

## CHAPTER V

### DISCUSSION AND RECOMMENDATIONS

#### 5.1 Discussion

From this study, there are 4 main types of results, which are important to emphasize:

1. **Housing conditions:** For most measurements, physical conditions in Habitat houses were substantially and statistically significantly better than in non-Habitat houses. Furthermore, more residents of Habitat homes than non-Habitat homes perceived their housing conditions to be adequate. These findings indicate that at the individual family level, the Habitat program is successfully improving the housing situation in Phnom Penh. At present, Habitat Cambodia engages in 3 types of housing improvement interventions: (1) construction of new houses; (2) rehabilitation or repair of existing houses; and (3) installation of toilets. Generally a new habitat house is about 30 m<sup>2</sup> in area and has brick walls, galvanized-iron sheets for roofing, concrete foundations and a toilet with septic tank. On the other hand, many non-Habitat houses have inadequate toilet facilities (35.4 %), and inadequate physical conditions, usually made of thatched-leaves or other non-permanent materials that do not offer protection from natural elements such as the varying weather conditions. The higher rates of perceived adequacy in Habitat home residents strongly suggests that they are more satisfied than non-Habitat residents with their housing condition. This could in turn contribute in the long run to an improved outlook in life, which may result in long-term health benefits. The study by

Wolff et al. (2001) concludes that the health benefits were not solely derived by the physical housing structure but also from an improved outlook on life, quite possibly resulting from improved housing conditions.

2. **Mothers' and children's symptom rates:** In general there was no substantial or significant difference between Habitat and non-Habitat homes in recent incidence of mothers' or children's respiratory, gastrointestinal, or skin symptoms. The mothers' and children's symptom rates in both groups reported in the last 4 weeks were very high; suggesting that both may be exposed to important unidentified health risk factors in the community. It is important to emphasize that the Habitat for Humanity program is relatively new in Cambodia, and although the Habitat houses are in better physical condition than the non-Habitat ones, "time in the house" and several other factors may be contributing elements in influencing health. Also, the selected communities lack basic community infrastructure, such as proper roads, and basic services, such as proper drainage for waste water, subjecting both groups to the consequences of such environmental conditions. The effects of these potentially important factors were not addressed in this study, and could very plausibly have contributed to the high rates of reported symptoms in both groups, and tended to obscure any health benefit associated with Habitat housing.

3. **Specific aspects of housing that might affect the health status:** Although there were no significant differences in the health of mothers and children, this research shows that there are specific elements of the house that might contribute to decreasing the rate of certain symptoms. For example, lack of a toilet was associated with increased diarrhea and vomiting; 24% of the mothers who have no toilet facilities reported diarrhea and symptoms as compared on only 8.3% of those with adequate toilet facilities

( $P=.011$ ). This observation is consistent with the conclusions made by the study conducted by Wolff et al. (2001) that reveals that having access to safe water and owning a private toilet are significantly associated to lowering the odds of acquiring some illness. A study by Krieger, et al. (2002) likewise links housing quality with health, noting that lack of safe water source and ineffective waste disposal, which are common features of substandard housing have been identified as contributing elements to the spread of diseases.

4. **Socio-economic situation:** As the results in tables 4.1 and 4.2 show, both non-Habitat and Habitat households basically belong to the same socio-economic urban group in Phnom Penh, Cambodia; all are quite disadvantaged economically. They are typically found in settlements characterized by a lack of basic community infrastructure and services (e.g., clean water source, proper drainage systems, good roads, etc.) that contribute to the overall high incidence of certain illnesses. As documented earlier, Cambodia in general has one of the lowest socio-economic indices in the region. Clearly, the association between housing and health does not occur in isolation, and as emphasized in a study by Thomson et al. (2001) households with poor housing conditions often experience alongside other forms of socio-economic deprivations, which could have an effect on their overall health.

## 5.2 Limitations of the Study

1. Habitat for Humanity International – Cambodia is a relatively new country program that to date has helped less than 200 families in 3 community projects in Phnom Penh. This limited number of Habitat for Humanity houses in turn limits the confidence

and power of the tests for health-related differences between Habitat and non-Habitat housing, and of the other tests reported here.

2. This study specifically examined short-term respiratory, gastrointestinal, and skin symptom rates in Habitat and non-Habitat houses. The study, however, did not measure other potential benefits such as increased self-esteem, stronger neighborhood/community cohesion, and increased family economic value. Also, physiological manifestations of illness (e.g., reduced lung function) and long-term illness status were not assessed.

3. The time constraint for the research did allow the researcher to undertake a thorough multivariable analysis. We recognize that the *bivariate* analyses reported here do not rule out an influence of Habitat housing on the health measures employed. Judgment on this issue should be reserved until a multivariable analysis has been conducted. This is true especially because, as shown in the previous chapter, several factors could confound the observed *bivariate* relationships between Habitat housing status and symptom rates.

### **5.3 Recommendations for further research**

1. To be able to make a broader presentation of the effects of housing to health, further study needs to be undertaken wherein multiple factors are put into account using other analytical methods such as multivariate analysis.

2. Future study should also examine the long-term health effects of improved housing, using other research methodology such as case control and cohort studies to identify other factors that are associated with illnesses and delayed symptoms.

3. Also beneficial will be addressing other variables that may be affected by the housing condition, such as effects on the emotional and psychological health of children and caregivers.

#### **5.4 Recommendations to Habitat for Humanity:**

1. The Habitat Cambodia program is clearly improving the housing situation of beneficiary families, and is increasing their perception of housing adequacy. The program is to be congratulated for this, and hopefully will continue this important work.

2. Being a global organization, working in different socio-demographic contexts, it is important that HFHI institutionalize a continuous process of evaluating the health impact of its program in the health of families they serve.

3. From this study in Phnom Penh, Cambodia, the researcher discovered that HFHI offers a range of services and housing solutions (i.e., full house, repair, toilet improvement), depending on the financial capacity and the expressed needs of the families selected. The researcher, therefore, recommends that impact study be undertaken for each type of service or housing solution that will present a clearer picture of program's impact on the beneficiary families.

4. Results show that certain components of improved housing can be associated with certain health benefits. The results of this study show that families with adequate toilet facilities have lower incidence of gastro-intestinal symptoms. In implementing its incremental housing improvement program, Habitat should look at these results and results from other studies, and begin with improvements in components, such as the toilet, that have immediate health benefits to the families being served.

5. There are clearly other factors beyond the structure of the house that impact the health of individuals, especially in the economically disadvantaged communities to which Habitat Cambodia's target families belong. Firstly, this and other studies suggests that the larger environment, such as public services and infrastructure, community common areas and other surrounding areas are factors that may affect the overall health of the community. Moreover, other socio-economic factors, such as income, have important relationships with health. Habitat, therefore, could consider including a more holistic poverty reduction approach in its program implementation strategy for it to have a more meaningful impact in the lives of the families it serves. Habitat's current housing improvement efforts could thereby be integrated in the context of a broader community development program. We understand that Habitat is already considering supplementation of its housing improvement program with such a broader, holistic effort. This study's results strongly suggest that such supplementation would be highly desirable, and should be encouraged and supported. In thus broadening its purview, Habitat could consider collaboration with other organizations or community-based groups that focus on other aspects of community development, e.g., health, sanitation, and income generation.