High-density Living in Hong Kong from the Perspective of Teenagers

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Abstract: Being one of the world's densest cities and the most expensive to buy a home, Hong Kong is infamous for inadequate housing and small living spaces. Living under such crowded conditions is often accused of aggravating stress and social problems. However, the effect of high living density on juveniles remain ambiguous. Using a 2017 survey of secondary school students in Hong Kong, this paper examines residential crowding and satisfaction experienced by juveniles with respect to objective densities of their homes measured by number of persons per room. The results suggest for juveniles in Hong Kong high living densities do not necessarily lead to the perception of crowding. Moreover, residential crowding, if perceived by the juveniles, is not directly translated into dissatisfaction. The variables which explain the residential (dis)satisfaction of juveniles are the composition and ethnic and socioeconomic backgrounds of their families. The paper argues that family composition and ethnic and socioeconomic backgrounds contribute to juveniles' varying degrees of tolerance to high living density, which lead to different levels of perceived crowding. The effect of perceived crowding on residential satisfaction is further mediated by the interactions of family members and the overall quality of family life.

Keywords: residential satisfaction, juveniles, housing crowding, family background

Introduction

The high-density living environment in Hong Kong caught the attention of American statistician and planner Robert C. Schmitt half a century ago. "The Colony of Hong Kong is one of the most densely populated territories in the world. Over-all density is 13 persons per gross acre, and individual neighborhoods exceed 2,800. Residential floor space averages 155 square feet per household or 32 square feet per occupant. Unlike congested areas in the United States, however, Hong Kong has relatively low death, disease, and social disorganization rates. These data suggest that density standards recommended by American planners may be unrealistic as requirements for public health and social welfare." (Schmitt, 1963: 210). Today, both the dark and bright sides of the situation in Hong Kong are still present. Schmitt's question on whether high density is harmful to health remains unraveled. Despite Hong Kong's extremely high density, if we look at social order, life expectancy, and mental health, the city is doing much better than many other places. Hong Kong's suicide rate is lower than the United States, the European Union average and certainly Japan where socioeconomic development levels are comparable to Hong Kong, but living densities are considerably lower. Given all this evidence, how can we make sense of Hong Kong's situation? This is a question puzzled Schmitt half a century ago. It is still puzzling us today.

At the same time, Hong Kong is also one of the most expensive cities to live in. For eight years in a row, an international survey of nearly 300 cities has named Hong Kong the world's least affordable housing market. Many Hong Kong citizens have been priced out of the housing market, including young people forced to live with their parents. Their discontent is said to have contributed to recent street protests like the 2014 Umbrella Movement. Young people in Hong Kong are increasingly dissatisfied with inadequate housing and small spaces. With housing prices rising even higher, it is extremely difficult for the young people to obtain a basic living space, let alone developing their housing career. The government of Hong Kong has recognized the housing problem as the most important on both the political and urban development agendas.

Ample space is not always experienced as spaciousness, and high density does not necessarily mean crowding (Tuan, 1977). While the two concepts are related, density is directly measurable and unambiguous, but crowding is intangible and should be understood under specific conditions. Home is the most stable and secure place for humans. Under what conditions density is translated into crowding at home is of great interest and importance. Based on a recent survey, the paper tries to understand how young people in Hong Kong perceive and experience the density of their living environments and how such perceptions contribute to residential (dis)satisfaction.

Conceptualizing density and crowding

Density influences people's behavior, mood, and consequently mental health. We all experience it. Research around the world has found high-density living is harmful to people's mental health, especially that of the children, because their physical and mental states are taking shape. For instance, research in Austria finds there is significant impact of crowding and housing type on children's mental health. Three housing types are examined, detached house, townhouse, and apartment units. Denser housing types are found to be more harmful to children's mental health. For each type, higher density also causes poorer mental health, especially for apartment units (Evans et al., 2002).

By Hong Kong standard, even the type of multi-story apartments in Austria is considered low-density housing. Hong Kong's density is way much higher. While public housing and private housing roughly accommodate 50% of the population respectively, both types of housing are in the form of high-density apartment buildings (Figure 1).

Figure 1. Public (left) and private (right) housing estates in Hong Kong

This level of density is rare in other places. In literature, the condition that is comparable is the density in prison. Research done in prisons in the US found more inmates per cell increases perceived crowding, and consequently increases illness complaints (Cox et al., 1984). In those prisons under investigation, the density is 1 to 6 inmates per cell. Corresponding figures for ordinary families in Hong Kong can be even worse, which will be demonstrated later.

Essentially, there is a distinction between density and the experience of crowding. Density is the physical condition purely in terms of spatial parameters, and crowding is a motivational state aroused through the interaction of spatial, social, and personal factors. Density does not necessarily lead to the experience of crowding. The experience of crowding is also subject to the relationship between people. People with good relationship often find a higher density setting create a more intimate environment that is pleasurable, while for people without social ties or affections, a high-density environment can be unpleasant or even unbearable. On a more general level, how density is perceived also has to do with culture. People with certain cultural backgrounds or in certain cultural contexts perceive density differently.

For the situation at home which is a rather enclosed and stable environment, people's experience of the environment is highly dependent on the relationship between family members. Although higher density is usually perceived as more crowded. Family relationship can moderate the effect of density on perceived crowding. In other words, when one enjoys the intimate relationship with family members, density does not or to a less extent translate into perceived crowding. When family relationship is dreadful, one may feel crowding even when a big house is shared by few people. This is especially the case for children, because they are in a rather passive position in the family and do not command the power to make a change.

Methodology

The first question is how juveniles in Hong Kong perceive their dense living environment and what is the role of family relationship. The hypothesis is density generally predicts perceived crowding, but good family relationship weakens the effect of density on crowding. When family relationship is less gratifying, density will more directly translate into the perception of crowding. To implement the conceptual model statistically, an interaction term is included in the model. If the interaction is significant, the moderation effect of family relationship is detected (Figure 2). The data distinguishes three types of family backgrounds: Hong Kong local families, immigrants from Mainland China, and immigrants from other countries. It is expected the specific cultural background and situation will play a role in these mechanisms.

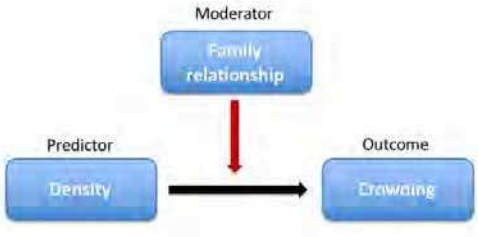


Figure 2. Conceptual moderation model

The second question is in the condition of extremely high density, what factors contribute to residential satisfaction. To identify those factors, a hedonic modelling structure is used to break down residential satisfaction into its constituent characteristics, and then estimate the contributory value of each characteristic. These factors include location, facilities in the neighborhood, size of residence, whether having own space at home, whether like your family and whether like your neighbor, which are aspects that are expected to have effects on the overall housing satisfaction.

To collect data for the proposed analyses, a questionnaire survey was carried out in 9 local middle schools in 2017. A variety of schools were included in terms of their ranking to obtain a representative sample of students of different backgrounds. The age of respondents is about 16 to 17. More than 1000 questionnaires were distributed in class. The response rate was more than 90%, because the teachers set aside time in class and obliged the students to fill in the questionnaires. English questionnaires were provided for non-Chinese students. The final valid sample includes 1213 observations.

Table 1 presents the profile of the sample. The respondents are balanced in gender. Local-born children account for 67%, while 24% were born in mainland China, and 9% were born in other places. Family size varies from 2 to 12 people. The median size is 4. The size of residence varies from 49 sq. ft. to 3000 sq. ft. with a median size of 500 sq. ft. On average, there are two rooms in a home, but many families live in one room and few wealthy families have as many as 8 rooms at home.

Table 1. Profile of the sample

Attribute	Statistics	
Gender	Male	50.7%
	Female	49.3%
Place of birth	Hong Kong	66.8%
	Mainland China	24.4%
	Others	8.8%
Family size	Min	2
	Max	12
	Mean	4.15
	Median	4
Size of residence (sq. ft.)	Min	49
	Max	3000
	Mean	587
	Median	500
Number of rooms	Min	1
	Max	8
	Mean	2.49
	Median	2
Sample size		1213

Considering the students know more accurately about the number of rooms they have at home rather than how many sq. ft there are, the number of persons per room is a more accurate measure of housing density. It is also more widely used in behavioral research. In terms of the types of housing, roughly half of the respondents live in public housing including public rental housing and subsidized

homeownership housing (Figure 3: right). The other half live in private housing. In the most recent census, a smaller percentage of people live in public housing (Figure 3: left), which is understandable because if a family has dependent children, it is prioritized in getting public housing. Consequently, tenants of public housing are overrepresented in the sample, but for families with children, the sample offers a more representative picture.

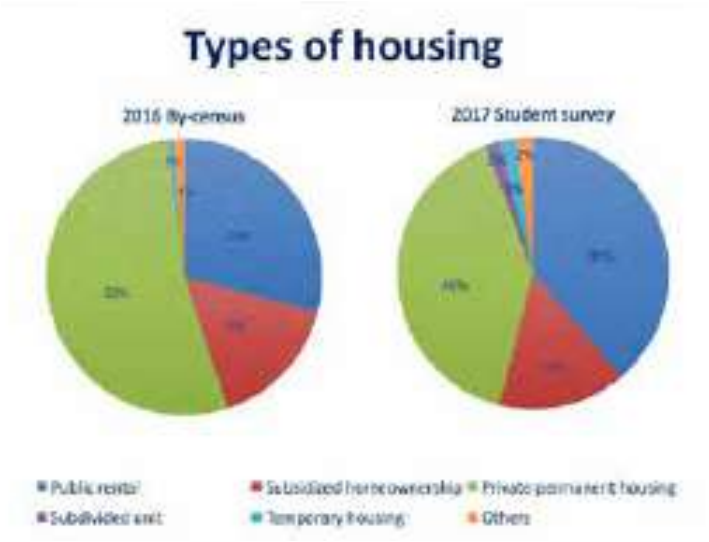
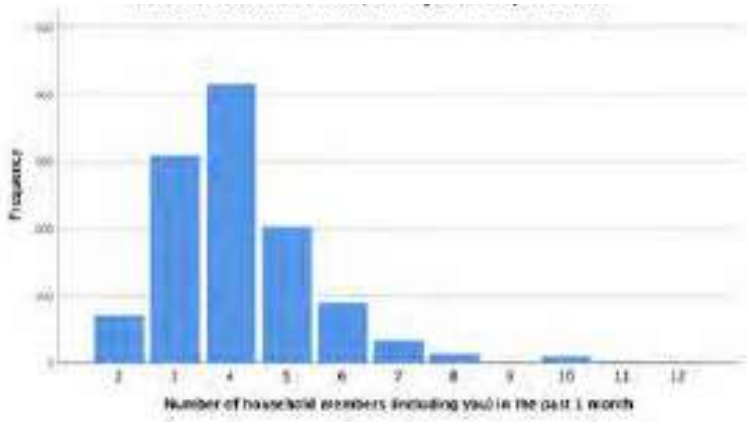


Figure 3. Residential density in Hong Kong

Living density and residential crowding

Family sizes vary from 2 people to as many as 12 people. Most families have 3 to 5 members (Figure 4: top). Numbers of rooms vary from 1 to 8. Most residences have 2 to 3 rooms (Figure 4: middle). Based on the statistics, residential density is calculated (Figure 4: bottom).



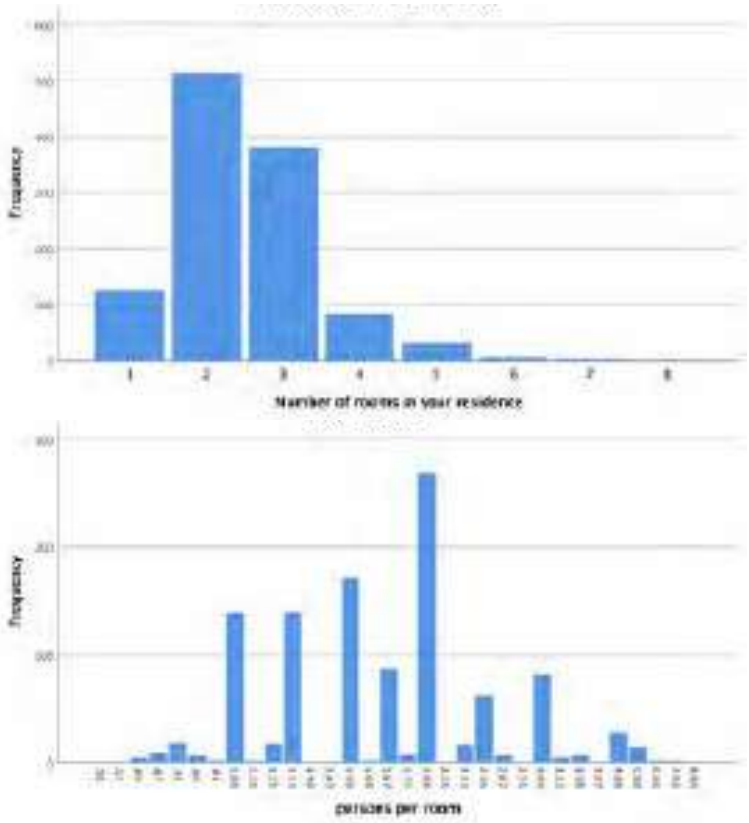


Figure 4. Frequency distributions of family size (top); housing size measured by number of rooms (middle), and residential density measured by number of persons per room (bottom)

In ordinary homes in Hong Kong, residential density ranges from half people per room to 8 people per room. The great majority has to share a room with one or more family members (Figure 4: bottom). Given that the density of prison in the US varies from 1 to 6 inmates per cell, housing in Hong Kong is definitely comparable.

Four statistical models are built to explore whether density is perceived as crowding and whether family relationship mediates the effect. The dependent variable is perceived crowding. Table 2 presents the result for the overall sample regardless of family background, and Table 2-4 present the results for the sub-samples of respondents who were born in Hong Kong, mainland China and other places respectively. For the overall sample, the effect of density is positive and significant; and the effect of family relationship is negative and significant. But there is not mediation effect by family relationship. The results suggest if family relationship is bad, density is perceived as crowding. When family relationship is median and good, density is still perceived as crowding.

Table 2. All respondents

	B	SE	*t*	*p*	LLCI	ULCI
Family relationship	–.1801***	.0367	-4.9081	.0000	-.2521	-.1081
Density	.3156***	.0433	7.2961	.0000	.2307	.4004
Interaction	–.0304	.0403	–.7536	.4513	–.1095	.0487
Constant	2.8703***	.0312	92.1144	.0000	2.8091	2.9314
R^2	0.0840					

F	26.7824***			.0000		
Number of cases	1097					
Conditional effect of X on Y at values of the moderator:						
Family relationship	Effect	SE	*t*	*p*	LLCI	ULCI
–.9009	.3429***	.0513	6.6893	.0000	.2424	.4435
.0000	.3156***	.0433	7.2961	.0000	.2307	.4004
.9009	.2882***	.0612	4.7059	.0000	.1680	.4084

Note: Significance *** <0.0001

For Hong Kong local families (Table 3), no mediation effect was detected. For immigrants from mainland China (Table 4), we see some different effects. Density causes perceived crowding, but family relationship has no effect. In addition, family relationship does not mediate the effect of density on crowding. For immigrants from other countries (Table 5), interestingly, no effect was given by density nor family relationship.

Table 3. Hong Kong born

	B	SE	*t*	*p*	LLCI	ULCI
Family relationship	–.1776**	.0459	-3.8650	.0001	–.2678	–.0874
Density	.2984***	.0629	4.7430	.0000	.1749	.4219
Interaction	–.0485	.0620	–.7835	.4336	–.1702	.0731
Constant	2.7294***	.0380	71.8118	.0000	2.6548	2.8040
R^2	0.0681					
F	13.9661***			.0000		
Number of cases	743					
Conditional effect of X on Y at values of the moderator:						
Family relationship	Effect	SE	*t*	*p*	LLCI	ULCI
–.8776	.3410***	.0716	4.7646	.0000	.2005	.4815
.0000	.2984***	.0629	4.7430	.0000	.1749	.4219
.8776	.2558*	.0933	2.7415	.0063	.0726	.4390

Note: Significance * <0.01; ** <0.001; *** <0.0001

Table 4. Mainland

	B	SE	*t*	*p*	LLCI	ULCI
Family relationship	–.0762	.0724	-1.0526	.2935	–.2189	.0664
Density	.3336***	.0726	4.5969	.0000	.1907	.4765
Interaction	.0008	.0638	.0121	.9903	–.1248	.1264
Constant	3.2584***	.0603	54.0244	.0000	3.1396	3.3771
R^2	.1022					
F	7.4000**			.0001		
Number of cases	267					
Conditional effect of X on Y at values of the moderator:						
Family relationship	Effect	SE	*t*	*p*	LLCI	ULCI
–.9392	.3329**	.0876	3.7984	.0002	.1603	.5055
.0000	.3336***	.0726	4.5969	.0000	.1907	.4765
.9392	.3344*	.1002	3.3382	.0010	.1371	.5316

Note: Significance * <0.01; ** <0.001; *** <0.0001

Table 5. Other countries

	B	SE	*t*	*p*	LLCI	ULCI
Family relationship	–.1133	.1412	–.8026	.4245	–.3942	.1675
Density	.1395	.1502	.9285	.3558	–.1593	.4382
Interaction	–.0503	.1861	–.2704	.7875	–.4205	.3199
Constant	2.8820***	.1208	23.8672	.0000	2.6419	3.1222
R^2	.0231					
F	.3622			.7804		
Number of cases	87					
Conditional effect of X on Y at values of the moderator:						
Family relationship	Effect	SE	*t*	*p*	LLCI	ULCI
–.8140	.1804	.2477	.7285	.4684	–.3122	.6731
.0000	.1395	.1502	.9285	.3558	–.1593	.4382
.8140	.0985	.1723	.5717	.5691	–.2442	.4412

Note: Significance *** <0.0001

Figure 5 summarizes the causal mechanisms between density and perceived crowding as well as the effect of family relationship for families with different cultural backgrounds. In the usual situation found in other contexts, density leads to perceived crowding, and family relationship mediates the effect.

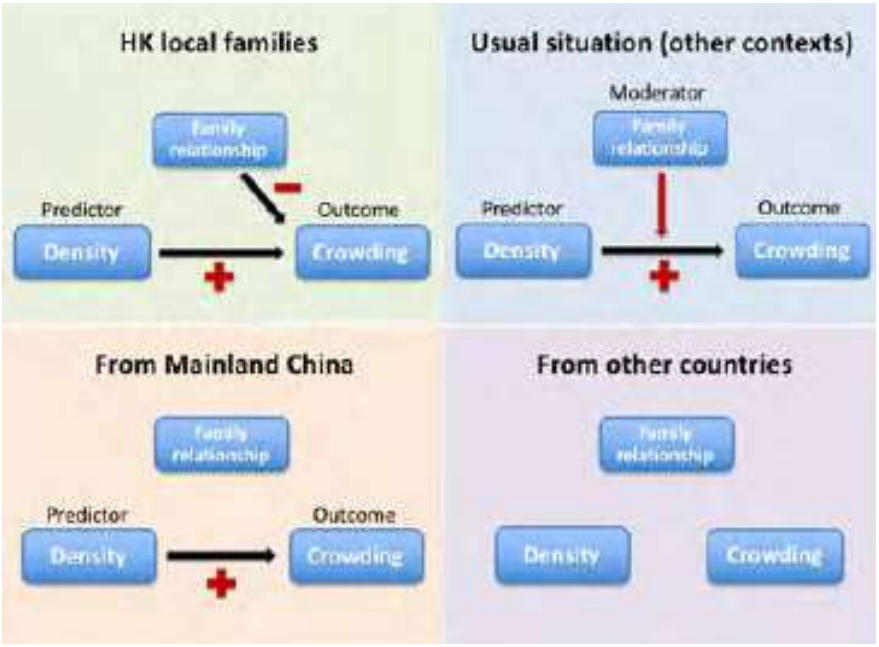


Figure 5. The causal mechanisms between density and perceived crowding for families with different cultural backgrounds (Note: arrow indicates the direction of effect; + and - indicates positive and negative effect respectively.)

For Hong Kong local families, density leads to crowding, but family relationship does not mediate the effect. Instead, it has a direct negative effect on crowding. A plausible explanation is that different from the situation in other contexts where a child can easily find a place to stay alone, in Hong Kong, there is no such luxury. The family is not escapable from at home. One has to literally face his/her family members no matter the relationship with them.

For immigrants from mainland China, density leads to perceived crowding. But family relationship has no effect. For immigrants from other countries, even density does not have an effect on crowding. A plausible explanation is that children in immigrant families are more tolerant of family problems. Moreover, in immigrant families from less developed countries, especially as refugees, children as well as their families are more likely to feel satisfied with their tinier but safer abode. Their high expectations for a brighter future also tend to diminish their discontent with the current situation.

Residential satisfaction

In the context of extremely high density, what leads to residential satisfaction? The results of the multiple regression are reported in Table 6. Location is not significant, because unlike working adults, activities of school children are carried out in a relatively fixed and bounded space whose location in the city is almost irrelevant. Facilities, which enable more diverse activities, have a positive effect. The size of home is very important, because as previous discussed extremely high residential density directly translates into crowding regardless of family relationship. In addition, having own space is important because it guarantees privacy and autonomy. Family relationship is important, but relationship with neighbor is not significant.

Table 6. Residential satisfaction

	B	*Std. Error*	*Beta*	*t*	*Sig.*
Location	0.037	0.028	0.040	1.331	0.184
Facilities	0.074*	0.030	0.075	2.449	0.014
Home is spacious	0.216**	0.020	0.260	10.601	0.000
Have own space	0.117**	0.019	0.151	6.304	0.000
Like to live with family	0.416**	0.022	0.447	18.964	0.000
Like neighbors	0.035	0.023	0.036	1.547	0.122
Constant	0.685**	0.110		6.221	0.000
R^2	.493				
F	189**				
Number of cases	1213				

Note: Significance * p<0.05; ** p<0.001.

Conclusions

The most interesting finding is the moderating effect of family relationship does not exist in the condition of extremely high density. Maybe it is because the extreme condition forces people to develop a different way to get alone with the living environment and with each other. What is evident, though, is the conditional effect of density on crowding varies with culture and situation.

As for residential satisfaction, home size, privacy, family relationship and neighborhood facilities are important determinants for children in Hong Kong. Location and neighbor are non-significant. The results manifest differences from adults in Hong Kong and from children in other places. For adult in Hong Kong, location is of critical importance, because it increases both the practical value and transaction value of a housing unit. For children in other contexts, having friends in the neighborhood to play with is highly desirable. But in Hong Kong, a combination of the high-density built environment, Chinese culture and the pressure of study prevents such behavior and preference.

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