

SURVEYING HOUSING'S EFFECT ON HEALTH

The condition of rental houses is typically worse than owner-occupied dwellings, but does that make them less healthy to live in? BRANZ looked at two sets of research programme outcomes to find out.

By Malcolm Cunningham, BRANZ Principal Scientist

Levels of household injury rates and respiratory health can be affected by factors such as smoking, crowding, socio-economic status, alcohol consumption and lifestyle. However, there are also those that are determined by the house itself.

To understand the role of the house in health and injury rates, BRANZ recently combined the findings of two separate pieces of research – the 2010 BRANZ House Condition Survey and the Healthy House Index which estimates health and safety in New Zealand houses.

The House Condition Survey found that the condition of rented houses was significantly worse than owner-occupied dwellings, and the question is whether, as a consequence, they are less safe and less healthy. BRANZ ran the Healthy House Index findings over the 2010 House Condition Survey data to find the answer.

Index measures health and safety of houses

The Healthy House Index, developed in collaboration between BRANZ and the Wellington School of Medicine, is designed to give a quantitative assessment of the health and safety of the houses under investigation.

Houses are inspected using a questionnaire designed to uncover specific hazards – hazards that have been found to correlate with injury rates and the chance of respiratory symptoms within these places. Typical hazards that may result in injury are slippery floors, stairs in poor repair and hot water over 55°C at the tap. Typical respiratory health hazards include mould in the house, dampness and poor levels of insulation.

Figure 1 shows the injury rate as a function of the number of injury hazards within a house, as given by the Healthy House Index, while Figure 2 shows the probability of at least one respiratory symptom per year as a function of the number of respiratory hazards.

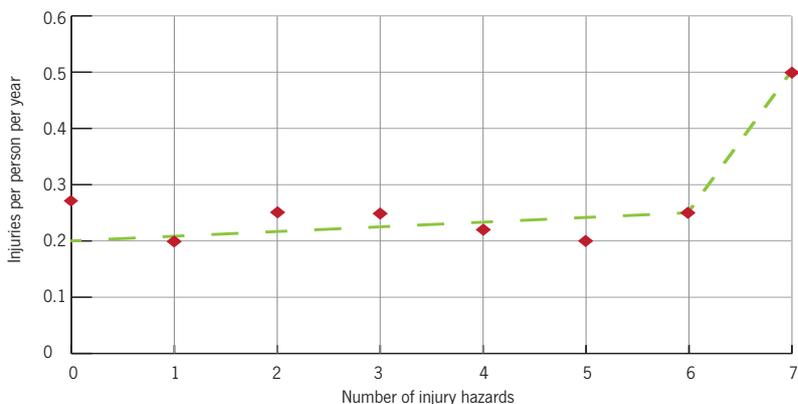


Figure 1: Injury rate as a function of the number of injury hazards within a house.

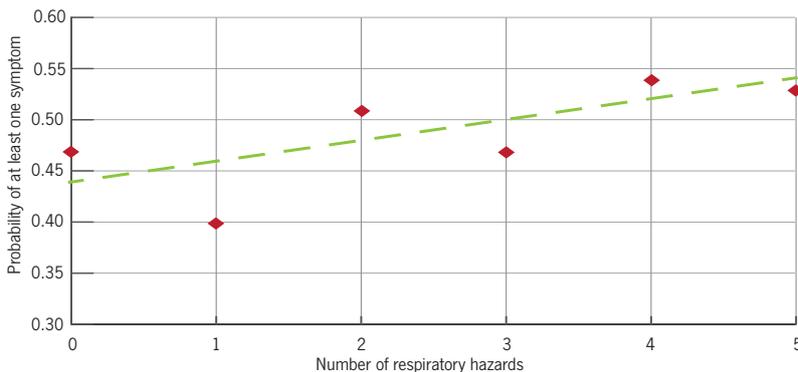


Figure 2: The probability of at least one respiratory symptom per year as a function of the number of respiratory hazards.



Figure 3: Overall condition found in the 2010 House Condition Survey.

BRANZ survey checked condition

The 2010 BRANZ House Condition Survey surveyed the structure, type and condition of a representative sample of approximately 500 New Zealand dwellings. One of its most important findings was that the condition of rented houses was significantly worse than owner-occupied houses (see Figure 3 and pages 68–69).

Within that general trend, the House Condition Survey found that mould levels were significantly worse in rented than owner-occupied houses (see Figure 4) – many more rented houses than owner-occupied houses have high levels of mould, and far fewer have no mould.

Many factors bearing on the injury sub-index were also significantly worse in rented than owner-occupied houses.

Are rental houses less healthy?

How, then, does this significant difference in condition of owner-occupied compared with rented houses reflect on differences between the health and safety of rented versus owner-occupied housing?

For the houses in the House Condition Survey, differences in health and injury rate were assessed by counting injury and respiratory hazards in each house, then the Healthy House Index was used to quantify the house-factor-determined health and safety from these hazard counts.

The Healthy House Index predicted mean injury rate and mean probability of at least one respiratory symptom are not much different from rented and owner-occupied dwellings (see Table 1), but Figures 5 and 6 show that there is a larger proportion of rented houses with high accident rates and higher probabilities of respiratory symptoms and a larger proportion of owner-occupied houses with low accident rates and low probabilities of respiratory symptoms.

The House Condition Survey sample allows easy extrapolation to the national level. At this level, we find that the distribution of accident rates and symptom probability are very similar to those of the House Condition Survey.

Beware smoking and lifestyle

Care must be taken in the interpretation of the Healthy House Index predicted accident rates and respiratory symptom probabilities. They are predicted rates associated with building condition only and are additional to important other effects, such as smoking and lifestyle. ◀

Table 1: Mean number of injury and respiratory hazards for the 2010 House Condition Survey houses.

	Owner-occupied	Rented
Mean injury rate (accidents per person per year, non-linear fit)	0.26	0.27
Mean probability of a respiratory symptom	0.46	0.47

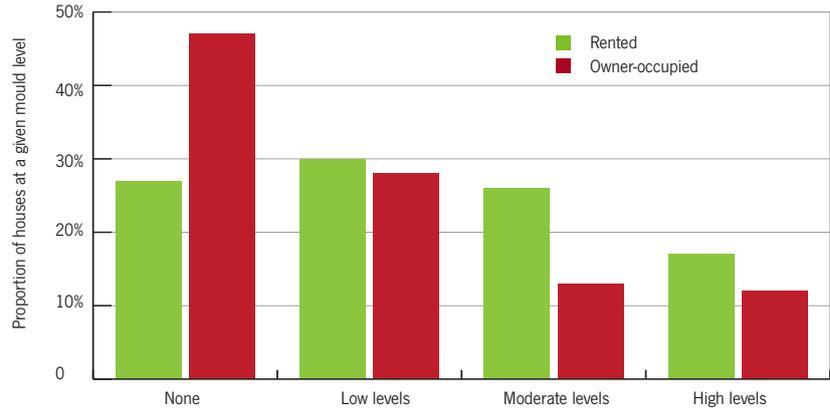


Figure 4: Mould levels found in the 2010 House Condition Survey.

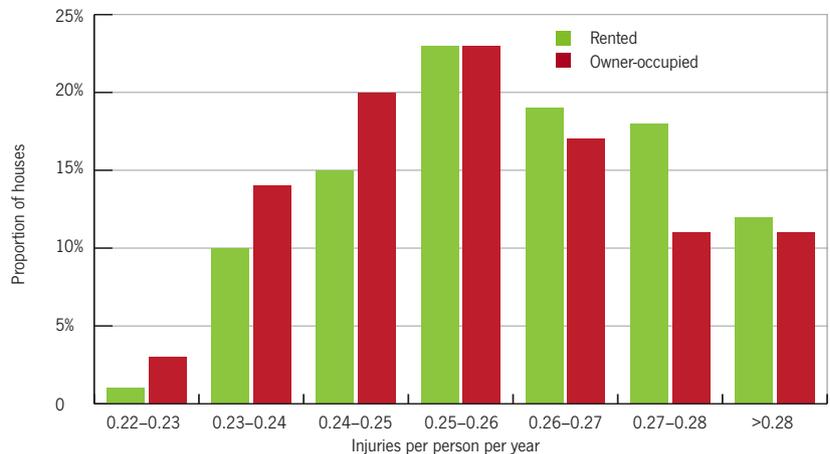


Figure 5: Distribution of Healthy House Index predicted accident rates for the 2010 House Condition Survey sample.

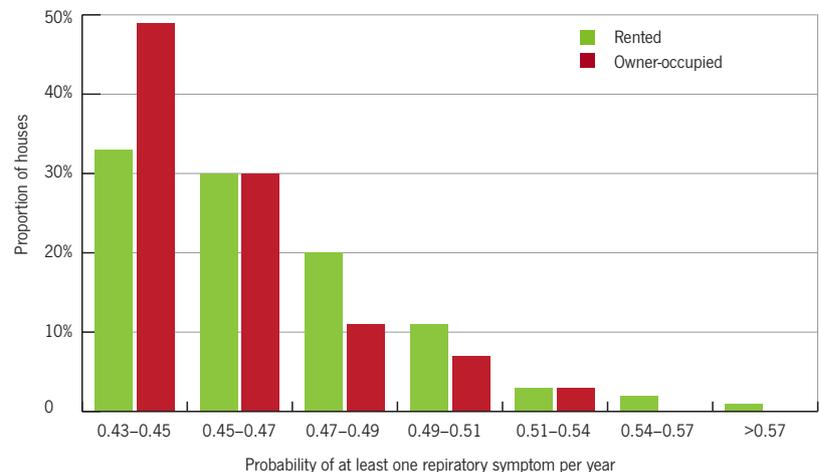


Figure 6: Distribution of the probability of at least one respiratory symptom per year for the 2010 House Condition Survey houses.