Resident's Perception of Safety in Planned Residential Neighborhood of Kathmandu

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Abstract

Kathmandu valley has been urbanizing rapidly but the planning of neighborhoods is limited to land readjustments and housing developments. The focus of such development is to provide either the service plots or ready to move in housing stock. Residential Environment Satisfaction (RES) has been used as a concept to measure the perceptual dimension neighborhood planning. Moreover, neighborhood safety is a key priority while considering RES. This paper aims to examine the relationships between various factors related to the safety as a measure of the RES in the planned residential neighborhood in Kathmandu Valley. Since the planned cities or communities seem to have better residential satisfaction, the case study area surveyed upon is Purano Sinamangal Town planning, a land pooling area nearly at junction to three major districts of Kathmandu valley. Various factors have been taken as a measure for neighborhood safety including physical and socio-psychological variable. This research is based on a mixed method. A figure of 109 households was determined as sample household size and individual representatives were interviewed for the survey. The research finds that perception of safety is very high depending on the ethnic groups while it is also significant in case of occupation that the respondent holds. The reason for safety highly was found to be dependent upon good street design, the presence of good neighbors and provision of security patrols. Also, annoyance factors such as disturbances from street and vehicles, crimes, neighborly disputes were found to make the neighborhood unsafe. The research concludes that safety is a major concern for RES and it had been perceived by the residents through significant of good neighborly relation and safety measures in road planning and design.

Keywords: *Neighborhood safety, Residential Environment Satisfaction (RES), Planned neighborhood*

Background

Past several decades of the urban development in Kathmandu valley has witnessed the growth of planned residential development by both public and formal private sectors. The predominant mode of the planning of such planned development is based mostly on land readjustment technique and housing developments by public and private sectors respectively. It is observed that the focus of such development is to provide either the service plots are ready to move in housing stock. In the process, the grid iron planning approach is used without considering much on the perceptual dimensions of residential neighborhood planning.

A neighborhood can be defined as a place where an individual has certain inherent personal and property rights, which include control over his home or business and their immediate surroundings (Gardiner, 1978). Residential Satisfaction (RS) has been used as a concept to measure the perceptual dimension neighborhood planning. Several types of research (Cheng and Smyth, 2015) on safety factors in residential neighborhood find that a safer dwelling or neighborhood unit has a direct impact on residential environment satisfaction. Health, safety, distance proximities, services, and environmental qualities are discussed as paramount factors for the sense of safety in a residential neighborhood. Among these various factors,

safety has been considered one of the major factors which are measured through physical dimensions of the residential neighborhood including the street design, the presence of amenities such as street lights, and even security patrols; and socio-psychological dimensions like good neighborly relation. The factor of residential stressor is seen as crimes presence in the past and also the disturbances due to vehicular movements that include both noise and accidents.

Neighborhood safety is a key priority while choosing to reside in a residential environment. Psychologically, a content and satisfactory feeling develop due to a safer feeling. A residence might be built considering all the safety measure but if the surrounding neighborhood is found unsafe, then overall safety of living in such premises is affected. Residential stress might develop due to unsafe feeling and this discontent feeling is the factor for switching into a safer neighborhood. This paper aims to examine the relationships between various factors related to the safety as a measure of the RES in the planned residential neighborhood in Kathmandu Valley.

Safety and Residential satisfaction

The issues of quality of life in cities, public satisfaction and sustainable development are the subject of intense attention of researchers worldwide. And the crucial factor is whether the issue of residential satisfaction encompasses both housing and neighborhood satisfaction (Hanák et al., 2015). RES is a multi- faceted and multi- layered satisfaction that contains the people-dwelling relations (Gemenetzi, 2018). 'Dwelling' is the generic term that is used to describe all physical structures used by people for a living that differs from the term 'house', (c.f. Coolens and Meesters, 2011). There is no universally accepted dimension, shape, or form to a neighborhood. A neighborhood can be any size depending on the person defining it (Gardiner, 1986). It includes not only physical factors (such as shops, school, parks, church, playground etc), but also socio-psychological functions, for example family life, safety and privacy (c.f. Coolens and Meesters, 2011), integration into the community (c.f. Grillo et al., 2009) and lifestyle (c.f. Jansen, 2012). A study by Galster and Hesser (1981) also supports that there are contextual and compositional factors in the process of residential satisfaction, the first being the physical characteristics of individual's dwelling and the latter being characteristics of the individual household, especially social class and stage of life cycle. Furthermore, Smith (2011) points out that it is through aspects such as the provision of open spaces, the reduction of car travel and increase in pedestrian traffic, and architectural designs that foster social interactions, a strong sense of community is developed and personal and property safety is increased.

As per Hanak et al. (2015), safety, good public transport, and noise levels were the most significant indicators found in research for life satisfaction. These are found to be the prominent factors for RES. In addition, Amerigo and Aragones (1997), mentions that regarding the neighborhood area, there is an important dimension: the residential safety perceived.

According to Cheng and Smyth (2015), living in a safe neighborhood has a positive effect on happiness. The amount needed to compensate someone for living in an unsafe, or neutral neighborhood, as opposed to a safe neighborhood, is 1500% of annual household income, which is much higher than the shadow price suggested in studies for the United States and the United Kingdom. Even the traveling sites such as TripAdvisor, lonely planet and such have safety perceptions while traveling; this shows that even while traveling for a short time safety matters, then living daily in a safe neighborhood is a high priority. Choice of living is

highly dependent on perception of safety in Nepali neighborhoods as well. Also, according to Speare (1974), i.e the stress-threshold model (c.f. Wolpert, 1965; Brown and Moore, 1970) assumes that people do not consider moving unless they experience residential stress and annoyance due to unsafe feeling is one of the factors for residential stress.

Various factors have been taken as a measure for neighborhood safety including physical and socio-psychological variable. Physical factors such as inter-connected roads and also pedestrian or non-motorized access roads for the neighborhood-scale residential roads promote neighborhood road safety (APA, 2012). Amenities such as street lights, CCTV cameras are deliberately placed to increase safety as well. Social crimes are seen as socio-psychological measure and researches (Gardiner, 1978) tell that our urban environments can be designed or redesigned to reduce the opportunities for crime to occur. Perception of life satisfaction is also dependent on ethnic groups as researched by Knies, et al. (2016). Most of these researches were done by defining the indicators, appointing weightages or ordinal scales and finding correlations and linear regression models by computing the p values.

Research setting

Planned communities are deliberately and carefully designed so all aspects of development are considered before construction begins (Eves et al, 2017 c.f. Smith 2011). The problems are foreseen and the design is carried out such as to solve the problems that might arise. The case study area surveyed upon is Purano Sinamangal Town planning also known as Pepsi-cola. It is Located in Kathmandu Municipality, ward no.35. it covers an area of 35.97 ha. And 1074 plots were allocated in the planning phase. The planning was done by separating the whole area into five of the blocks with an open space at the mid of each. In a spatial way, the reason that it was chosen is that it lies nearly at the junction of the three major districts of the valley namely Kathmandu, Bhaktapur and Lalitpur. This newly built settlement is close to the old Newari settlements like Thimi and Bode. Replacing the agricultural land of these traditional settlements, now this place is valued for its serene environment as well as a preferred neighborhood.

Methodology

This research is based on a mixed method. Sample household surveys were used directly on site through personal interviews and direct observations. The data collection was done through the kobo toolbox and later analyzed using SPSS. A three pointer Likert's scale was mostly used for rating the satisfaction levels and the reasoning was followed up for the satisfaction level. Pearson's chi square test was used to determine the significance of relationship of variables and cases.

$$X^2 = \sum_{i=1}^{n} \frac{(O_i - E_i)^2}{E_i}$$ Where, Oi= observed value; Ei=expected value; n=number of samples

Since a correct figure had not been enumerated yet, so population and household data source was found to be weaker for sampling. Instead, a count of 1286 households was formulated from the mapping of the area. The precision of margin of error as 9% has been chosen for the sampling. It means the data obtained may vary from increasing or decreasing rate of 9%. Also the confidence level of 95% has been used with the consideration that the result obtained is 95% accurate in itself. Thus, out of 1286 household, a figure of 109 households was determined as sample household size and individual representatives were interviewed for the survey.

Data sets and analysis

A sample size of 109 household representatives was surveyed. 51 percent female and 49 percent male were included as per the country's data. Age groups of children, adult and elderly were included in the survey along with the category of major ethnic groups and all possible occupations. The education level of people varied largely from under SLC to master and above level. From the literature and site study, the factors for safety were taken as good street design, the presence of good neighbors, amenities like street lights and security patrols. The factors for unsafe feeling were taken as disturbances from street and vehicles, crimes and neighborly disputes.

Among the total, 40% of the sample felt highly safe while more than half of the representative sample felt moderately safe (59%) while in the neighborhood. A very low percentage (1%) of them felt that the neighborhood is highly unsafe. The data of table no. 1 shows that ethnicity and occupation were significant for the perception of safety determination in the surveyed neighborhood. Ethnicity had higher significance since the p value equaled to 0.001 while occupation had significance with p value nearly 0.05.

The reason for safety highly depended upon good street design, presence of good neighbors and provision of security patrols. Among them presence of good neighbors was found to be highly significant followed by security patrols and good street design. However, it was interesting to know that the amenities of street lights were not found much significant. Also, annoyance factors such as disturbances from street and vehicles, crimes, neighborly disputes were found to make the neighborhood unsafe. The disturbances from streets and vehicles meant the noise pollution and accidents.

Findings and discussion

From the analysis of respondents, the research finds that perception of safety is very high depending on the ethnic groups while it is also significant in case of occupation that the respondent holds. The presence of Bahuns and Chhetri ethnic groups were found very high, and safety was perceived as good for them as for Newars, safety was perceived poor. The reason could be because the Newars are predominantly used to live in a close knitted community with a safer pedestrianized community with more community attachment through the surrounding architecture and landscape. On the contrary, the surveyed area lacks much privacy since the roads are highly connected, lacks cul-de-sacs, and the streets also lack identity and sense of belonging for residential environment satisfaction.

Table 1: Baseline Characteristics of Study Sample According to Perceived Neighborhood Safety (N = 109)

	Highly satisfied	Moderately satisfied	Not satisfied	P value	Remarks
Gender					
Male %	45.3	54.7	0		
Female %	35.7	62.5	1.8	0.398	Not significant
Ethnicity					
Bahun	39.3	60.7	0		
Chhetri	50	50	0		
Kirat	20	80	0		
Newar	47.6	52.4	0		
Others	0	80	20	0.001	Highly Significant

Education					
Masters or above	62.5	37.5	0		
Inter/bachelors	33.3	66.7	0		
Upto slc	27.6	69	3.4		
Under slc	52	48	0	0.131	Not significant
Age group					
Children	12.5	83.31	4.2		
Adult	48.41	51.6	0		
Elderly	47.8	52.2	0	0.131	Not significant
House ownership					
Own	48.3	51.7	0		
Rented	30.6	67.3	2	0.108	Not significant
Occupation					
Agriculture	0.9	0	0		
Business	14.7	13.8	0		
Household	12.8	6.4	0		
Services	6.4	11.9	1.9		
Student	3.7	22	0		
Volunteer	1.8	2.8	0		
Others	0	1.8	0	0.047	Significant

Note

- Neighborhood Safety was categorized according to Likert's scale (highly safe = very safe; moderately safe = safe; not safe = poor)
- All percentages reported taking into account the sampling weights of the household survey
- P-value calculated using chi-square for categorical variables where $p<0.005$ is statistically significant and $p<0.001$ is highly significant.
- Other race/ethnicity includes Gurungs, Madhesi, Thakuri and Dalits.

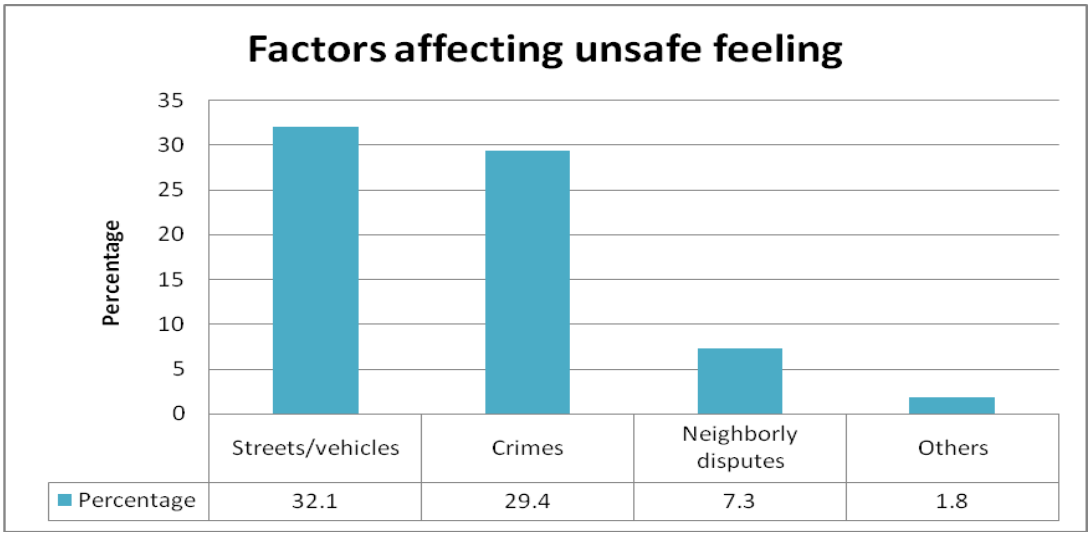
Table 2: Perceived Neighborhood Safety reasons from case study (N = 109)

	Highly satisfied	Moderately satisfied	P value	Remarks
Good street design	21.9	17.1	0.012	Highly significant
Amenities like streetlights	38.1	51.7	0.329	Not significant
Presence of good neighbors	31.7	32.4	0	Highly significant
Security patrol	20	12.4	0.003	Highly significant
Others				

The most significant reason for high safety was found to be the presence of good neighbors. It implies that good neighborly relation can have a higher impact on safer feeling. It is natural to feel good when residents can rely on one another, and the result also shows good neighbors has a positive impact on safety. Good street design was also felt to make neighborhood safe, use of road hierarchy has restricted larger vehicles to enter the local roads. Also, the inter-connectivity is high making it reliable during emergencies like fire and hazards. On the contrary, disturbances from the streets and vehicles are highly seen as the reason for dissatisfaction to safety. Though the roads are highly connected, speed limiting measures and pedestrianizing are lacking, making streets prone to accidents and noise pollution.

The other factor of crime rates that include theft, burglary and illegal activities in the neighborhood was found to be negatively impacting safety. As Gardiner (1978) quotes, the crime-environment relationship is part of a larger phenomenon of urban growth and decay and provides a perspective of why certain areas continue to thrive while others become ghettos. Neighborly disputes are also the variable found to be affecting the safety for residential satisfaction. Since, good neighbors were found to be making the neighborhood highly safe, the result seems relevant that the presence of neighborly disputes makes the neighborhood unsafe.

Figure 1: Bar chart showing factors affecting the unsafe feeling



Conclusion

The research concludes that safety is one of the major concerns for residential environment satisfaction. The feeling safety as expressed by the residents is significant of good neighborly relation and safety measures in road planning and design. Presence of good neighbors provides a safer feeling as a psychological aspect. However the physical aspect such as road design is to be carefully planned avoiding design faultiness like poor footpaths, sharp turnings and too many intersections but rather encouraging pedestrian friendly design with speed limiting parameters and convenient cul-de-sacs if possible.

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