Subject: Case-crossover analysis with DHS
Posted by paull on Fri, 13 Sep 2024 13:29:32 GMT
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Hello,

I am using the DHS data from 5 countries (Uganda, Kenya, Tanzania, Burundi and Rwanda) to model the effect of temperature om neonatal mortality. Since the cycles 7 and 8 include the day of death for neonates, it's thus possible for me to calculate the date of death. I have created a time-stratified case-crossover with distributed lag non-linear models (from the dlnm package by Antonio Gasparrini) which uses a conditional logistic regression model. Unfortunately, the clogit in R does not work with complex survey designs. The other challenge is that because of the design of the case-crossover, I have to only include cases (i.e.those with b5=0 and b6<128 (ie 0-27 days). This introduces additional challenges since it's not possible to do sub-group analyses (the subpopulations would require creating control cases and lags). I have seen several studies using the DHS data and the time-stratified case-crossover to model the effects of temperature on health outcomes. I am requesting if there is a workaround this. I am posting links of articles that used the DHS and the cco for your reference.
https://www.sciencedirect.com/science/article/pii/S016041202 1005274
https://www.nature.com/articles/s41467-024-49890-x#:~:text=H
eat%2Drelated%20deaths%20accounted%2C%20on,4.1%25)%20(See%20Supplementary%20Fi
g.

On (un)related issues, I failed to convert the dates of birth for Ethiopia DHS (in the Ethiopian Calendar) to the Gregorian Calendar because the climate data used is in the Gregorian Calendar. How would I correctly convert the Ethiopian dates to the Gregorian Calendar from b1, b17, and b2.

NB: I am using the KR file. I hope that's the correct one to use.
I am happy to provide the R code used for the case-crossover.
Thank you so much.
Paul

Subject: Re: Case-crossover analysis with DHS
Posted by Janet-DHS on Fri, 20 Sep 2024 15:06:36 GMT
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Following is a response from DHS staff member, Tom Pullum:

First, to analyze mortality you cannot restrict yourself to the children who died. You need to include the children who survived. If you look only at children who died in the first 28 days, and omit children who survived the first 28 days, all you can analyze is the distribution across completed days 0-27. That distribution, for example the balance between early neonatal and late neonatal, is known to be related to the overall level of mortality.

Otherwise, your question is not specific to DHS data. It is about a statistical method that appears to me, initially, at least, to go beyond what is possible with the cross-sectional design of DHS

surveys. I have no suggestions for a workaround. Perhaps other users can add something.

Subject: Re: Case-crossover analysis with DHS
Posted by paull on Sat, 21 Sep 2024 07:25:40 GMT
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Hello Tom,
Thank you for your response.
It's the design of the case-crossover that you only restrict to cases (& then create controls from each case, i.e., each case serves as its own control for the same day of the week, same month and same year). For example, if the case occured on 10/jan/2016, the controls would be on 3rd, 17th, 23rd, and 30th Jan 2016. I will note this down as one of the limitations. However, can you help me on the Ethiopian data set to work around the dates to match the Gregorian calendar?

Thank you,
Paul

Subject: Re: Case-crossover analysis with DHS
Posted by Janet-DHS on Fri, 27 Sep 2024 15:34:36 GMT
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Following is a response from DHS staff member, Tom Pullum:
I will paste below the recommended adjustment for the Ethiopian calendar, taken from the Guide to DHS Statisticshttps://www.dhsprogram.com/Data/Guide-to-DHS-Statistics/index.cfm. You can find websites that will do exact conversions for specific days.

• Ethiopia: The Ethiopian calendar is 7-8 years behind the Gregorian (Western) calendar, and the

Ethiopian year starts around September 11th or 12th of each year (exact day varies). 1st July

2017 is 24 Sane (the 10th month) 2009 in the Ethiopian calendar. The Ethiopian calendar consists

of 12 months of 30 days, plus one month of 5 days (or 6 days in a leap year). The century month

codes in the dataset are all based on the Ethiopian calendar, but "squeezing" the 13th month

into a 12-month calendar. The reference date for surveys in Ethiopia is 1 Mäskäräm 1900 in the

Ethiopian Calendar, which is September 12, 1907, in the Gregorian calendar. To approximately

adjust dates to the Gregorian calendar add 92 months to the CMC.