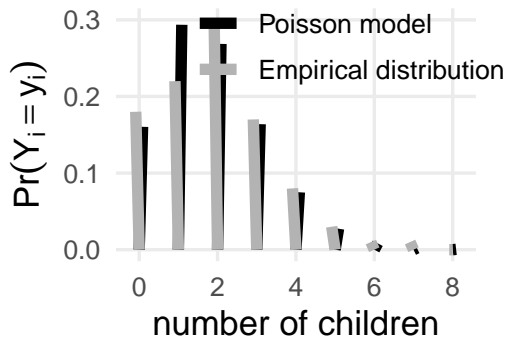
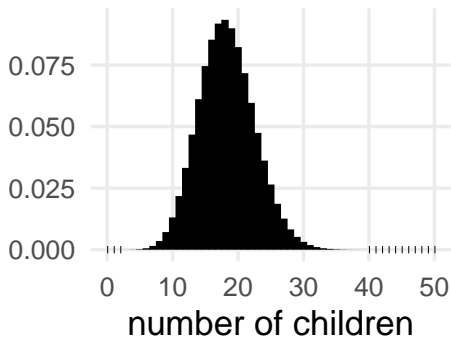


# Poisson distributions and the mean–variance relationship



$\Pr(\sum Y_i = y \mid \theta = 1.83)$



Left: Poisson pmf with mean  $\mu = 1.83$  (black) overlaid with an empirical distribution (grey)

Right: Distribution of the sum of 10 i.i.d. Poisson(1.83) variables; by additivity this is Poisson(18.3)

The increased spread illustrates the Poisson mean–variance relationship: larger means