# Problem Set 3

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For this project I used 2014 Bangladesh Household Demographic and Heath survey data set. The BDHS is a nationally representative survey primarily focusing on the women in reproductive period and their young children of aged 0 to 59 months, and is a part of the worldwide Demographic and Health Survey program. For analytical purpose, this study uses matched records for children under the age of five with a mother aged between 15 and 49, leaving with 7886 observations.The BDHS dataset contains children's nutritional along with other socio-demographic variables at individual, household and community levels.

Figure 1 shows the distribution of Height for Age Z-score (HAZ), Weight for Age Z-score (WAZ), and weight for Height Z-score (WHZ) in the sample. HAZ, WAZ , and WHZ are three commonly used indicators to measure children's nutritional status. A child with HAZ lees than -2, WHZ less than -2, and WAZ less than -2 are considered as stunted, wasted and underweight, respectively. The first histogram (left) shows the Kernel density estimate of the Height for age Z-score distribution of children in Bangladesh.The second histogram (middle) shows the Kernel density estimate of the weight for age Z-score distribution of children in Bangladesh , and the third histogram (right) shows the Kernel density estimate of the weight for height Z-score distribution of children in Bangladesh. These curves are bell-shaped implying that the variables ( HAZ, WAZ and WHZ) are normality distributed.Looking into these graph, we can also infer that majority of the children are suffering for under-nutrition ( negative Z-scores).

Figure 2 shows the correlation between mothers' years of schooling and children's height for age Z-score. In the scatter plot/regression plot, the horizontal axis shows the years of schooling of the mothers and the vertical axis shows the height for age-Z score of the children under five. From the regression fitted line is showing a positive relationship between mothers years of schooling and children's nutritional status.

Figure 3 shows whether children's mean height for age Z-score varies with the wealth status of the households they live. The households are divided into five group: poorest, poorer, middle, richer, and richest. Each bar graph shows the mean height for age Z score for each of the groups. For example, the red bar is showing that the mean HAZ of the children in the poorest household group is -2.00. Accordingly, the yellow bar is showing that the mean HAZ of the children living in the richest family is -1.00. We can see that the poorer the family, the lower the mean value of HAZ.

Figure 1: Distribution of Height for age Z-score, Weight for age Z-score ,and Weight for height Z-score

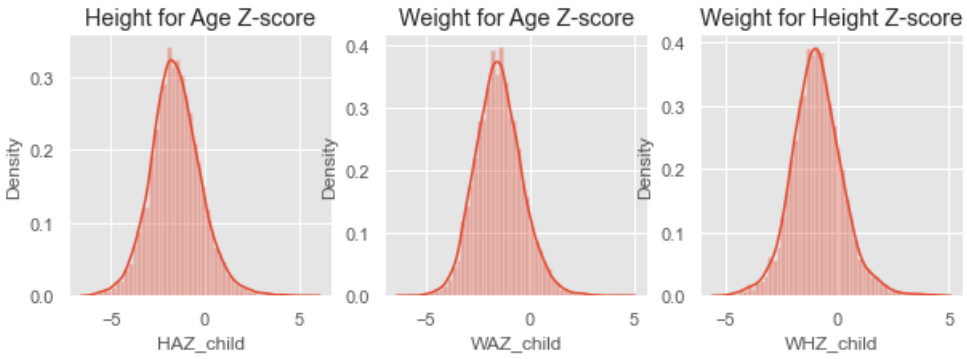


Figure 2: Relation between Mother's education and child nutrition

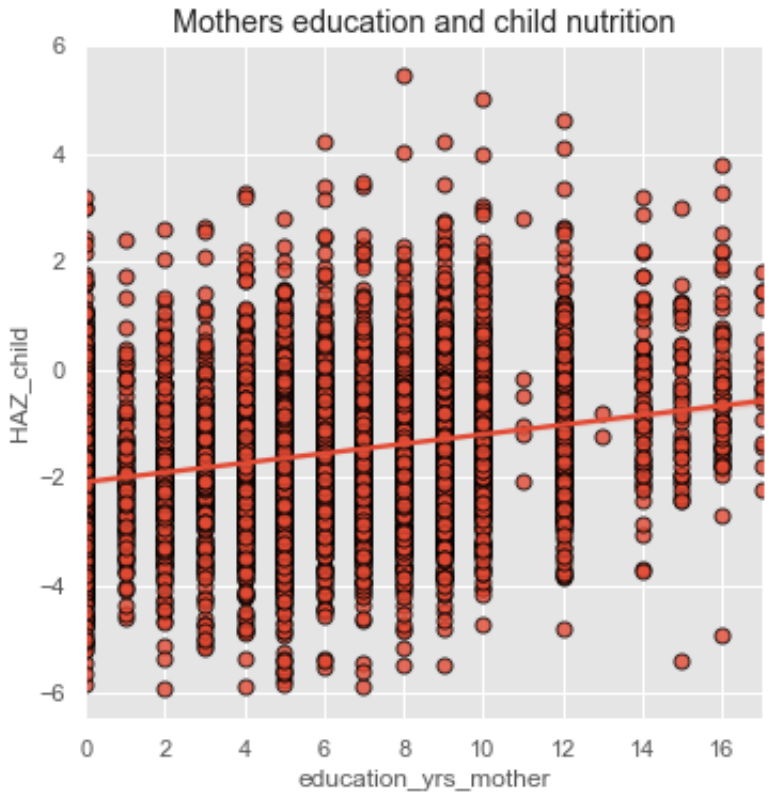

Figure 3: Relation between household wealth level and child nutrition