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Impact of housing conditions on psycho-social health of residents

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Abstract

Background: Housing is the determinant of human health, as it influences multiple aspects of health directly and indirectly. The psychological and social health of an individual is greatly influenced by his habitat.

Objectives: The objectives of the research were to determine the factors leading to development of psychological and social problems arising from substandard housing and, to ascertain that poor housing and neighborhood conditions are linked to mental and social health problems among its residents.

Methodology: Cross sectional study was conducted among citizens of different towns of Karachi, during a period of 4 months. Sampling was done by 2 stage sampling. At the first stage, each town was taken as a cluster and 8 out of 18 clusters were selected. At the 2nd stage, 384 sample size was achieved from residents of these towns.

Results: 123 (32.0%) participants lived in bungalows. 247 (64.3%) people owned their residence, 109 (28.4%) were living on rent. Residents of "part of the house", displayed decreased "satisfaction for their current residence" (OR = 0.166; 95% CI = 0.060–0.461) and complained "inability to concentrate and enjoy their day to day activities" (OR = 0.482; 95% CI = 0.253–0.917). Moreover, these participants reported "lack of privacy for self at homes" nearly twice (OR = 1.955, 95% CI = 1.059–3.610). Tenants were four times more likely to "get angry and bad tempered" due to their housing problems (OR=4.450, 95% CI= 2.758-7.181) and had two times more chances to suffer from "sleeping problems due to noises around residence" when compared to owners (OR= 2.426, 95% CI= 1.531-3.844). Likeliness of having "family meals never/rarely together" was three times (OR = 3.950; 95% CI = 1.391–11.261) and six times more (OR = 6.835; 95% CI = 2.203–21.202) among respondents who marked their housing status as "the part of house" and "others", respectively.

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Conclusion: Most of the participants lived in bungalows, owned by themselves and having house area of 100 yards. Current ownership Status of residency had an impact on ability of residents to concentrate and enjoy their daily activities at home as well as resulted in sleeping problems, lack of privacy and angry mood. Also type of house was linked with psychological and social health of citizens.

Introduction

Quality of a residence is linked to psychological and physical health. Inadequate housing conditions can lead to many physical and mental illnesses through different mechanisms [1]. Dissatisfaction with the residence is associated with psychological distress regardless of age or gender, and a plan to move to permanent housing or continuous shifting of residence [2].

Similarly, residential conditions also influence social health of an individual [3]. Sense of insecurity and violence in neighborhood or in the residential surrounding can limit people from going out, thus limiting their physical activity [3, 4] and their social interaction with people. Poor economic status, living place and area, living arrangement all have a negative impact on mental health of the dwellers making them the victim of psychological stress. Loss of house itself is a major contributing factor for mental illness [5]. Living in temporary housing decreases quality of life. It makes the people suffer from depression and anxiety [6]. Socio-demographic factors were significantly correlated with psychological distress, particularly among older men in rural areas. Mental illness due to social isolation is more commonly present in elderly people of urban areas. Family life-events or relationship conflicts have a significant influence on mental health of dwellers especially women [7]. Stressors related to housing have their impact on an individual's psychological function and behavior [8]. Affordability of the accommodation is also a significant problem and is one of the major psychosocial stressor in tenants. Ownership of a house allows the person to change their home according to their needs, whereas renting is associated with sense of insecurity, depression and feeling of restriction in modifying house as per their requirements [9]. Poor social relationships and depression are found to be strongly correlated in women of low socioeconomic status [10].

Methodology

Overview of research design: Researchers evaluated housing standards, on World Health Organization guideline that it helps in promoting social relationships and community development [11].

Study design: This is a cross-sectional study which was conducted in selected towns of Karachi.

Participants: Citizens of Karachi from selected towns were offered to participate voluntarily. Participants from different age groups, different occupation and educational qualification were invited.

Inclusion criteria: a) Residents of Karachi.

Exclusion criteria: a) Visitors (not a resident of Karachi) b) More than one respondent from same house.

Sampling method and sample size: Sampling method selected is two stage cluster sampling. In first stage, considering each town as an individual cluster, 8 towns are randomly picked out of 18 clusters (that is 18 towns in Karachi) [12]. In second stage, sample size of 384 is was achieved from selected 8 towns.

Sample size was calculated by Open EPI version 3.038, keeping prevalence of 50%, 5% margin on error and 95% confidence level. Calculated sample size was 384 individuals. Sampling technique was non-probability convenient sampling.

Data analysis and interpretation: The collected data from participants at the end of data collection was processed and entered in selected software for data analysis. The information from every answer was analyzed singly. Data entry and analysis was done using Statistical Package for Social Sciences (SPSS) version 23. A total of 384 forms were filled with no missing data. Frequencies, percentages, means, modes, p-value using chi square test, bivariate and multivariate analyses, odds ratio and 95% confidence interval of study variables were found from the collected data using SPSS.

Data collection: The tool for data collection designed was a questionnaire. There were two forms of questionnaire designed: one was paper based and other was submitted via internet. Both questionnaires were in English language. It was translated verbally in other language (Urdu) if respondent was uneducated or unable to understand English. It took maximum 10-15 minutes to fill the questionnaire. The data for this research was collected using a survey questionnaire. Since, the questionnaire was created using suitable questions modified from related research and individual questions formed by the researcher, therefore a pilot study was conducted in which 25 questionnaires other than sample size of 384 were filled to validate it.

Results

Out of 384, most of the responses were collected by investigators and some were received via internet. Overall response rate was 74.49 %. Response rate was low via internet that is 63 % when compared to responses obtained from self-administrated questionnaire which was 76.84 %. Respondents were between 18-75 years with a mean age of 30.46 ± 12.20 years (mode = 22 years). 123 (32%) were males and 261 (68%) were females.

Most of the participants 123 (32.0%) lived in bungalows, second common type of accommodation was 111 (28.9%) "part of the house" and among "other" types "huts" 32 (8.3) was most frequently mentioned.247 (64.3%) people owned their residence, whereas 109 (28.4%) were living on rent. 93 (85.3 %) of tenants agreed that the rental charges of their accommodation stressed them and 89 (81.7 %) of tenants experienced a constant fear of getting homeless. Majority 173 (45.1 %) had to spend 10-40% on their bills.

Regarding earning family members, majority 198 (51.6%) had only single earning family member, whereas 3 (0.8 %) claimed to have no one earning in the house. [Table 1]. 145 (37.8%) residents claimed to spend 12-18 hours at home.

Mostly participants 130 (33.9 %) had their accommodation over an area of 100 yards. The mean number of common room was 0.86 ± 0.92 (mode=1), mean number of guest room was 0.53 ± 0.91 (mode=0). Only 248 (64.6 %) had open place or verandah at their home. 115 (29.9 %) of respondents reported that their room is shared by one person. 147 (38.3 %) share their room with their spouse and 44 (11.5 %) with others, most frequently specified group being children 101 (26.3 %).

Table 1: General characterstics of respondents and their houses.

Variable	Frequency	Percentage
	n	%
Type of House		
Apartment	104	27.1
Bungalow	123	32
Part of House	111	28.9
Others	46	12
huts	32	8.3
Current status of residence		
Tenant	109	28.4
Owner	247	64.3
Sharing	22	5.7
Others	6	1.6
Earning Family Members		
1	198	51.6
2	113	29.4
3	46	12
4	14	3.6
5	6	1.6
Everyone	4	1
None	3	0.8
Time spend at Home		
1-6 hours	23	6
7-12 hours	127	33.1
13-18 hours	145	37.8
19-24 hours	89	23.2
Total House Area		
Less than 100 yards	130	33.9
100-200 yards	100	26
Greater than 200 yards	75	19.5
Don't know	79	20.6
Percent of Income		
10-40%	173	45.1
41-60%	70	18.2
61-100%	20	5.2
Don't know	121	31.5
Number of people sharing your room		
1	114	29.7
2	71	18.5
3	57	14.8
4	36	9.4
Everyone	45	11.7
None	61	15.9
Room sharing with		
None	61	15.9
Parents	21	5.5
Spouse	147	38.3
Sister/s	84	21.9
Brother/s	25	6.5
Guests	2	0.5
Others	44	11.5

Psychological health of residents:

Six (6) questions were asked to assess the psychological health of residents. Answers regarding satisfaction with one's housing standards were analyzed after dichotomizing three options "Satisfied and don't want to change my house", "Satisfied but would like to change my house if get a chance" and "Not satisfied" into "Satisfied and don't want to change my house/ Satisfied but would like to change my house if get a chance" and "Not satisfied".

These variables were analyzed by multilogistic regression analyses against type of the house, with "bungalow" as reference (Table. 2A). It showed no significant relationship between any variable and "apartment" when compared to "bungalow". However, residents of "part of the house" and "other" types were two times (OR = 2.714; 95% CI = 1.162–4.065) and five times (OR = 5.904; 95% CI = 2.480–14.053) more likely to "get angry due to their housing problems" respectively in contrast to those living in bungalows. Also, residents of "part of the house", displayed decreased "satisfaction for their current residence" (OR = 0.166; 95% CI = 0.060–0.461) and "inability to concentrate and enjoy their day to day activities " (OR = 0.482; 95% CI = 0.253–0.917). Moreover, "lack of privacy for self at homes" was nearly twice (OR = 1.955, 95% CI = 1.059–3.610). More or less same findings were observed among residents of "other" housing type.

Table 2A: Multivariate analysis of psychological characterstics of respondents by current type of house.

Type of House	Variables	Odds Ratio	95% CI	p-value
Apartment	Able to concentrate and enjoy daily activities	0.862	0.444–1.672	0.661
	Get angry easily due to housing problems	1.061	0.563–1.999	0.855
	Had sleeping difficulty due to noises around home	1.45	0.785-2.679	0.235
	Experience lack of privacy for them at home	1.277	0.701-2.324	0.424
	Usage of antidepressants and sleeping pills	1.007	0.442-2.295	0.986
	Satisfied/Satisfied but would like to change their house if get a chance	0.445	0.145-1.368	0.158
Part of the House	Able to concentrate and enjoy daily activities	0.482	0.253-0.917	a0.026
	Get angry easily due to housing problems	2.714	1.162–4.065	a0.015
	Had sleeping difficulty due to noises around home	1.348	0.712-2.551	0.359
	Experience lack of privacy for them at home	1.955	1.059-3.610	a0.032
	Usage of antidepressants and sleeping pills	0.881	0.382-2.029	0.765

	Satisfied/Satisfied but would like to change their house if get a chance	0.166	0.060-0.461	a0.001
Others	Able to concentrate and enjoy daily activities	0.368	0.164-0.828	a0.016
	Get angry easily due to housing problems	5.904	2.480–14.053	a0.000
	Had sleeping difficulty due to noises around home	1.272	0.539-3.000	0.583
	Experience lack of privacy for them at home	2.19	0.963-4.978	a0.061
	Usage of antidepressants and sleeping pills	1.813	0.713-4.611	0.211
	Satisfied/Satisfied but would like to change their house if get a chance	0.247	0.076-0.797	a0.019

[a]significant at 0.05 level of alpha. Reference category: Bungalow.

Individual analysis showed that feeling of "lack of privacy" was twice higher among people sharing their room (p-value=0.002. OR= 2.561, 95% CI= 1.374-4.774).

Bivariate analyses of these factors by current status of residence (Table 2B) showed statistically significant relationship for factors: "ability to concentrate and enjoy day to day activities", "getting angry and bad tempered easily due to housing problems", "sleeping difficulty due to noises" and "satisfaction with their housing standards" (p-value<0.001). Tenants were four times more likely to "get angry and bad tempered" due to their housing problems (OR=4.450, 95% CI= 2.758-7.181) and had two times more chances to suffer from "sleeping problems due to noises around residence" when compared to owners (OR= 2.426, 95% CI= 1.531-3.844). This analyses exclude those respondents with "current status of residence" as "sharing" and "others".

Table 2B: Bivariate analysis of psychological characteristics of respondents by current status of residence.

Variable	Status of residency					
	Tenants		Owners		Odds ratio	*p*-value
	N=109	%	*N=247*	%	(95 % CI)	
Are you able to concentrate and enjoy day to day activities?						
Yes	52	47.7	197	79.8	0.232 (0.142-0.377)	a0.000
No	57	52.3	50	20.2		
Do you get angry and bad tempered easily due to your housing problems?						
Yes	69	63.3	69	27.9	4.450 (2.758-7.181)	a0.000
No	40	36.7	178	72.1		
Do you have difficulty in staying asleep due to noises around your home?						
Yes	62	56.9	87	35.2	2.426 (1.531-3.844)	a0.000
No	47	43.1	160	64.8		
Do you feel like there is lack of privacy for you at your home?						
Yes	50	45.9	94	38.1	1.379 (0.874-2.176)	0.166
No	59	54.1	153	61.9		
Do you or any of your family member/s take drugs like anti-depressants or sleeping pills?						
Yes	20	18.3	37	15	1.275 (0.702-2.319)	0.424
No	89	81.7	210	85		
Are you satisfied with your housing standards?						
Satisfied and don't want to change my house/ Satisfied but would like to change my house if get a chance	75	68.8	24	9.7	0.237 (0.132-0.426)	a0.000
Not satisfied	34	31.2	223	90.3		

[a]significant at 0.05 level of alpha. *n* number of tenants and owners.

Odds Ratio expressed as tenants: owners.

Social health of residents

5 questions were analyzed by type of house using multinomial regression (Table 3). 3 out of these 5 questions had four options and options for each question was dichotomized before analysis. For question regarding "number of times respondent's family member take meals together" given four options were grouped into "Never/Rarely" and "Once daily/Twice daily", whereas options given to indicate the "frequency of social gatherings where friends and family members were invited at home" were grouped as "Once in a week/ Once in a month" and "Once in a year/ Rarely". Options concerned with the views of study participants for their neighbors were broadly classified as "good social interaction with neighbors" and "poor social interaction with neighbors". Views considered as positive were; "They are co-operative and nice" and options that signified poor social interaction included; "I am really annoyed with them", "Their absence and presence does not make a difference", "I do not know them".

Analysis demonstrated that the likelihood of "arranging social gatherings at their places once in a week/ month" by the residents of apartment was observed to decrease (OR = 0.464; 95% CI = 0.269–0.801) and mostly had "poor social interaction with neighbors" (OR = 0.493; 95% CI = 0.278–0.876) in contrast to residents of bungalow. Likeliness of having "family meals never/rarely together" was three times (OR = 3.950; 95% CI = 1.391–11.261) and six times more (OR = 6.835; 95% CI = 2.203–21.202) among respondents who marked their housing status as "the part of house" and "others", respectively. Moreover, these respondents were less likely to "arrange gatherings once in a week/a month at their residence", where all their family members or friends were invited in comparison to residents of bungalows.

Table 3: Multivariate analysis of social characteristics of respondents by type of house.

Type of House	Variables	Odds Ratio	95% CI	*p*-value
Apartment	Never/Rarely take family meal together	2.055	0.668–6.320	0.209
	Arrange gathering at their home once in a week/ month	0.464	0.269–0.801	a0.006
	Avoid talking to neighbors	0.95	0.521-1.734	0.868
	Feel safe walking alone	1.103	0.634-1.917	0.729
	Poor social interaction with neighbors	0.493	0.278-0.876	a0.016
Part of the House	Never/Rarely take family meal together	3.95	1.391-11.216	a0.010
	Arrange gathering at their home once in a week/ month	0.316	0.181–0.552	a0.000
	Avoid talking to neighbors	1.155	0.648-2.058	0.625
	Feel safe walking alone	0.795	0.460-1.372	0.409
	Poor social interaction with neighbors	1.265	0.715-2.238	0.419
Others	Never/Rarely take family meal together	6.835	2.203-21.202	a0.001
	Arrange gathering at their home once in a week/month	0.319	0.150–0.678	a0.003
	Avoid talking to neighbors	1.427	0.671-3.032	0.356
	Feel safe walking alone	0.562	0.273-1.157	0.118
	Poor social interaction with neighbors	0.753	0.357-1.588	0.456

[a]significant at 0.05 level of alpha. Reference category: Bungalow

Bivariate analysis of similar 5 factors of social health as displayed in Table 3 when analyzed against status of residence failed to show any significant association between status of residence and social health of its dwellers (p-value>0.05).

Separate analysis showed that "lack of guest room" was linked less frequent social gatherings at their places as people with guest room arranged social gatherings at their homes three times more frequently (p-value=0.000, OR= 2.986, 95% CI= 1.957-4.555).

Discussion

Karachi city is expanding by leaps and bounds and this has led to various problems due to lack of proper urban planning. Many multistoried buildings and compound houses are being constructed which provides more affordable accommodation comparative to single unit houses and bungalows. In Pakistan, the percent of people that own dwelling units declined to 84 percent in 2014-15 as compared to 86 percent in 2012-13. The greatest number of citizens living in rented units reside in Sindh [13]. Karachi is the biggest city of Sindh province.

Housing quality influences residential satisfaction of family members based on their perception and assessment of physical environment of the house. This in turn influences person's behavior in general [14]. We found in this study that the inability to concentrate in daily activities and having bad temper due to housing problems was higher among tenants than owners. Also, residents residing in part of the house and other types also had similar complains.

Furthermore, it was observed that tenants suffered more from sleeping difficulties due to noises around their places than the owners. No link was found between housing type and sleeping problems. Nocturnal environmental noises is one of

the leading cause of sleep disturbance as shown by the study conducted in 2014 [15]. Living in a noisy area exerts a negative effect on health by inducing annoyance, disturbing sleep and increasing mental exhaustion. Quiet areas make a positive contribution to psychological health [16].

Lack of privacy is among the predictors of health as dwellers experiencing this were found in a study to have an eight times poorer health, when compared with those not suffering from any privacy issues at their homes. In urban settings, non-affordable accommodation leads to the development of compound housings and multi storied buildings and therefore many of the residents were reported to experience lack of privacy for themselves in these set ups [17]. Similar findings were observed in this study, in which participants originating from housing type; part of the house and others, reported lack of privacy for themselves. This is because the families or individuals who cannot afford to buy or live in rented houses end up sharing or co-renting places with relatives or friends resulting in overcrowding and interfering with their privacy [9]. We also found that lack of privacy was experienced two times more among people sharing room.

Housing ownership status has a serious and important effect on mental health of its dwellers resulting in depression, anxiety and substance abuse more among tenants rather than owners [18, 19]. We failed to find any relationship between increase intake of antidepressants/sleeping pills among tenants or people of different house types.

The experience of psychological well-being becomes poorer for dweller, if he consider his housing environment unsatisfactory with respect to his requirements and expectations. People residing in lavish houses may still be dissatisfied with their houses if they do not find their housing environment suitable to meet their needs [14]. This study showed dissatisfaction regarding their homes among tenants, residents living in part of the houses and other house types.

We found that respondents belonging to part of the house and others, had less frequent family meals at their homes. This adversely affects the health of residents as family meals help to reduce depressive symptoms among members and are related to better mental health of all members particularly children. Further, it serves to increase empathy and family cohesion and to keep connections among members and ease their daily stress. Also it is linked to positive impact on psychological and social health of children and adolescents as it has benefits of decreased aggressive behavior, depression, habit of substance abuse and suicidal ideation [20].

According to a research adverse mental health is directly related to increase in number of units in each apartment [21] and that residents of multiple unit buildings develop social isolation due to lack of space [3, 21]. Similar findings were seen among residents of apartments, part of the house and other housing types who were reluctant to arrange social gatherings at their places when compared to residents of bungalows among Karachi citizens. Also, lack of guest room was also linked with decrease social meetups at their homes.

American heart association has linked neighborhood security and safety conditions with cardiovascular health (CVH) score of the residents of that area. Safety of an area is measured as feeling of security while walking at any time and also measured by incidence of crime and violence in that area [22]. Lack of personal security forces an individual to stay at their homes restricting their outdoor activities like walking and also increases mental stress [23]. However, we failed to find any significant association between feeling of safety felt by respondents with housing status and type.

The satisfaction of an individual with his social life, housing and neighborhood is determined by frequency of communication with neighbors and meeting with relatives and friends. Furthermore, the rise (and fall) of well-being also appears to be monotonic with changes in frequency of social interaction. For e.g.; seeking friends or relatives more often changes the life satisfaction score by 0.11 than seeking them less than a month [24]. This study revealed that neither status of house nor type of house was linked with avoidance of talking to their neighbors by habitants.

Social interaction with your neighbors creates an environment of mutual understanding that promotes good mental health of residents and is significant for people suffering from chronic illnesses. Also ones social capital facilitates him to perform physical activities and to promote things that would be beneficial for their homes and neighborhood [25] In our study, being a resident of apartment was linked with poor social interaction with neighbors.

It is found in one report that people living on rent suffered from psychosocial stress as they believe that they can be evicted anytime from their houses by landlords [9]. This is in accordance with our study in which tenants claimed to get stressed due to accommodation charges and also due to fear of homelessness.

Prolong working hours outside home in order to meet the financial demands, deteriorates the health of an individual as it leads to depression and leads to social isolation among adolescents of low socioeconomic status [26, 27]. Majority of participants of our study reported spending 13-18 hours at home.

Lack of open places or verandahs in home keep children devoid of playing in outdoor environment and they are often restricted to their homes leading to psychological problems like behavioral disorders, family conflicts and poor social solidarity [21]. More than half percent of our study participants agreed having open places/ verandahs in their homes.

More the housing environment has a potential for adaptability as per their needs, more is the satisfaction of dwellers, no matter what the size of accommodation is. Housing environment is related to residents' satisfaction which in turn determines their psychological and social well-being [14].

Conclusion and recommendations

This research identifies different aspects of living environment of citizens that are dangerous for human health and will help to spread awareness to design their houses per standards of world health organization to ensure a healthy living space. By doing so, we will have a positive public health impact. Raising the socioeconomic status will raise the living standard itself. Affordable houses should be designed in such a way that it should provide complete privacy, independence of modification and enough space to arrange social gatherings in a well-designed community. Designing houses and urban planning is beyond the role of medical health practitioners but they can spread awareness in their communities. Promoting family meals and social meet ups promotes social health development. Also, building up your interaction with your neighbors not only provide a way

to resolve problems mutual to a community but also serves to strengthen understanding between different families living in a neighborhood and thus develops a stress free and peaceful dwelling habitat.

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