

CHAPTER IV

RESEARCH RESULTS

The present study is a household-based cross-sectional analytical study, the main purpose of which was to assess the effect of Habitat for Humanity housing on the health of children and their mothers in the communities of Khmer Kampuchea Khrom, Samaki and Sen Sok in Phnom Penh, Cambodia. Two hundred ninety-four (294) respondents were surveyed, 197 of whom were non-Habitat and 197 were Habitat households. One hundred and eight (108) were surveyed in Samaki; 108 in KK and; 78 in Sen Sok. The communities are within 15 kilometers of each other.

The objectives of the study are the following:

1. To identify children and their mothers' illnesses and diseases that may be related to poor housing conditions.
2. To identify specific improvements in health conditions as a result of improved housing and identifying the impact of each housing improvement elements (i.e. ventilation, protection of rain, sanitary facilities, etc.).
3. To determine the impact on children's health and their mothers of the housing improvement projects implemented by Habitat for Humanity in Khmer Kampuchea Khrom, Samaki and Sen Sok communities.

Each Habitat household was paired with a non-Habitat household located nearby, whose socioeconomic situation was similar to that of families who qualify for the Habitat housing program. The data were collected by 10 trained interviewers composed of senior students from the Royal University of Agriculture. Mothers were asked to report on their respiratory, gastrointestinal, and skin symptoms, as well as those of their children aged ≤ 10 years, during the last 4 weeks and the last 2 weeks. The respondents were informed about the purpose of the study and asked for their consent. Pre-testing of the questionnaire was done with about 30 residents of a different but similar community before the final data gathering. Accordingly, changes were made to increase its clarity for research study subjects.

4.1 Results

The results are presented as follows:

1. General characteristics, including demographics, of non-Habitat and Habitat households;
2. Housing conditions in non-Habitat and Habitat homes;
3. Mothers' health in non-Habitat and Habitat homes;
4. Children's health in non-Habitat and Habitat homes;
5. Mothers' and children's health in relation to characteristics associated statistically significantly, and marginally significantly, with Habitat housing (potential confounders).

4.2 General characteristics of non-Habitat and Habitat households

Table 4.1 shows the comparison of the general characteristics between the two groups. Mothers were the main respondents in both non-Habitat and Habitat. Although there were more mothers in Habitat households it was not statically significant ($P = .344$). There was an average of 5.86 people living in non-Habitat households and 5.31 in Habitat ones ($P = .060$), revealing a marginally significant difference between the groups. Non-Habitat households on average had more children (1.58) than the Habitat ones (1.24), which was statistically significant ($P = .015$).

The respondents in non-Habitat households also reported that they spent significantly more time with the children than the Habitat households ($P = .001$). The reported average monthly income of the non-Habitat group (\$81.34) was lower than that of the Habitat group (\$103.60), which is statistically significant ($P = .013$). Non-Habitat families had on average lived longer in the community and in their current house than the Habitat ones, the difference in both being statistically significant, ($P = .012$ and $P < .001$ respectively).

There was virtually no difference between non-Habitat and Habitat when asked about boiling their drinking water 74.1% and 74.5%. The difference in mosquito coil use between the 2 types of households was not statistically significant. ($P = .269$) There were no notable differences between the smoking habits of the mothers and fathers of non-Habitat and Habitat families.

Table 4.1: General characteristics of non-Habitat and Habitat households

General Household Characteristics	Non-Habitat N (%) or Mean \pm SD	Habitat N (%) or Mean \pm SD	Chi-square (DF) or T Statistic (DF)	P- Value
Respondent = Mother	120 (81.6%)	126 (85.7%)	.896 (1)	.344
People in household	5.86 \pm 2.57	5.31 \pm 2.43	1.888 (292)	.060
Children \leq 10 years	1.58 \pm 1.16	1.24 \pm 1.17	2.439 (289)	.015
Respondent's daily hours with children	20.34 \pm 6.20	17.41 \pm 8.01	3.370 (250.46)	.001
Years in community	4.37 \pm 2.16	3.90 \pm 2.32	1.796 (288.53)	.012
Years in current house	3.87 \pm 2.23	2.03 \pm 1.65	7.959 (266.04)	<.001
Use mosquito coils	55 (37.4%)	46 (31.3%)	1.222 (1)	.269
Monthly income per household (US\$)	81.34 \pm 63.83	103.60 \pm 86.31	-2.508 (290)	.013
Mother ever smoked	2 (1.4%)	4 (2.8)	.709 (1)	.400
Father smokes now	51 (40.8%)	55 (42.6%)	.088 (1)	.767
Boil drinking water	106 (74.1%)	108 (74.5%)	.005 (1)	.945

Table 4.2 shows the different modes of transportation used by both types of households. In both groups the use of the motorbike (31.9% for non-Habitat and 35% for Habitat) and walking (38.2% for non-Habitat and 35% for Habitat) are the most common. This suggests that the economic situation of non-Habitat and Habitat households was very similar.

Table 4.2: Comparison between Non-Habitat and Habitat on main mode of transportation

Main Mode of Transportation	Non-Habitat N (%) or Mean (\pm) S.D	Habitat N (%) or Mean \pm SD
Car	11 (7.6%)	10 (7.0%)
Motorbike	46 (31.9%)	50 (35.0%)
Public	17 (11.8%)	20 (14.0%)
Bicycle	15 (10.4%)	13 (9.1%)
Walk	55 (38.2%)	50 (35.0%)
X ² (df) P- Value	.835 (4) P= .934	

Table 4.3 shows the fathers' and mothers' education levels in the Non-Habitat and Habitat households. The data show that the fathers and mothers in both groups have mostly attained a secondary education. However, as the level of education goes up fathers and mothers in Habitat families showed a tendency to have obtained a higher level of education than the non-Habitat. In mothers, educational level was marginally significantly higher in Habitat households ($p=.053$).

Table 4.3: Educational levels of non-Habitat and Habitat households

Levels of education	Fathers Non-Habitat N (%)	Habitat N (%)	Mothers Non-Habitat N (%)	Habitat N (%)
No education	5 (4.1)	6 (4.7%)	27(18.5%)	14 (9.7%)
Some primary	37 (30.1%)	25 (19.5)	69 (47.3%)	62 (42.8%)
Some secondary	34 (27.6%)	38 (29.7%)	35 (24.0%)	41 (28.3%)
Graduate from secondary	26 (21.1%)	30 (23.4%)	8 (5.5%)	18 (12.4%)
Some college and above	21 (17.1%)	29 (22.7%)	7 (4.8%)	10 (6.9%)
X ² (df) and P- Value	4.103(4) P= .392		9.342(4) P= .053	

Based on the results of the laboratory tests made on the drinking water as shown below in Table 4.4, the differences in the levels of coliform and E. Coli detected in non-Habitat and Habitat houses show no significant difference.

Table 4.4: Total *coliforms* and E. Coli in drinking water, in non-Habitat and Habitat households

	Non-Habitat Mean rank	Habitat Mean Rank	Mann-Whitney U test	P-Value
Total coliforms (range 0 to53,100)	151.02	141.98	9998	.359
E. Coli (range 0 to 5400)	147.14	145.86	10565	.865

4.3 Housing conditions in non-Habitat and Habitat homes

Tables 4.5 to 4.8 show the results of the questionnaire-reported characteristics related to housing quality in both non-Habitat and Habitat households. With regards to the condition of the floor during rainy season, non-Habitat households reported worse conditions than the Habitat ones (P=004). Also, the non-Habitat group reported less adequate toilet or sanitary facilities than the Habitat group (P=.004). Both table 4.6 and table 4.7 show that the difference in the housing condition between the 2 groups is statistically significant, with the non-Habitat households reporting a less adequate condition than the Habitat ones. Table 4.8 shows that when cooking, those reporting very smoky experience inside is slightly higher in non-Habitat houses (22 4%) than in Habitat ones (15%), but the difference in home smokiness was not statistically significant (P=.243). When asked about their

perception of how adequate the size of their house relative to the number of people living in the house, the Habitat group expressed a higher level of satisfaction ($P < .001$). Also, the non-Habitat group was less satisfied with the general condition of their house than were the Habitat group ($P \leq .001$, table 5).

Table 4.5: Questionnaire-reported characteristics related to housing quality, in non-Habitat and Habitat homes

Housing quality-related characteristics	Non-Habitat N (%) or Mean (\pm) S.D	Habitat N (%) or Mean \pm SD	Chi-square (DF) or T Statistic (DF)	P- Value
Rooms in home	1.65 \pm .680	1.56 \pm .631	1.066 (292)	.350
Has toilet inside or outside home	125 (85.6%)	142 (96.6)	10.925 (1)	.001
Size of house perceived adequate for family size	90 (61.2%)	126 (85.7%)	22.615 (1)	<.001
General housing condition perceived adequate	72 (49.3%)	119 (81.0%)	32.308 (1)	<.001

Table 4.6: Questionnaire-reported state of floor during rainy season

State of floor during rainy season	Non- Habitat N (%)	Habitat N (%)
Dry	41 (28.1%)	65 (44.2%)
Damp	38 (26.0%)	40 (27.2%)
Wet	67 (45.9%)	42 (28.6%)
X ² (df) and P- Value	11.216 (2) P= .004	

Table 4.7: Questionnaire-reported waste disposal method

Waste disposal method	Non- Habitat N (%)	Habitat N (%)
Sewer	29 (20.0%)	36 (24.5%)
Septic Tank	66 (45.5%)	84 (57.1%)
Soak Pit	21(14.5%)	20 (13.6%)
Other	29 (20.0%)	7 (4.8%)
X ² (df) and P- Value	16.370 (3) P= .001	

Table 4.8: Questionnaire-reported smokiness of the house when cooking

Smokiness of house when cooking	Non-Habitat N (%) or Mean (\pm) S.D	Habitat N (%) or Mean \pm SD
None	44 (29.9%)	57 (38.8%)
Little	36 (24.5%)	38 (25.9%)
Medium	34 (23.1%)	30 (20.4%)
Very	33 (22.4%)	22 (15.0%)
X ² (df) and P- Value	4.177 (3) P= .243	

Tables 4.9 to 4.14 summarize and compare the physical structural characteristics of the non-Habitat and Habitat houses as observed by the data collector. Table 4.9 shows that non-Habitat houses had significantly worse floor conditions than the Habitat ones ($P < .001$) With regards to the condition of both the wall and roof, it was observed, as shown in Tables 4.10 and 4.11 respectively, that non-Habitat houses are in poor state compared to the Habitat ones ($P = < .001$). Table 4.12 refers to sleeping condition and it shows no significant difference between non-Habitat and Habitat houses ($P = .405$).

Table 4.13 refers to the toilet availability and toilet type, which shows that there were more non-Habitat houses (35.4%) with inadequate toilet facilities than with the Habitat houses (12.2%, $P = < .001$). Table 4.14 shows that both groups exhibited no difference on the type and condition of their drainage systems ($P = .145$).

Taken together, these results demonstrate that physical housing conditions in Habitat houses were consistently better than in non-Habitat houses.

Table 4.9: Interviewer-observed quality of the floor

Levels of quality/floor	Non- Habitat N (%)	Habitat N (%)
Dirt floor	52 (35.4%)	4 (2.7%)
Concrete or wooden floor, not properly laid out	24 (16.3%)	17 (11.6%)
Concrete floor properly laid out and gives protection	46 (31.3%)	93 (63.3%)
Raised wood or tile floor properly laid out and gives protection	25 (17.0%)	33 (22.4%)
X ² (df) and P- Value	59.334 (3) P = <.001	

Table 4.10: Interviewer-observed quality of the walls

Levels of quality/wall	Non- Habitat N (%)	Habitat N (%)
Temporary material, does not protect against natural elements	63 (42.9%)	6 (4.1%)
Permanent material with medium protection	51 (34.7%)	79 (53.7%)
Permanent material with good protection	33 (22.4%)	62 (42.2%)
X ² (df) and P- Value	61.97 (2) P=<.001	

Table 4.11: Interviewer-observed quality of the roof

Levels of quality/roof	Non- Habitat N (%)	Habitat N (%)
Temporary Material	33 (22.4%)	1 (.7%)
Permanent or semi-permanent material	102 (69.4%)	126 (85.7%)
Durable permanent material	12 (8.2%)	20 (13.6%)
X ² (df) and P- Value	34.644 (2) P=<.001	

Table 4.12: Interviewer-observed sleeping conditions

Sleeping conditions	Non- Habitat N (%)	Habitat N (%)
No private sleeping room	60 (41.1 %)	49 (33.6%)
Separate sleeping room but not for children	36 (24.7%)	42 (28.8%)
Separate sleeping room for children of different sexes	50 (34.2%)	55 (37.7%)
X^2 (df) and P- Value	1.810 (2) P= .405	

Table 4.13: Interviewer-observed quality of toilet

Levels of quality/Toilet	Non-Habitat N (%)	Habitat N (%)
Pit latrine or toilet without good sanitary Conditions	52 (35.6)	18 (12.2%)
Toilet detached from main house, no proper drainage	27 (18.5%)	31 (21.1%)
Properly maintained with adequate water supply	67 (45.9%)	98 (66.7%)
X^2 (df) and P- Value	22.611 (2) P=<.001	

Table 4.14: Interviewer-observed quality of water drainage

Levels of quality of water drainage	Non- Habitat N (%)	Habitat N (%)
No drainage	57 (39.3%)	56 (38.4%)
Open drainage for waste water	39 (26.9%)	25 (17.1%)
Closed drainage connected to septic tank	25 (17.2%)	35 (24.0%)
Closed drainage connected to public sewer system	24 (16.6%)	30 (20.5%)
X^2 (df) and P- Value	5.401 (3) P= .145	

4.4 Mothers' health in non-Habitat and Habitat homes

Table 4.15 shows mother's symptom rates in the last 4 weeks in non-Habitat and Habitat homes. Rates of individual symptoms are shown, as are rates of the 3 symptom combinations cough and phlegm, cough and cold, and diarrhea and vomiting. Individual symptom rates tended to be somewhat higher in Habitat than non-Habitat homes, although not significantly so. On the symptom combinations cough and phlegm and cough and cold there was no appreciable difference between non-Habitat and Habitat homes. The rate of combined diarrhea and vomiting was significantly higher in Habitat mothers (non-Habitat 6.2 % and Habitat 13.1% $P=.047$). It is also clearly apparent that overall, the individual symptom rates in mothers from both non-Habitat and Habitat households were unusually high, e.g., Cough (42.9% and 46.6%), Cold (58.6% and 58.2%), Fever (50% and 42.5%), Sore Throat (36.6% and 43.1%), Diarrhea (32.9% and 43.4%), Stomach Pain (60.3% and 65.1%), Rash (35.6% and 37%) and Itching (35.4% and 43.4%).

Table 4.15: Mother's symptom rates in last 4 weeks, in non-Habitat and Habitat homes

Symptom	Non- Habitat N (%)	Habitat N (%)	X ² (df)	P- Value
Individual symptoms				
Cough	63 (42.9%)	68 (46.6%)	.410 (1)	.522
Phlegm	54 (36.7)	59 (40.4%)	.418 (1)	.518
Cold	85 (58.6%)	85 (58.2%)	.005 (1)	.945
Wheezing	51 (35.2%)	55 (37.9%)	.238 (1)	.626
Fever	73 (50.0%)	62 (42.5%)	1.667 (1)	.997
Bronchitis	4 (2.7%)	4 (2.7%)	.000 (1)	1.000
Sore Throat	53 (36.6%)	62 (43.1%)	1.276 (1)	.259
Diarrhea	48 (32.9%)	63 (43.4%)	3.446 (1)	.063
Vomiting	27 (18.6%)	35 (24.0%)	1.243 (1)	.265
Stomach Pain	88 (60.3%)	95 (65.1%)	.717 (1)	.397
Nausea	39 (26.9%)	54 (37.0%)	3.406 (1)	.065
Rash	52 (35.6%)	54 (37.0%)	.059 (1)	.808
Itching	51 (35.4%)	63 (43.4%)	1.951 (1)	.162
Red skin	29 (19.9)	22 (15.1%)	1.164 (1)	.281
Symptom combinations				
Cough and phlegm	49 (23.1%)	51 (30.1%)	1.841 (1)	.175
Cough and cold	49 (33.8%)	51 (34.9%)	0.042 (1)	.838
Diarrhea and vomiting	9 (6.2%)	19 (13.1%)	3.953 (1)	.047

4.5 Children's health in non-Habitat and Habitat homes

Symptom rates in children ≤ 10 years old in the last 4 weeks are shown in table 4.16, and are organized in the same fashion as mothers' rates in table 4.15. Data were available for 393 such children, 223 in non-Habitat homes and 170 in Habitat homes. Differences between non-Habitat and Habitat homes in individual symptom rates were not statistically significant. The same was true in the rates of symptom combinations. Similarly, none of the symptom combinations showed significant differences between Habitat and non-Habitat homes.

Moreover, as with the mothers, children from both sets of households reported a very high rate of both individual and combination symptoms, as

demonstrated by the rates in the following selected symptoms shown in Table 4.16: Cough (70.7% and 65.9%), Phlegm (40.8% and 44.7%), Cold (41.7% and 45.9%), Fever (74.3% and 71.2%), Diarrhea (47.5% and 51.8%), Cough and Phlegm (37.8% and 40.6%) and Cough and Cold (62.6% and 55.6%).

Table 4.16: Children's symptom rates in last 4 weeks, in non-Habitat and Habitat homes

Symptom	Non-Habitat N (%)	Habitat N (%)	X ² (df)	P- Value
Individual symptoms				
Cough	157 (70.7%)	112 (65.9%)	1.047 (1)	.306
Phlegm	91 (40.8%)	76 (44.7%)	.600 (1)	.439
Cold	93 (41.7%)	78 (45.9%)	.685 (1)	.408
Wheezing	93 (41.7%)	78 (45.9%)	.685 (1)	.408
Fever	165 (74.3%)	121 (71.2)	.484 (1)	.487
Bronchitis	49 (22.1%)	34 (20.0%)	.248 (1)	.619
Sore throat	74 (33.2%)	49 (28.8%)	.853 (1)	.356
Diarrhea	106 (47.5%)	88 (51.8%)	.691 (1)	.406
Vomiting	66 (29.6%)	53 (31.2%)	.114 (1)	.736
Stomach pain	55 (24.9%)	32 (18.8%)	2.042 (1)	.153
Nausea	31 (13.9%)	26 (15.4%)	.170 (1)	.680
Rash	58 (26.0%)	43 (25.4%)	.016 (1)	.899
Itching	57 (25.8%)	50 (29.4%)	.633 (1)	.426
Red Skin	43 (19.4%)	28 (16.5%)	.545 (1)	.460
Symptom combinations				
Cough and phlegm	84 (37.8%)	69 (40.6%)	.306 (1)	.580
Cough and cold	139 (62.6%)	94 (55.6%)	1.948 (1)	.163
Diarrhea and vomiting	40 (17.9%)	36 (21.2%)	.649 (1)	.421

4.6 Mothers' and children's health in relation to characteristics associated with Habitat housing (potential confounders)

Characteristics that are associated with both the dependent variable and the independent variable of primary interest (in this study, Habitat housing) are known as confounders. To evaluate potential effects of confounding in this study, characteristics significantly or marginally significantly associated with Habitat

housing were assessed for association with mothers' and children's symptom rates. Specifically, these characteristics were tested against the 3 symptom combinations, cough and phlegm, cough and cold, and diarrhea and vomiting.

Table 4.17 refers to the mothers' health in relation to the categorical variables toilet availability, house size and house condition as perceived by the mother. It shows that not having an adequate toilet was associated with increased risk of diarrhea and vomiting ($P=.011$). Perceived adequacy of house size showed a marginal level of significance in relation to diarrhea and vomiting ($P=.050$) and cough and cold ($P=.067$) and no significant difference in relation to cough and phlegm ($P=.504$). Overall house adequacy perceived by the mother was marginally significantly higher in mothers with cough and phlegm than in those without this combination. Thus, all 3 of these characteristics could potentially confound the unadjusted non-Habitat/Habitat comparisons of one or more of the mothers' symptoms (table 4.15).

Table 4.17: Mothers' health in relation to categorical potential confounders

Symptoms	No	Yes	X ² (df)	P- Value
Has toilet				
Cough and phlegm	9 (34.6%)	69(25.9%)	.911 (1)	.340
Cough and cold	12 (46.2%)	88 (33.3%)	1.722(1)	.189
Diarrhea and vomiting	6 (24.0%)	22 (8.3%)	6.406 (1)	.011
House size perceived adequate				
Cough and phlegm	23 (29.5%)	55 (25.6%)	.447 (1)	.504
Cough and cold	33 (42.9%)	67 (31.3%)	3.348 (1)	.067
Diarrhea and vomiting	3 (3.9%)	25 (11.7%)	3.847 (1)	.050
Housing condition perceived adequate				
Cough and phlegm	21 (20.6%)	57 (30.0%)	3.003 (1)	.083
Cough and cold	38 (37.3%)	62 (33.0%)	.535 (1)	.464
Diarrhea and vomiting	9 (8.9%)	19 (10.1%)	.107 (1)	.743

Table 4.18 shows the result of the continuous variables that were analyzed in relation to the combined symptoms, namely cough and phlegm, cough and cold, and diarrhea and vomiting for mothers in non-Habitat and Habitat households. The analysis shows no significance between the combined symptoms rates and the following variables: number of children ≤ 10 years old; hours that the mother or caregiver spends with children; mothers' educational level; years in the community; years in the house and monthly income. Thus, it seems unlikely that any of these continuous variables would substantially confound the unadjusted comparisons of mothers' symptom rates in non-Habitat and habitat houses.

Table 4.18: Mothers' health in relation to continuous potential confounders

Characteristic	Logistic-modeled odds ratio per unit increase	P-value
Number of children ≤ 10 years old in household		
Cough and phlegm	1.000	>.999
Cough and cold	.975	.813
Diarrhea and vomiting	1.046	.788
Hours spent with children each day		
Cough and phlegm	.981	.289
Cough and cold	1.004	.834
Diarrhea and vomiting	.983	.515
Mother's educational level		
Cough and phlegm	.917	.514
Cough and cold	.935	.579
Diarrhea and vomiting	1.063	.747
Years in the community		
Cough and phlegm	1.009	.883
Cough and cold	1.002	.974
Diarrhea and vomiting	1.034	.709
Years in the house		
Cough and phlegm	.943	.352
Cough and cold	.990	.862
Diarrhea and vomiting	.998	.995
Monthly Income		
Cough and phlegm	.999	.643
Cough and cold	.999	.643
Diarrhea and vomiting	.996	.307

Table 4.19 shows the result from the analysis of children's health in relation to categorical variables and the combined symptoms. There was no significance when looking at toilet availability and the following combined symptoms: cough and phlegm, cough and cold and diarrhea and vomiting. Perception of adequacy of general housing condition was marginally significantly associated with a higher rate of cough and phlegm ($P=.051$). However, categorical variables such as the perceived adequacy of the house size and gender show no significant association with combined symptoms. Thus, perception of house adequacy could be a confounder of unadjusted non-Habitat/Habitat comparisons of children's symptom rates.

Table 4.19: Children's health in relation to categorical potential confounders

Symptoms	No	Yes	X ² (df)	P- Value
Has toilet				
Cough and phlegm	14 (36.8%)	138 (39.2%)	.080 (1)	.777
Cough and cold	20 (52.6%)	212 (60.4%)	1.174 (2)	.556
Diarrhea and vomiting	10 (26.3%)	66 (18.7%)	1.272 (1)	.259
House condition perceived adequate				
Cough and phlegm	52 (33.3%)	101(43.2%)	3.793 (1)	.051
Cough and cold	85 (54.5%)	147 (63.1%)	2.873 (1)	.090
Diarrhea and vomiting	33 (21.0%)	42 (17.9)	.571 (1)	.450
House size perceived adequate				
Cough and phlegm	48 (37.5%)	105 (39.8%)	.187 (1)	.665
Cough and cold	71 (51.5%)	162 (61.6%)	1.343 (1)	.247
Diarrhea and vomiting	30 (23.4%)	46 (17.4%)	2.045 (1)	.153
Child's gender				
	Males	Females		
Cough and phlegm	72 (36.9%)	81 (41.1%)	.724 (1)	.395
Cough and cold	118 (60.7%)	115 (58.4%)	.243 (1)	.622
Diarrhea and vomiting	33 (16.8%)	43 (21.8%)	1.569 (1)	.210

Table 4.20 refers to children's health in relation to continuous characteristics, which were analyzed, as for the mothers, in relation to the symptom combinations

cough and phlegm, cough and cold, diarrhea and vomiting. Results indicate a significant negative association between the children's age and combined symptoms of cough and cold ($P=.001$) and diarrhea and vomiting ($P<.001$). Monthly income was negatively and significantly associated with all 3 symptom combinations: $P=.020$ for cough and phlegm, $P=.004$ for cough and cold, and $P=.041$ for diarrhea and vomiting. Moreover, the following continuous variables also have significant associations with specific combined symptoms: Years in the community in relation to diarrhea and vomiting ($P=.002$); years in the house and diarrhea and vomiting ($P=.001$). However, the number of children who are ≤ 10 years old in the household, the number of hours spent with the children each day and mother's educational level showed no significant association with the combined symptoms. On balance, there could well be substantial confounding of unadjusted non-Habitat/Habitat comparisons of children's symptom rates.

Table 4.20: Children's health in relation to continuous potential confounders

Characteristic	Logistic modeled odds ratio per unit increase	P-value
Child's age		
Cough and phlegm	.992	.807
Cough and cold	.888	.001
Diarrhea and vomiting	.824	<.001
Number of children \leq 10 years old in household		
Cough and phlegm	.911	.292
Cough and cold	.922	.346
Diarrhea and vomiting	1.060	.574
Hours spent with children each day		
Cough and phlegm	.982	.249
Cough and cold	1.005	.736
Diarrhea and vomiting	.997	.853
Mother's educational level		
Cough and phlegm	.972	.777
Cough and cold	.915	.371
Diarrhea and vomiting	.965	.775
Years in community		
Cough and phlegm	.947	.246
Cough and cold	.998	.971
Diarrhea and vomiting	1.2226	.002
Years in this house		
Cough and phlegm	.988	.799
Cough and cold	1.032	.504
Diarrhea and vomiting	1.229	<.001
Monthly Income		
Cough and phlegm	.996	.020
Cough and cold	.996	.004
Diarrhea and vomiting	.995	.041