multiple research fields, as it combines spatial and social issues. Therefore, it was reasonable to refer to general, current concepts

regarding quality of life, spatio-functional organization, or social inclusion. Each time, the key features of the concept in question were enumerated and discussed. The models were based on research and theoretical studies, and current trends in the real estate market were also considered. The first concept adopted was that of a high-quality housing environment. It is very broad, but has been explored by practitioners and the academic community for many years. The second concept was the features of the 15 minute city, which can be argued as being sufficient and appropriate for creating space that is good for families.

2.1. Model 1: Space for the family is synonymous with a high-quality housing environment

A high-quality housing environment is crucial and influences both declared and perceived quality of life and overall well-being. Previous research, both domestic and foreign, is abundant in this area and covers aspects such as housing typology and quality (Kurian & Thampuran, 2011), the service programme (Öner, 2017), and the presence of green spaces (Kothencz, Kolcsár, Cabrera--Barona, & Szilassi, 2017; Lee & Maheswaran, 2011).

A survey on quality of life conducted by Statistics Poland in 2017, (GUS, 2017) covered various economic, social, health- and education-related components. Another suitable component are environmental quality indicators for places of residence. However, they are very modest, as they cover only three aspects: green spaces, noise and pollution. Satisfaction with recreational areas and green spaces was declared by more than 75% of respondents, which may be an indirect indication of the kind of housing area development that allows contact with nature. Previous research supports these results. The positive impact of green spaces on both urban ecosystems and microclimate (Maes, Zulian, Günther, Martijn, & Raynal, 2019), as well as on the well-being and health of residents (Browning & Lee, 2017; Jennings & Bamkole, 2019) is well documented.

This line of research also provides evidence that specific aspects of housing development are important to residents. For example, Ukoha and Beamish examined residential satisfaction with public housing in Nigeria and the relationship between satisfaction and specific housing attributes to overall satisfaction, indicating that residents were generally dissatisfied with the attributes of the buildings and housing themselves, while declaring satisfaction with existing neighbourhood amenities (Ukoha & Beamish, 1997). Liu, in a study conducted among residents of Hong Kong housing estates, identified key factors that showed a positive correlation with perceived satisfaction. These included the organization of traffic within an estate, the convenience of an estate's location, appropriate landscaping (e.g., providing privacy, but also space for neighbours to meet), and the maintenance level of an estate and its surroundings (Liu, 1999). These studies provide crucial conclusions, namely that residents find the functio spatial attributes of an estate and the quality of the housing environment, understood as an integral part of the city, as highly essential.

In this context, it is necessary to recall a 2022 study commissioned by the Krakow City Council, to assess the current state of the city's housing estates and to construct a comprehensive method of assessing the quality of their space. The method included two scales: the entire city (macro) and that of each estate (micro). Spatial and functional characteristics were analysed in detail, including the qualities of urban composition, the layout of public spaces, land use patterns and service facilities. Conclusions drawn from this study show that the so-called 'old' estates – established during the socialist system – often outperform 'new' estates, particularly in terms of integration with the surrounding city, and therefore also in terms of estate accessibility, service offerings and the amount of green space (KKSM, 2022).

An important observation was also made about the presence of schools, kindergartens and nurseries, i.e., social infrastructure important for parents

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of young children. In the 'old' estates found in Poland, such facilities are present, whether inside an estate's structure or at its edges. Public schools and nurseries are usually located on their own dedicated plots and also have recreational areas and playgrounds, further enriching the space of the estates. These findings are consistent with a study done in Italy, where proximity to kindergartens was found to have a positive impact on real estate prices, and a similar relationship was confirmed for schools (Bergantino, Biscione, de Felice, Porcelli, & Zagaria, 2022).

The indicators derived from this model can be shown in the table below:

Main criterion	Indicator
Living estate	• The presence of public spaces; • Degree of integration of the structure of public, semi-public and social spaces; • The presence of non-essential services including culture and science;
Healthy estate	• Proximity of natural elements in the estate and the surrounding area; • Presence of arranged sports and recreation areas; • Presence of playgrounds; • Presence of health care facilities and pharmacies;
Convenient estate	• The presence and proximity of essential services: retail, catering, education; • Proximity to public transportation infrastructure ; • Adaptation to the needs of people with disabilities;
Beautiful estate	• Clarity of urban composition; • Aesthetics of buildings and public spaces.

Criteria adopted from: *Badanie jakości środowiska mieszkaniowego krakowskich osiedli*, by the staff of the Chair of the Housing Environment, CUT Faculty of Architecture (KKSM, 2022).

Given the comprehensiveness of the assessment of the quality of the housing environment using the method presented, it can be assumed that a high-quality housing environment is able to meet that the needs of all residents, and therefore the of families are met as well.

2.2. Model 2: Space for the family meets the assumptions of the 15 minute city

Another model that helps capture the characteristics of an optimal residential space for a family is based on the advantages of the 15 minute city. This concept was introduced and popularized by Carlos Moreno in a 2016 publication and has quickly become one of the leading trends in urban design thought (Moreno, Allam, Chabaud, Gall, & Pratlong, 2021). The assumptions behind the concept of the 15 minute city, or a city of small distances, can be summarized by stating that such a city (or sometimes an area of a city) should make it possible for its residents to meet their essential daily needs without significant travel times. However, a number of factors contribute to this characteristic, there is no consensus in the literature as to which factors are key (Pozoukidou & Chatziyiannaki, 2021).

In the literature on the 15 minute city, it is more often defined by its outcomes, its specific benefits rather than by the parameters it should meet. First of all, the prevailing view is that planning based on small distances can help reduce reliance on the car as the primary means of transportation, reduce fuel consumption and thus reduce CO_2 emissions (Allam, Nieuwenhuijsen, Chabaud, & Moreno, 2022). Also associated with this is a shift toward active modes of transportation – walking and cycling, which can support health-promoting behaviours and counteract the effects of sedentary lifestyles (Papas, Basbas, & Campisi, 2023). Proximity to green areas and recreational spaces promotes physical activity and a healthy lifestyle. A diverse and multifunctional environment close to one's home can improve the activity of both children and seniors (Ulloa-Leon, Correa-Parra, Vergara-Perucich, Cancino-Contreras, & Aguirre-Nuñez, 2023).

Proximity to schools, kindergartens and childcare facilities definitely facilitates a family's day-to-day functioning, and can promote independence and encourage social participation in a group of peers. Commuting to and from school independently is also important in terms of preserving and promoting health, as it increases the overall amount of time spent on physical activity. In the 15 minute city model, the maximum distance to be travelled on foot is determined by the time it takes to cover it; at a speed of about 4 km/h, this is about 1 km. However, according to a study of students in Ireland, the realistic limit for walking to school is a distance of about 1.5 mi (about 2.4 km), which is much more than can be covered in 15 minutes (Nelson, Foley, O'Gorman, Moyna, & Woods, 2008). This study indirectly confirms that walking can be a viable means of transportation, not just for getting to and from school.

Given the multifaceted environmental, social and economic benefits commonly associated with a 15 minute city's spatial organization, efforts are being made to implement it in selected urbanized areas (Di Marino, Tomaz, Henriques, & Chavoshi, 2023; Moreno et al., 2021). The ability of existing structures to accommodate the features of the 15 minute city is also studied (Gaglione, Gargiulo, Zucaro, & Cottrill, 2022; Guzman, Arellana, Oviedo, Alberto, & Aristizábal, 2021). With regard to Polish conditions, such empirical studies are relatively few, which makes it difficult to build an adequate table of indicators. Nevertheless, a review of the available world literature reveals that the most frequently studied parameter is accessibility – that is, the geographic proximity of services, amenities and recreation sites in relation to places of residence (Allam et al., 2020; Graells-Garrido et al., 2021).

With regard to Krakow, such a study was carried out by team lead by A. Noworól. Their results show that the areas that meet the criteria of a 15 minute city in terms of the availability of a certain range of services are primarily those located in the centre of the city, characterized by a traditional, block-based urban layout and frontage development. The second highlighted zone with good accessibility to services, greenery and public transportation are the areas of 'old' estates, i.e., layouts planned using a comprehensive urban planning proposal, in accordance with contemporaneous urban planning standards. The study also identified deficit zones, i.e., zones where there were significant gaps in accessibility to the overall use programme, and these were mainly areas of low-density development and also a significant portion of new housing developments (Noworól, Kopyciński, Hałat, Salamon, & Hołuj, 2022). In new estates, both a small amount of services and green spaces and low diversity were observed.

It can therefore be concluded that a good space for the family, that follows the 15 minute city model, should feature the characteristics of both downtown and neighbourhood areas, where high use diversity is supported by good walkability. On this basis, it is possible to identify the essential criteria that a 15 minute city should meet, as well as some resultant indicators.

Category	Indicator – pedestrian access in 15 minutes or less
Childcare and education	• Nursery; • Kindergarten; • Elementary school; • Secondary school (optional);
Health care	• Health centre; • Pharmacy; • Day care centre (optional);
Culture	• Library; • Cultural centre; • Important cultural facilities such as cinemas, museums, concert halls (optional);
Green areas, sports and recreation	• Green areas with an area of more than 2 ha; • Playgrounds; • Public playing fields ; • Sports club / fitness club / gym;

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Stores and services	• Grocery store; • Larger grocery store / supermarket (optional); • Post office; • Religious services; • Local open market; • Restaurant; • Café / pastry shop / pub;
Public transport	• Access to a bus/tram/metro stop in 10 minutes or less;

Criteria adopted from: Noworól, A.; Kopyciński, P.; Hałat, P.; Salamon, J.; Hołuj, A., The 15-Minute City-The Geographical Proximity of Services in Krakow. *Sustainability* 2022, 14, 7103 (Noworól et al., 2022).

In summary, 15 minute cities offer many benefits both for communities and residents – including families – and in the broader context of driving sustainable development, or caring for the environment. However, in the context of facilitating a family's functioning, in addition to geographic proximity and accessibility, the quality of the public and social spaces offered, which can provide a natural field for family activity, is also important. As Khavarian-Garmsir et al. note, the 15 minute city model, despite its multidimensionality and flexible applicability, does not directly address providing quality space, and treats it as a derivative of other attributes (Khavarian-Garmsir, Sharifi, & Sadeghi, 2023). Therefore, when using this model as a basis for shaping the optimal space for families, the group of categories should be expanded to include elements that make it possible to assess quality, such as urban composition or a space's aesthetics.

3. Results

The most important general conclusion derived from this study is undoubtedly that there is a need for a broader investigation of families' housing needs and expectations, and how to meet them. Despite the complexity and heterogeneity of the group, it is possible to identify certain characteristics that determine what a good space for a family is and formulate a set of desirable characteristics. Among key features are those that directly result from the conceptual models adopted: first, the space for the family should meet the criteria of a high-quality housing environment in the four main problem groups: social life, health, convenience and beauty. The examples of such estates built so far show that attractive places, that offer good living conditions, adequate service facilities: schools, kindergartens, small retail stores or small offices, are deliberately chosen by families with children. Another very important asset is the presence of public spaces that enable the use of the estate's resources and encourage contacts and meetings. As P. Haupt writes, summarizing a study of the Hammarby Sjöstad model estate '(...) Owing to the aesthetic values of this layout as well as the high quality and standard of the buildings, this place is assessed as one of the most attractive residential areas in Stockholm in spite of its distinctness' (Haupt, 2012).

Secondly, analysing the characteristics of a 15 minute city, it was found that it can be a good space for a family. It should be characterized by functional diversity with an emphasis on educational and childcare facilities, health services and the presence of small retail and catering services, and at the same time good accessibility to needed services, green areas and social spaces. The presence of public transportation stops is also important, while the proximity of large retail establishments or other enclosed areas that hinder or prevent walkability in an area is not desirable. Among the drawbacks of this model is the failure to define a hierarchy of spaces, or to indicate the presence of social and neighbourhood spaces. This is an extremely important element of residential development that should not be overlooked. On this subject, G. Schneider-Skalska, writes, among other things, 'in conclusion, we can say that a social space as a social interior in an urban structure has always been a necessary component of the housing

environment which supports territorial and social identification as well as makes it possible to realize a programme which is important from the viewpoint of a group's needs' (Schneider-Skalska, 2012).

Analysis of the two concepts above allows us to argue that the urban space that provides the physical framework for families' lives bears the characteristics of both a high-quality housing environment and a 15 minute city. However, it goes beyond quantitative indicators, requiring a qualitative approach. In this context, the more capacious model turned out to be the one referring to a high-quality housing environment, which factors in compositional and aesthetic aspects. One disadvantage of this approach is the lack of a systematic and unambiguous definition of criteria, which can potentially lead to truncation, or significant modification of indicators. On the other hand, the capacity of the problem groups (liveable, comfortable, healthy and beautiful) provides an opportunity to optimize the scope of analysis and fine-tune it to the study of the family living space. The second model, in the context of the adopted subject matter, shows more limitations, as it focuses on the use programme and its accessibility, without directly addressing quality issues, but the possibility of relatively easy definition and control of space parameters is its undeniable advantage.

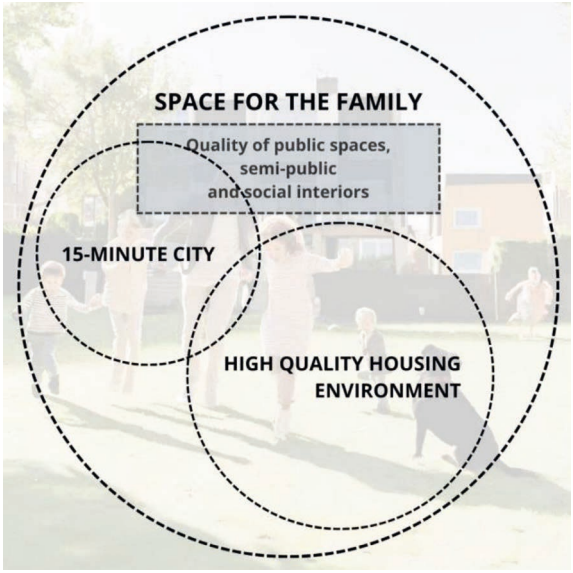


Fig. 1. The 15 minute city and a high-quality housing environment as two models included in the requirements of an optimal space for the family. Source: original work

4. Conclusions

This paper is preliminary and exploratory in nature and focuses on identifying the problem of the optimal space for the family, which is associated with certain limitations. First of all, it should be emphasized that the characteristics of an optimal space for the family are not limited to the above-mentioned models. This is a complex problem that requires multi- and transdisciplinary research to examine expectations, preferences and, at the same time, to determine the desired urban tissue indicators and parameters. In this study, the characteristics of places where family life takes place were prepared based on urban planning tools, such as: analysis of plans, maps, surveys, site inspections, accessibility analyses, etc. They made it possible to indicate mainly the functional and spatial properties of residential areas, such as diversity in terms of services, the presence of recreational facilities and areas, and amenities for all age groups. Currently, there is no research that would enable discussion on the needs of families, the methods and possibilities of satisfying them, while maintaining the quality of urban space. The current uncertainty regarding the expectations of such a diverse group of residents may be a motivation to engage in broader, interdisciplinary research on this issue.

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Nevertheless, the conclusions from the current stage of research can be of practical value. They can be helpful to policymakers and practitioners in improving urban policies and in the design of future housing estates that will better meet the needs and expectations of families. They show that a good space for the family coincides with current trends in thinking about the city. Living spaces can play a key role in promoting family and community well-being, so it is important to continue research on this topic. It appears that ensuring a friendly, comfortable and beautiful environment in the place of residence of the family – the fundamental unit of society – should be in the interest of decision-makers responsible for social and economic matters, as well as those who influence the formation of urban areas.

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