Subject: Re: Multilevel modelling (ML)
Posted by Bridgette-DHS on Tue, 29 Apr 2014 14:25:17 GMT
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Following is a response from DHS Specialist, Tom Pullum:

Although the number of DPT doses can take the values 0, 1, 2, 3, I would not treat the number of doses as a count variable. The assumptions required for a poisson distribution or a negative binomial distribution are definitely not satisfied.

Treating the four possible values with a multinomial logit would be possible. The responses are indeed ordered; the ordered logit is a subspecies of multinomial logit. There is a test of whether the assumptions of the ordered logit are satisfied. If you use Stata, say, and the ologit command, a test statistic will be produced and you should only proceed if it indicates that the assumptions are satisfied.

You can read about these various assumptions in, for example, the text on statistical methods for categorical data by Alan Agresti or the text by Daniel Powers and Yu Xie.

If the assumptions for the ordered logit are not satisfied, you can always fall back on the multinomial logit, but it produces many coefficients and they would be hard to interpret. Frankly, I think you will get almost everything you can from this outcome if you just dichotomize it, depending on the data set you are using, as either 0 vs 1,2,3 OR as 0,1,2 vs 3. In most settings I have looked at, children usually get either no DPT doses or all DPT does. Be sure that you are looking a children who are old enough to have received all three.