Subject: Multilevel Regression Analysis
Posted by Jeremy on Mon, 13 Feb 2023 05:47:31 GMT
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Hello Dear DHS experts and specialists, I was doing a multilevel regression analysis using EDHS data in R on overweight and obesity. While I was analyzing for the year 2000, I got the error:

"Error in pwrssUpdate(pp, resp, tol = tolPwrss, GQmat = GQmat, compDev = compDev, : (maxstephalfit) PIRLS step-halvings failed to reduce deviance in pwrssUpdate" ,

but for the other years I got no error. And when I tried to remove the weighting variable it works but gives different result and I understand that weighting should not be omitted in such analysis. I searched for any solutions to same error in stack flow but couldn't get one. Also is it possible to use region (v025) same time as a predictor and grouping variable. Please I am looking forward for your kindly support.

I send you the R-syntax and my dataset please help me solve this error.
Thank you so much. Stay Blessed! Stay Safe!

Sincerely

Jeremy

File Attachments

1) Overweight&Obesity.txt, downloaded 101 times
2) ETIR41FL_OVOB.csv, downloaded 100 times

Subject: Re: Multilevel Regression Analysis
Posted by Bridgette-DHS on Mon, 13 Feb 2023 13:39:04 GMT
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Following is a response from Senior DHS staff member, Tom Pullum:

I did a quick comparison of the 2000 and 2005 Ethiopia surveys and I see no differences in the design, so I don't understand why you would have a problem with the 2000 survey, but not with, say, the 2005 survey.

Following is a response from Senior DHS staff member, Tom Pullum:

Yes, it's crucial to include the weights (to get unbiased estimates) and yes, a variable used in the description of the design can also be included as a covariate.

All I can suggest is that you use some general strategies for isolating problems like this. The first would be to start with a simple single-level model and then add specifications one at a time.

Another would be to start with a complex model and peel away some specifications (but that's what you have been doing...).

The older surveys, including both 2000 and 2005, do not have hc70-hc72 (in the PR file; hw700-hw72 in the KR file). I assume you have merged those variables in using the HW41 and HW51 files.

Perhaps other users can help.

Subject: Re: Multilevel Regression Analysis
Posted by Jeremy on Wed, 15 Feb 2023 10:24:58 GMT
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Thank you so much Dear Bridgette and Tom Pullum for your quick response. Actually I used same method, started from the null model (model 1), followed by a model with individual-level variables (model 2), a model with community level variable (model 3), and a model containing both the individual and community-level variables (model 4). I did not encounter the error in the first two models, I get the error when I reach the third model. And to make my question simple I shared you only the 2nd and 3rd models. I know it might be a very simple question, can you please help me with these questions.

1) For this study my aim is to do analysis of overweight/obesity on the reproductive women, so I used the IR file only, I did the same for another study of contraceptive use, I did not do any merging, do I have to make merging the IR file with any other for these studies?
2) If I want to study overweight and obesity of male and women of a country is it enough to merge only the IR and MR file?
3) What about if I broaden my scope studying the obesity of a country which files do I need to merge?

Thank You so much. Stay Blessed! Stay Safe!

Blessings!

Jeremy

Subject: Re: Multilevel Regression Analysis
Posted by Bridgette-DHS on Wed, 15 Feb 2023 13:19:44 GMT
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Following is a response from Senior DHS staff member, Tom Pullum:

Sorry I misunderstood the question earlier. I thought you were studying the anthropometry of children. Now I see you are focusing on women of reproductive age. The variables are v437-v447 in the IR file. That's the ONLY file you need to use. No merges with other files are needed, unless you want to add in some household characteristics such as sanitation that are in the PR file as covariates. You can do an IR/PR merge by matching v001 v002 v003 in the IR file with hv001 hv002 hvidx in the PR file. The woman's anthropometry data appear in the PR file as well as the IR file, but with different variable names.

The MR file is not really relevant. It includes men, and I don't think men's heights and weights have been measured in DHS surveys, although I may be mistaken. Children under 5 are measured in most, but not all DHS surveys, and for them you use the PR or KR file. It is possible to relate the anthropometry of children to that of their mothers. The KR file includes hw70-hw72 for children and also v445 for the mother (and other related variables) on the same record.

As for your problem with multilevel models, it may be that you don't really gain anything with a multilevel model, compared with a single-level model. I suggest that you compare the two, for a setup which does work for both, and see whether the results that can be compared are different.

Subject: Re: Multilevel Regression Analysis
Posted by Jeremy on Thu, 16 Feb 2023 03:19:13 GMT
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Thank you so much, I really appreciate your great support. Stay Blessed! Stay Safe!

Blessings!

Jeremy
