Understanding age-friendliness of cities and urban communities through the perceptions of senior citizens in Kolkata, India

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To better understand the requirements of senior citizens for an age-friendly urban environment, especially in the Indian context, it is important to consider their perception of age-friendly cities and urban communities, as well as assess their experience of living in a city as an ageing person. This study highlights a perception-based methodological approach for planning age-friendly urban communities. Major tools used in the study are Focus Group Discussion to validate and modify the components derived from the literature and formulation of indicators of age-friendliness, questionnaire survey and Ridit analysis. The result generates a priority-wise rank of indicators of age-friendliness expressing the perceptions and preferences of senior citizens on the existing conditions in the study area. The result also highlights the checklist of indicators for policy intervention to achieve age-friendliness in three dimensions – social, physical and economic.

Keywords: Age-friendly environment, cities and urban communities, context specific measurable indicators, people's perception, senior citizens.

As Roy[1] has rightly pointed out, urban planning in India is deeply planted in its distinctive social division in a way that it often misses the vulnerable and marginalized population. Taking the analogy from the definition of vulnerability given by the Intergovernmental Panel for Climate Change[2], in the context of socio-economic vulnerability, we can say that the vulnerability of marginalized populations can be characterized by the inability to cope with the hazardous socio-economic environment, not being able to respond to it and unable to maintain the social structure and functions[3]. Therefore, addressing vulnerability and social exclusion is not limited to theories but integrating coping mechanisms based on contemporary issues and challenges[4]. To create a 'future-proof city' – a term coined by Roy[1], in the present context, it is indispensable to establish a strong and rigorous system, recognizing the needs of every segment of society. As discussed by Pathak and Mahadevia[4], at present, the planning and development of cities are largely dependent on the states. Therefore, it is difficult for the local bodies to integrate the issues and challenges faced by the vulnerable and marginalized population at the urban community or neighbourhood level. Although the developers from the private sector are designing age-friendly, child-friendly and pedestrian-friendly cities under various schemes, the problems are in generalizing local-level issues specific to the vulnerable group – making them even more marginalized[1]. To create a favourable environment for all, acquiring local scale information, such as identification of target groups, identification of risks, methodology to evaluate risks, and identification of measurable indicators, must be integrated into the planning process for 'future-proof cities'[4]. As the development takes place on a broader scale integrating the 'compulsory' contribution of tangible and intangible assets of people for 'public purpose', some questions remain constant:

- Who are the target group?
- What does it mean by 'public purpose', and to what extent can it go?
- While naming it as 'public purpose', has the participation of people been encouraged, where they can express their perceptions and observations?
- Does this fulfill the idea of inclusive planning, or is it only focusing on the visible generic issues?

Above such instances result in failure of planning in India, i.e. capturing single issues, social or economic, excluding the participation of people in the decision-making, thus lacking rationality and relevance in planning. The struggle over public spaces, affordable housing, and the utility value of property impact the right to a city. This leads to the pressing need for rethinking the planning process, focusing on just and inclusive cities rather than only following the best practices[5]. Every city is unique and characterized by its communities with various population groups with specific needs. Therefore, the generic solutions would result in planning failures.

On the contrary, controlled and orderly management of land uses is often resisted by the disorderly and indisciplined behaviour of users[6]. Such inherent social characteristics lead to chaotic, dysfunctional, non-inclusive planning, which is often termed as 'failure'. On the same note, Bhan[7] has established the importance of understanding the factors

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causing disturbances or affecting existing urban systems and transforming them into 'general problems'. However, such cases have always inspired planners and policymakers to come up with more diverse, inclusive and relevant urban practices[7]. Such practices influence the built form, public spaces, urban governance and create a sense of belongingness in the urban population contributing to their right to the city[7].

'The right to city', a term coined by Lefebvre[8] focuses on a holistic approach to building a sustainable city or community based on the principles of equity, freedom, dignity, solidarity and social justice, when in reality, a major vulnerable or marginalized section of urban population is often deprived or exposed to limited resources. Even though Lefebvre's description of the right to the city started as a 'cry and demand', his claim mainly focused on the prospects of righteousness and well-being for any civilization. These voices are diverse and, at times skeptical that the concept of the right to the city can be anything more than an occasional leisurely discussion. As described by Lefebvre, the claim of capitalism and consequent consumerism on the city is changing the face of urban life into 'urban commodities' by adding price tags to them, which may not be accessible as well as affordable for every citizen of the city. The market value of 'urban commodities' is one of the many reasons behind the complete lack of social interaction, unresponsive urban spaces catering to the needs of different groups of citizens, unresponsiveness and apathy in understanding those needs by the administrative bodies are some of the major impacts of the phenomenon. In this scenario, the concept of the right to the city provides the mechanism or works as an instrument to reduce discrimination and provide special protection to vulnerable groups through 'a right to change ourselves by changing the city' because 'the way in which the space is fashioned can have a profound impact on social processes'[9–11].

Theoretical bases

A city and urban community becomes age-friendly when it recognizes the specific physical, social and economic requirements of senior citizens, promotes dignified inclusion in every aspect of their community life, gives regard to their decisions and the lifestyle they choose. Since most senior citizens are susceptible to shocks like economic instability, social exclusion and various health conditions, it is imperative to address such issues and life challenges by creating a favourable environment around them. This would recognize their needs associated with their preferences, physical limitations, and emotional and social support[12]. The requirement of timely anticipation and flexible response to age-related needs for inclusive urban areas is also recognized by World Health Organization (WHO)[13]. Accordingly, WHO (2007) has identified eight domains as core features of age-friendly development: outdoor spaces and buildings, transportation, housing, social participation, respect and social inclusion, civic participation and employment, communication and information, Community support and health services. WHO[14,15] has also mentioned that identifying indicators for age-friendly cities and associated policy measures would ultimately impact the well-being of senior citizens as a long-term change. The need for age-friendly indicators and policy measures is further established in Agenda 2030 for sustainable development, as it clearly mentions that human settlements and cities need to be inclusive, safe, resilient and sustainable by providing safe and accessible public transport and green public spaces, specifically for children, disabled and senior citizens population, safeguarding of cultural heritage, and giving adequate technical assistance[16,17]. In India, as per the National Policy for Older Persons, Ministry of Social Justice and Empowerment, Government of India, any person aged 60 or above is termed a 'senior citizen'. Therefore, in this study, the target group is referred to as 'senior citizen(s)'. WHO[13,18] has formulated three strategic objectives for age-friendly cities: (i) foster older people's autonomy, (ii) enable older people's engagement, and (iii) promote multi-sectoral action. A report by Help Age International during Habitat III[19] has explored the various dimensions of social inclusion of senior citizens. For example, with an increasing life expectancy rate, there would be an increase in the retirement age, thereby necessitating age-friendly workplaces, transportation and other public facilities[20]. Inclusive planning for cities is crucial as it helps the senior citizen population's overall well-being, who are excluded from essential resources, to live a happy and healthy life through social protection and social policies addressing this issue[21].

The later stage of the twentieth century experienced a novel paradigm on the well-being of senior citizens with a new and optimistic point of view with the emergence of the concept of 'productive ageing' by Butler and Gleason[22], and later supported by WHO[23], with the idea of 'healthy ageing'. At the same time, another concept of 'successful ageing' by Rowe and Kahn[24] and Baltes and Baltes[25] has been conceived. And finally, the term settled as 'active ageing' was introduced by Walker[26] and supported by WHO[27]. All the aforementioned concepts had a major focus on the overall well-being of the senior citizen population. Active ageing recognizes the human rights of the senior citizen population as well as the principles of participation, independence, dignity, care and self-fulfillment as advocated by the United Nations. This advocates a shift from a need-based approach to right based approach acknowledging an increase in diversity amongst individuals which tends to increase with age. According to the WHO document on active ageing, the key aspects of active ageing are (i) autonomy, highlighting the perceived ability to control, cope with, and make personal decisions on daily life events as per user's preferences; (ii) independence, highlighting the capacity of living independently in the community without major help from others; and (iii) quality of life[28]. This necessitates the following, as quoted by Walkar[19], and Fries[29]

and mentioned in United Nations Economic Commission for Europe Policy Brief on Ageing, No. 13 (ref. 30): (i) change the endemic culture of ageism that permeates the labour market and other key structures of society; (ii) remove age barriers in all walks of life, so that people are judged on their competence; (iii) develop active age management in employment, aimed at preventing age becoming a barrier; (iv) to enable labour markets to respond to the economic and social consequences of population ageing by keeping older workers in touch with employment and enable them to maintain their skills so that workability is not reduced; (v) encourage flexibility in retirement, so that the rigid division between employment and retirement disappears; (vi) to ensure full integration and participation of older persons in society; (vii) to promote social inclusion through volunteering; (viii) to ensure a good quality of life by reducing dependency but encouraging family bonding, and (ix) to encourage a healthy lifestyle, frailty and long term care.

As predicted in studies by WHO[13], cities in the 21st century will be shaped by dual forces of urbanization and population ageing. However, although urban formations are required to maintain synergy between generations by avoiding marginalization and encouraging interaction, ageing communities in many cities of developing countries are socially and economically vulnerable and often pose specific challenges towards creating inclusive cities and communities. As people grow older and become less resilient and extremely sensitive to the stimuli resulting from the process of urbanization around them, they rely more on their immediate environment for assistance.

In developing countries, by 2050, one-fourth of the total population will comprise senior citizens of age 60 or above. In India, presently, 8.6% of the total population is senior citizens, and it is expected to increase by 20% by 2050 (refs 31–35). Over time, the percentage population of the age groups of 60+ are seen increasing in India due to advancement in medical science, whereas the age group of 0–14 is decreasing[35]. With increasing longevity and chronic diseases, many elderly citizens will need a barrier-free environment in the coming years. As per the 52nd round of National Sample Survey Organization, nearly half of the senior citizens/population is fully dependent on others, while another 20% is partially dependent for economic reasons. This old-age dependency ratio is expected to be increased by 7% by 2026, along with the reduction in the potential support ratio for senior citizens[35]. In India, the current demographic transition will experience a demographic dividend followed by an increase in the median age leading to physical, financial and emotional insecurity[36,37].

Need of the study in the Indian context

To date, many attempts have been made globally and nationally to frame age-friendly city design policies. The need for ageing research on ageing in the Indian context originates from the contrasting social and behavioural contexts between European–American societies and Indian society and their respective perception of well-being as they age[38–40]. Indians, in general, relate to wellness and ageing through factors such as dependency on their children or the next generation of the family, less involvement in productive participation, economic dependence on pensions or investments or family support, acceptance of physical decline over the years, so on and so forth. Such ideological differences create a different approach compared to the Western concept and framework of ageing, focusing on productive participation and independence[38,39]. Studies have shown that the social construct gets affected by the changes in the structure of conventional Indian society. Children leaving their hometowns for better career opportunities and changing to nuclear families from a joint family structure are emerging as common phenomena. Such changes are resulting in a gap between the conventional Indian perception of ageing and wellbeing and the real scenario. The dependent age group persists but without natural caregivers. They suffer from losing family ties, loneliness and associated difficulties in everyday life[41]. This situation has also resulted in contrasting behaviour in many ageing households as they enjoy their economic and social independence over the conventional system of family dependency, indicating different life choices and associated age specific requirements[38,42]. The conventional system of Indian society cannot be ignored, and both scenarios are to be considered while planning for ageing.

However, it has been observed that studies on age-friendly cities and communities identified from published researchers are quite rare in India, which shows the pressing need for such studies in the Indian context[43]. Although the concept of ageing and associated requirements are contrasting between the Western countries and India, the ageing theories, planning strategies addressing the overall ageing population, and their objectives are considered the broad umbrella for identifying the basic thrust areas. As discussed in the earlier section, to incorporate relevant, contemporary and specific need-based solutions, the thrust areas are further analysed and converted into multiple measurable indicators in the Indian context taking the perception of senior citizens into account.

Aim of the study

The present study aims to advance, refine and expand the existing body of knowledge by developing a methodology for systematic inquiry on the age-friendliness of a city by focusing on the urban communities, which would aid in framing tailor-made policies and strategies. The present study relies on understanding the specific problems of the senior citizen population of the study area that are dependent and extremely vulnerable to various endogenous and

exogenous shocks as a result of rapid urbanization and resulting physical, socio-economic and cultural changes in the urban setting. This is exploratory research to identify a set of measurable indicators under three dimensions – social, physical and economic, for assessing the age-friendliness of cities and urban communities as a mechanism or an instrument to reduce discrimination and to provide special protection to vulnerable groups, thereby enhancing their overall wellbeing. The checklist should be framed considering how older people work and live as they age, the changes in health, lifestyle, behaviour and cognitive capacity.

Inferences from the existing literature

As discussed in the theoretical bases, researchers have explained the needs and rights of senior citizens' expectations from the city or urban community for their wellbeing. Such needs are associated with various theories of ageing, which explain the sociological and psychological understanding of the process of ageing. As the theories discuss multiple foci of ageing, it can be observed that they have underlying dimensions. The dimensions can be classified into social, physical and economic similar to the needs and requirements identified in various researches[44–82]. A few examples of a dimensional grouping of foci of ageing derived from ageing theories are demonstrated in Table 1.

Now, the age-friendliness of cities and urban communities can be achieved by addressing the three-dimensional requirements in finalizing measurable indicators of age-friendliness and future policy frameworks. Accordingly, the authors have identified thrust areas under social, physical and economic dimensions addressing the stated issues and challenges from the existing literature on ageing, considering the strategic objectives of WHO[13,18] as three pillars for age-friendly interventions. Table 2 shows examples from each of the strategic objectives. The detailed list can be found in the supplementary material.

Methodology and analysis

Selection of Kolkata, a city in West Bengal, India, as the case study region

From the data gathered from the Census of India[31–33] and a study by Roy Bardhan[83], it has been observed that the population of Kolkata has decreased for the age group of 0–34 years, which indicates the increased number of senior populations. As per the report by *Times of India*[84], the city of Kolkata is an ageing metropolis as the percentage of senior citizens in the city is the largest among the entire nation. This is mostly because the 20–24 years and 25–29 years segments of the young population are leaving the city either for education or employment resulting in an increased sixty-plus population in the city. The working group is gradually diminishing, creating a change in the socio-economic structures of the family, especially for the senior citizens living alone in the city. The dependency ratio in the city is also increasing continuously. Studies have shown that the ageing process impacts the quality of life and happiness of senior citizens in the context of an ethnographic study of West Bengal[85]. Along with the changing socio-economic scenario, families or single senior citizens are additionally affected by loneliness, living arrangements and different types of disabilities[83]. Moreover, the ageing process takes a toll as most senior citizens live alone under the age-old idea of traditional family living, expecting support from their children by physically being there. With the unmatched value system with the young generation, changing population share, and increasing dependency ratio, the senior citizens of Kolkata are in dire need of age-friendly communities. Kolkata being an old city following the traditional family system, has never felt the need for planning communities focusing on the needs of senior citizens as it grew organically. It was inevitable that the family members would look after them. However, with the advent of the nuclear family concept, allowing children to leave home for better education followed by better employment opportunities, the entire scenario has changed. In the present situation, a support system for senior citizens living alone in Kolkata is very less compared to the proportion of the senior population. Moreover, geriatric care is not very efficient in Kolkata with its overall poor healthcare system[86]. Therefore, to create an inclusive city and provide a better quality of life, to ensure the well-being of the seniors of the city, it is imperative to formulate city and community levels strategies and policies for age-friendliness. Considering these factors, the present study has identified Kolkata as the case study region.

Methodological framework

Figure 1 shows the methodological framework followed.

Focus group discussion and results: The discussions were conducted at selected locations in the city with some fundamental differences in morphology of the areas and demographic profile of citizens staying in these locations, viz. Baguihati, Dhakuria, Behala and New Town. The invite for participation was distributed through the local clubs and non-profit organizations (NGOs) so that it could encompass different income categories. This was done to avoid any biased or skewed perspective amongst the participants in focus group discussion (FGD) and to obtain diversified perspectives. The number of participants was between 10 and 12, and participation was voluntary. The purpose of the FGD was to receive people's perceptions, examine the applicability of the thrust areas derived from the pool of literature in the city's context, and add to the same. The questions were mainly open-ended to give scope for the free flow of ideas and interaction. Considering the thrust

Table 1. Identifying three dimensions from ageing theories

Examples of foci of ageing as discussed in theories and models	Dimension
Involvement with family and society; defence against negative attitude towards elderly; societal bias for resource allocation, dignity and importance of individuals, supportive environment, social interaction, age-specific responses in resource allocation, home and institutions leading to life satisfaction.	Social
Change of activity, physical design of neighbourhood, housing and transportation systems.	Physical
Economic status, new opportunity for community services and employment status.	Economic

Table 2. Thrust areas under three dimensions

Strategic objectives by World Health Organization	Thrust areas		
	Social	Physical	Economic
Foster older people's autonomy	Dignity, integrity	Appropriate assistive devices	Independence, financial resources
Enable older people's engagement	Role-playing in making society inclusive, contributing to society	Accessible built environment; accessible transport; control over life; accessible outdoor spaces and buildings	Economic contribution to family, act as consumers, act as workers
Promote multi-sectoral action	Social protection systems	Functional ability/ability to be mobile	Contribution in labour force

areas (Table 2) as the bases of the open-ended questions, they were grouped under certain broad components based on WHO[13] prescription and other existing literature to channelize the discussion into the proper direction to obtain some context-specific responses such as 'involvement in decision making at community level often remains unappreciated', 'lack of sensitivity towards senior citizens in public spaces', 'inability to cope up with fast-changing technology' and so on. These bring forward factors like feelings of self-worth, the need for personal assistance and problem in way-finding, regular care and assistance, etc., which have not been identified from the literature review. The components derived from literature review, validated and fine-tuned through FGD, were used to develop indicators that would form the final checklist for assessing the degree of age-friendliness of cities and urban communities. The entire checklist can be found in Supplementary Table 1. After the final set of components was formulated, they were further transformed into measurable indicators based on their purpose. Detailed list is given in supplementary Table 2.

Questionnaire survey: The participants rated the indicators in 6-point Likert scale starting from 0 = not applicable to 5 = most important. The bases for questionnaire survey are explained in Figure 2. The examples from the questionnaire are shown in Supplementary Table 3.

Sample size calculation: For calculation of sample size for questionnaire survey, Cochran's[87] formula was used.

$$n_0 = z^2 p(1 - p)/E^2,$$

where E is the desired level of precision (i.e. the margin of error) and p is the (estimated) proportion of the population which has the attribute in question.

By putting the values in the formula, the estimated minimum sample size was 138. For the present study, the sample size was 164. The senior citizens were contacted through the various NGOs and the surveys were conducted in four different locations of Kolkata as discussed in the earlier section.

Ranking of the indicators: The indicators were ranked as per their priority to the senior citizens according to their perception of an age-friendly city. The ranking has been done using the Ridit method, followed by the Kruskal–Wallis test. From the result of the Ridit analysis, based on the scores of each indicator, priority ranking was obtained. The ranking details are given in Supplementary Table 3. Ridit is a distribution-free and assumption-free analysis, first proposed by Bross[88], and has been proved as an easy and valid technique in various studies for explaining the data obtained in a Likert scale, specifically for a small sample size without a specific distribution[89–92]. The entire result can be found in Supplementary Table 4. The low rank of indicators (such as 82, 81 so on and so forth) highlights the priority for policy measures for that indicator, and gradual high ranking shows less priority requirement for policy measures. Kruskal–Wallis test was performed to test the homogeneity of Ridit. Kruskal–Wallis test revealed that the scale items were statistically different and significantly higher than the χ^2 value for the degree of freedom, i.e. $m - 1$ was 163. Here the number of respondents was 164.

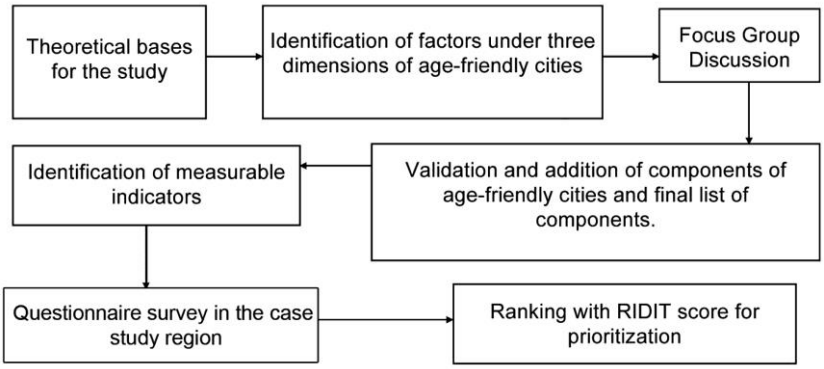

Figure 1. Methodological framework.

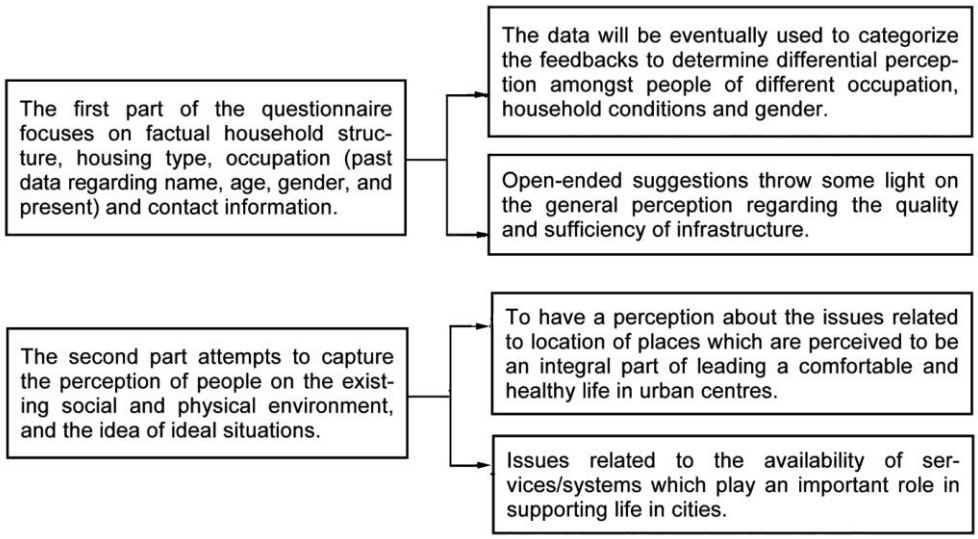

Figure 2. Bases for questionnaire survey.

Discussion

At the beginning of this article, we pointed out the importance of acquiring local scale facts and figures to be integrated into the planning process to create 'future-proof cities'. Further, in the context of city-level or regional-level development, some fundamental questions had been identified regarding the identification of target groups, their participation in the planning process through their perception and observation-based approaches, addressal of the issues associated with inclusiveness and avoidance of specific urban problems. It has been established by the literature that the rationale of the decision-making is often clouded by capturing single issues –social, economic or physical instead of collective and specific issues, and non-participation of the target group, leading to the irrelevance of the entire outcome. In this study, we formulated a research methodology dealing with the specific planning problem of addressing singular generic issues. Here, the unique characteristics of different cities and urban communities and the participation of target group in the planning process through their perception and observations have been considered as two fundamentals. Accordingly, the methodology discusses the use of tools and techniques like FGD and perception surveys to pinpoint the thrust areas and further extract the measurable indicators. Though the study is concentrated on Kolkata, the methodology is applicable to different cities with different social-economic-physical characteristics and demography. It has tried to address the debate on urban informality, limitations of city planning and the city's right to design a sustainable city or community or reclaim urban spaces based on the principles of equity, freedom, dignity, solidarity and social justice described by Lefebvre. The study has made two major contributions to the body of knowledge – (i) developing a scientific approach for extracting and categorizing age-friendly city design components under physical, social and economic dimensions, (ii) identifying measurable indicators of age-friendliness and prioritizing them for future policy framework based on users' perception. The contributions are

made based on the idea of integrating coping mechanisms on the basis of contemporary issues and challenges[4]. By recognizing the needs of every segment of society, every city is unique and characterized by its communities with various population groups. This leads to the perception-based measurable indicators and an entire process focusing on just cities, inclusive cities, which goes beyond the best practices[5].

Grouping of components into three categories

An exhaustive review of literature on theories of ageing with a particular focus on the age-friendliness of cities and the associated wellbeing of senior citizens has been done with an overarching consideration for the three strategic objectives of WHO. However, a need was felt for systematic categorization of age-friendliness components for a holistic understanding. This need was strengthened by the research findings, which suggested that the wellbeing of senior citizens can be ensured by adopting a holistic approach considering exclusively the social, physical and economic components.

Moreover, most sociological theories and models of ageing rely upon these three clearly distinguished yet overlapping dimensions. Accordingly, the present study has tried to classify and group the components and their indicators into three dimensions based on their characteristics and focus. The indicators mentioned in this study are tangible and measurable and address the specific requirements of the target group. Grouping them into specific categories will increase clarity, reduce overlaps and help the policymakers develop actionable agenda for creating age-friendly cities and communities post-prioritization.

Identifying and prioritizing perception based indicators

The process of framing city-specific contextual strategies and policies based on a prioritized list of indicators becomes robust when the perception of the target group on their well-being is taken into consideration. The selection process of age-friendly indicators needs to be guided by their perception based on their experience and felt future requirements. This study has indicated the significance of the perception of senior citizens as a tool for identifying thrust areas of concern followed by measurable indicator selection and further creating a basis for policy interventions in designing age-friendly cities and communities.

In the present study, the final checklist of indicators has been derived from the insight of senior citizen residents of Kolkata based on their experience in the city. The participants rated the indicators based on their perception of well-being, their knowledge about their city and neighbourhood and their everyday experience of living in the same. Therefore, the priority of an indicator is suggestive of the existing condition of the study area, highlighting the thrust areas for policy intervention in order to achieve age-friendliness. From the results, in Kolkata, the indicators under economic and physical dimensions are of topmost priority for policy interventions to achieve a higher degree of age-friendliness.

Analysis of the respondent's feedback has indicated high satisfaction on indicators like social bonding, productive participation in society, availability of domestic help, and compatibility with the neighbours. Conversely, economic indicators like the extent of benefits obtained from the workplace, levels of comfort in the workplace, employment opportunity, or job satisfaction have received the lowest rating, implying a higher priority on the intervention list. Additionally, the physical indicators like universal design in public areas, signage, urban amenities and infrastructure have got low ratings suggesting the poor performance of the case study area against these parameters. This is a matter of concern since these factors are highly recommended by the theories on ageing, and a low score obtained by a city against these factors will prohibit productive and dignified inclusion of senior citizens in society, thereby having a negative impact on their overall well-being.

Conclusion

Deriving from globally accepted theories and models on ageing, the well-being of senior citizens, and the right to the city, the study has established the importance of socio-cultural and demographic context while finalizing the components and indicators of an age-friendly city. These indicators, identified based on established contemporary research and international and national guidelines on age-friendly cities, have been ranked by respondents from the target group based on their perception and experience. RIDIT analysis has been used for further sorting and prioritizing them.

The outcome of this study is thus a checklist of social, physical and economic indicators which can be used to measure the age-friendly quotient of any city or urban area considering their socio-economic context. In India, there is an increasing concern for the inclusion of vulnerable groups into mainstream planning, as is evident from many schemes and projects of the Government of India. In addition to various subsidies, concessions, health benefits and social protection schemes which are available for the elderly people in the country, Accessible India Campaign (Sugamya Bharat Abhiyan) particularly highlights the need for the creation of an elderly-friendly barrier-free environment in buildings, public toilets, buses, bus stands, airports and other public places to create age-friendly cities. In this context, a practical application of this research will be in developing a framework for policymakers and urban local bodies to draft realistic and grounded policies and strategies for designing age-friendly cities and urban communities. For example, for

the extent of benefit obtained from the workplace, the existing guidelines can be revised; not only the universal toilet and ramp but age-friendly and inclusive architectural design guidelines considering anthropometry and geriatrics can be included in the building codes; urban design guidelines can be formulated considering the priority in the checklist. The proposed framework will be useful to specifically identify areas requiring immediate intervention for improving the age-friendly quotient of a particular city or urban area.

However, as discussed in the beginning, the present urban development projects look at the development from a generalized point of view which might limit the extent of using the comprehensive checklist, updating it depending on the location-specific changing needs and mainstreaming the idea of including senior citizens into the planning process. The way forward is to mainstream the practice and bridge the implementation gap in urban development. The concept would act as an overarching phenomenon, a way forward to make urban local bodies, planning authorities, and policymakers understand how to implement the concept and prepare perception-based proposals. The authors recommend sensitization and awareness generation at different levels to make planners and policymakers knowledgeable about the benefits of designing age-friendly urban communities and cities. Additionally, there is an urgent need for mandatorily integrating guidelines for age-friendly design in planning manuals at every stage, starting from data collection, planning, implementation, feedback, monitoring and review.

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