

Impact of Urban Sprawl on Human Health and Sense of Community

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Abstract

Sprawl areas have homogeneous land-use and devoid of essential services required to lead daily life. Providing public transportation to those areas is not feasible due scattered nature of settlement leading to use of more own vehicles and restricted walking which adverse effect individual's health and miss out the benefit of usual walking as part of everyday life. Lack of casual interactions between neighborhoods leads to may miss out of social life and sense of community. The study aims to assess the impact of urban sprawl on human health and sense of community in Mysore Local Planning District. The primary survey using structured questionnaire has been adopted. The questionnaire was served to randomly selected dwellers of newly developed residential layouts at the outskirts of Mysore city and obtained answers. Most of the layouts residents use own vehicles to visit services such grocery shops, vegetable shops etc., places of worship and nearest Banks, ATM and Post office etc. due to distance factor and lack of public transportation resulting in restricted walking and other physical activities. And also residents of those locality miss out of social life (networks, norms and social trust), casual interactions between neighborhoods etc. due to scattered housing. The study aids the concern authorities to look into the problems of neglected outskirts orphan newly developed residential layouts thereby support the drive to achieve sustainable urbanisation in Mysore city.

Key words: Urban sprawl, Human Health, Sense of Community, Social life, Distance factor

Date of Submission: 10-09-2021

Date of Acceptance: 26-09-2021

I. INTRODUCTION

One of the issues associated with rapid urbanization is sprawl. It is a multi-dimensional phenomenon that could be a process of development or a stage in a development process and not a static condition. Harvey and Clark (in 1965) defined sprawl as continuous low density residential development at the fringe of a metropolitan area, as ribbon low density development along highways and as leap frogging development within undeveloped land leaving a spatial patchwork. The Sierra Club (1998) defines sprawl as "low-density development beyond the edge of service and employment, which separates where people live from where they work and therefore requiring cars". Sprawl is a rapidly growing low-density development along the outer reaches of city by encroaching prime agricultural and resource land in a fragmented, piecemeal fashion (Torrens and Alberti 2000; Angel et al. 2007; Darío, 2014). In recent decades, sprawling has become a common phenomenon not only in tier-I cities but also in tier-II cities of the developing countries which cautioned an urgent need for detailed investigation of the issue and arriving possible solutions.

Compared to a compact form of urbanization, sprawl is a scattered development beyond the city limits owing to unchecked encroaching of the open spaces and agricultural fields. Sprawl is also characterized as homogeneous land-use whereas in compact city mixed use is common. Studies have proved that sprawl characteristics promote regional and local unsustainability.

Urban sprawl is a multi-faceted phenomenon driven by several factors such as population growth, rising incomes, dominance of private cars, range of inner city problems, people's desire of living with nature, unsuccessful enforcement of land use planning, an extension of transportation, fall of commuting costs and finally growth of ITC (Glaeser and Kahn, 2003; Christiansen and Loftsgarden, 2011; Joshi, 2011; Ohri, et al., 2012; Deka, et al., 2012; Antonio, 2014; Silambarasan et al., 2014). However, it is not so easy to declare that which factor causes sprawl as involved reasons are strongly inter-connected one another and also influences each other.

People of sprawl region inevitably depend upon their own vehicle to commute for daily routine life right from going for work, shopping, schools etc. which will generate cascading effects relating to traffic to human health on both sprawl and city people (Glaeser and Kahn, 2003; Ojima, R., and Hogan, J.D., 2009). The haphazard built-up growth threatens sustainability of region. Sprawling is becoming a universal problem and regarded as a huge threat to sustainable urbanization.

People who live in sprawl locality likely to walk less than people who live in less sprawling inner city. Scattered distribution of houses encourages use of more own vehicles for each and every purpose that they make trips. To get the daily essential services such as vegetables, milk, grocery, medicines etc. walking is commonly preferred but in sprawl areas vehicle dependency restricts walking and other physical activities that have an adverse effect on individual's health causing life style diseases like obesity, diabetes, hypertension and cardiovascular problems (McCann and Reid Ewing, 2003; Giles-Corti, 2006; Garden and Jalaludin, 2009). People in sprawling areas may be missing out on significant health benefits that are available simply by usual walking as part of everyday life. Sprawl zones are characterized by low-density, poorly connected street networks and poor access to shops and services resulting in low level of walking.

Another potential impact of urban sprawl is on sense of community. Intermingling with fellow residents of neighborhood by sharing common parks, public open space, playground and using public transport etc., enable participants to effectively pursue joint objectives and cooperation for mutual benefit. However, in case of sprawl neighborhood remains unknown due to scattered nature of houses which resulting in reduced local walking, affects opportunities for casual interactions between neighborhoods (Giles-Corti, 2006; Garden and Jalaludin, 2009). Access to convivial neighborhoods not only encourages more walking but also encourages interactions between neighbors. Thus, it increases sense of community or sharing common social life which influence to have positive mental and physical health in local residents.

II. OBJECTIVE

To assess the impact of urban sprawl on human health and sense of community in Mysore Local Planning District.

III. STUDY AREA: MYSORE LOCAL PLANNING DISTRICT

The study area of the work is Local Planning District of Mysore city, headquarters of the Mysore District of Karnataka state, India.

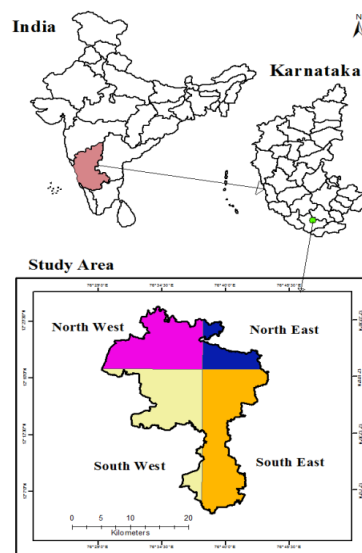


Figure -1: Study Area: Local Planning District of Mysore

It spreads over an area of 507.72 sqkm. It lies between 12° 14' 41" to 12° 22' 25" N latitudes and 76° 34' 20" to 76° 43' 23" E longitudes. The Mysore district shares boundary with Tamil Nadu state to its southeast, the Kodagu district to its west, Mandya district to its north, Hassan district to its northwest and Bangalore district to its northeast. The northern part of the city is drained by river Cauvery and the south is drained by the river Kabini. The Mysore city blessed with several tanks and lakes across the city and in its outskirts. The built-up of Mysore city extends from 80.71 sqkm in 2000 to 226.72sqkm in 2016. This has caused a drastic land-use land-cover change especially at outskirts of the city. The study of urban growth using landscape metrics and

Shannon entropy in the Mysore city reveals that urbanisation has become more dispersed and fragmented especially towards south direction of the city and dispersed growth or sprawling is shifting from inner zones to outer zones of the Mysore city (Manjunatha and Chandrashekhara, 2021).

IV. METHODOLOGY

To assess the impact of urban sprawl on human health and sense of community in the Mysore LPD, “questionnaire survey method” has been adopted wherein; a structured questionnaire is provided to randomly selected residents of newly developed layouts at the outskirts of the city to obtain answers. For the purpose of micro level analyses, the study area has been divided into four zones based on directions such as a) North-East b) North-West c) South-East and d) South-West. The primary survey has been conducted and answers are obtained from residents of newly developed layouts of all four zones separately. Overall 200 residents with 50 from each zone have been met and collected data regarding extent of own vehicles use for their daily activities.

The questionnaire includes distance (in km) of grocery shops, vegetable shops etc., places of worships, Banks, ATM and Post office etc. from home and mode of transportation used to visit them by residents. Besides, to check level of sense of community, involvement of layout dwellers in local community organizations, meetings and interactions, recreation activities and local festival celebrations has been investigated. The collected data has been analyzed using Microsoft excel and SPSS software.

V. Impact Of Urban Sprawl On Human Health And Sense Of Community

If the services such as grocery, vegetable shops, places of worships and Banks, ATM and Post office etc. which are most essential services of daily life located close to home, people may go by walk but people have to depend on vehicles to visit them if they located far away from home. The distance of these services located from home determine the mode of transportation using to visit them. Generally, sprawl areas have dispersed group of houses having homogeneous land-use, essential services required to lead daily life are located away from the locality and public transportation system is not feasible due scattered nature of settlement. Hence, residents of these localities have to depend on their own vehicles for their outside visits. This has resulted in use of more own motor vehicles for each and every purpose that they make daily trips, restricts walking and other physical activities that have an adverse effect on individual’s health and may be missing out on significant health benefits that are available simply by usual walking as part of everyday life. Residents of such locality may not able to form any societies or associations due to unknown neighborhood. Consequently, residents of those locality may miss out of social life (networks, norms and social trust), casual interactions between neighborhoods etc. In this background, study includes the analyses of urban sprawl impact on human health and sense of community in the Mysore city.

Table 1: Distance of grocery, vegetable shops etc. from home and mode of transportation

Zones	Mode of Transportation	Within 1 km	1-2 km	2-3 km	Above 3 km	Total
North-East	Walking	28	-	-	-	28
	Own Vehicle	30	38	12	-	72
North-West	Walking	20	-	-	-	20
	Own Vehicle	15	46	19	-	80
South-East	Walking	22	-	-	-	22
	Own Vehicle	16	52	10	-	78
South-West	Walking	12	-	-	-	12
	Own Vehicle	8	72	8	-	88
Total	Walking	20.5	-	-	-	20.5
	Own Vehicle	15.25	52	12.25		79.5

Source: Field survey conducted in 2019

Table 2: Distance of places of worships from home and mode of transportation

Zones	Mode of Transportation	Within 1 km	1-2 km	2-3 km	Above 3 km	Total
North east	Walking	34	-	-	-	34
	Own Vehicle	10	48	8	-	66
North west	Walking	20	-	-	-	20
	Own Vehicle	8	54	18	-	80
South east	Walking	28	-	-	-	28
	Own Vehicle	15	48	9		72

South west	Walking	15	-	-	-	15
	Own Vehicle	7	64	14	-	85
Total	Walking	24.25	-	-	-	24.25
	Own Vehicle	10	53.5	12.25	-	75.75

Source: Field survey conducted in 2019

Table 3: Distance of nearest Banks, ATM and Post office etc. from home and mode of transportation

Zones	Mode of Transportation	Within 1 km	1-2 km	2-3 km	Above 3 km	Total
North east	Walking	16	-	-	-	16
	Own Vehicle	18	50	16	-	84
North west	Walking	8	-	-	-	8
	Own Vehicle	16	68	8	-	92
South east	Walking	15	-	-	-	15
	Own Vehicle	26	23	36	-	85
South west	Walking	6	-	-	-	6
	Own Vehicle	10	40	44	-	94
Total	Walking	11.25	-	-	-	11.25
	Own Vehicle	17.5	42.25	26	-	88.75

Source: Field survey conducted in 2019

About 79.5%, 75.75% and 88.75% residents of surveyed layouts use own vehicles to visit grocery shops, vegetable shops etc., places of worship and nearest Banks, ATM and Post office etc. respectively. Such services are located more than 1 km away from the most of respondents who are using own vehicles to visit. Hence, residents of all such homes inevitably use own vehicles to visit them as walking is not possible. If those services are located within 1 km from their home, people may visit by walking as it is generally considered to be a walkable distance. Majority of the surveyed residents who are having such services within 1 km from their home visits by walking except in case of Banks, ATM and Post office etc. people use own vehicle even they located within 1 km from their home. Residents of South-West followed by North-West direction use relatively more own vehicles to visit grocery shops, vegetable shops etc., places of worship and nearest Banks, ATM and Post office etc. (Table – 1 to 3).

Table 4: Involvement in local community organizations/societies

Directions /Response	Involvement in local organization	
	Yes	No
North-East	4	46
North-West	7	43
South-East	6	46
South-West	3	47
Total	20	180
% of total	10%	90%

Source: Field survey conducted in 2019

Table 5: Meetings and interactions in local community organizations/societies

Directions /Response	Meeting and Interaction	
	Yes	No
North-East	3	47
North-West	6	44
South-East	4	46
South-West	2	48
Total	15	185
% of total	7.5%	92.5%

Source: Field survey conducted in 2019

Table 6: Recreation activities held by local community organizations/societies

Directions /Response	Organization hold recreation activities	
	Yes	No
North-East	3	47
North-West	6	44
South-East	3	47
South-West	2	48
Total	14	186
% of total	7%	93%

Source: Field survey conducted in 2019

Table 7: Local festival celebrations in their locality

Directions /Response	Local festivals celebration	
	Yes	No
North-East	-	50
North-West	-	50
South-East	-	50
South-West	-	50
Total	-	200
% of total	-	100%

Source: Field survey conducted in 2019

About 90% surveyed residents have no membership or involvement in any kind of local community organizations/associations. Most of the residents of surveyed layouts of all the four directions of Mysore LPD don't have membership or involvement in any local community organizations/associations due to absence of organizations/association in their locality. About 92.5% residents haven't meet or interact with neighbors in their locality due to lack of associations and societies with there is no marked difference among the zones. About 93% residents said that, no kind recreational activities or games held regularly by local organization in their locality. All the surveyed residents opined that there are no local festival celebrations in their locality due to absence of any organizations/associations to organize such events and unknown neighborhood (Table – 4 to 7).

VI. CONCLUSION

Sprawl forces people to depend on own vehicles for daily services due to distance factor and lack of public transportation resulting restricts walking and other physical activities. This result in adverse effect on individual's health and may be missing out on significant health benefits that are available simply by usual walking as part of everyday life. Residents of those locality may miss out of social life (networks, norms and social trust), casual interactions between neighborhoods etc. due to scattered housing. The study reveals that most of the layouts residents inevitably using own vehicles to visit due to far location of such services beyond walkable distance. When services are available within 1 km from their home, residents prefer walking. These areas are devoid of societies or associations usually formed by neighborhood to solve common problems relating to their locality mainly due to unknown neighborhood. Therefore, residents of such locality may miss out of the several mutual benefits.

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Manjunatha, C.S, et. al. "Impact of Urban Sprawl on Human Health and Sense of Community." *IOSR Journal of Humanities and Social Science (IOSR-JHSS)*, 26(09), 2021, pp. 37-42.