Subject: Where can I find z-scores?
Posted by DHS user on Mon, 18 Feb 2013 21:46:22 GMT
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Is there a separate child dataset available that contains z-scores for stunting, wasting and underweight. Thank you!

Subject: Re: Where can I find z-scores?
Posted by Liz-DHS on Thu, 21 Feb 2013 15:11:55 GMT
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Dear User, HC70 to HC73 and HW70 to HW73 were introduced to the recode definition to store the standard deviations of the new WHO child growth definition. Essentially all files using the DHS-5 recode structure have these variables.

Subject: Re: Where can I find z-scores?
Posted by Reduced-For(u)m on Mon, 18 Mar 2013 20:42:23 GMT
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If you are a STATA user, there is a new package called "haz06" which you can install that will calculate the WHO standards using the height and age variables, which is particularly convenient when you are using older DHS surveys that only have the old standards. You have to be careful that you are using age and height in the right units (months and cm - I think).

If any of the mods/DHS people know something I don't know about this package, I'd be very happy to hear, but it seems to work pretty well for me, and the new standards are a lot more consistent across age (especially at the over/under 24 month cut) than the old ones, at least for populations with mean HAZ below -1 (like most of the populations the DHS covers).

Subject: Re: Where can I find z-scores?
Posted by Trevor-DHS on Mon, 18 Mar 2013 21:29:48 GMT
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For older DHS recode datasets there are also separate datasets available for download that contain the variables based on the WHO child growth standards. These datasets are listed as "Height and Weight Scores - WHO Child Growth Standards" in the list of datasets available for download.

Subject: Re: Where can I find z-scores?
Posted by Kwesi.Nkrumah on Tue, 19 Mar 2013 00:04:13 GMT
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Hello,

Alternatively you can use the a stata ado called igrowup, developed by WHO and based on the Multi-Growth Reference study. You can find it on WHO website together with it manual. This will help you to calculate the anthropometric indices your self if you so wish.

Thank you very much

Subject: Re: Where can I find z-scores?
Posted by mdma0011 on Fri, 22 Mar 2013 20:22:30 GMT
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HW70 Ht/A- stunting
HW72 wt/ht- wasting
HW71 wt/A- underweight
we know that "A child is considered short for its age or stunted if its height-for-age Z-score is below minus two standard deviation (SD) from the median of the reference population".

here in DHS if we code HW70 < -200 ; does it indicate stunted children ???

Subject: Re: Where can I find z-scores?
Posted by Reduced-For(u)m on Sat, 30 Mar 2013 04:14:52 GMT
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Yeah. The DHS reports the HAZ/WAZ/WHZ as standard deviations * 100, so -2sd is -200 here. I usually convert them back for graphs and figures, just so all the units are comparable to other work.

Just be careful when you are writing your definition that you don't accidentally make the missing values equal to 1 or 0, which can happen in certain environments.

So, in Stata, just to be sure, I would code:

```
gen stunted = HW70<=-200
  replace stunted = . if HW70==.
```

There are other ways to do that, but that's one example. Also, I'm not technically sure if -2 exactly is stunted or not. It should matter very little, but the question is whether to code "<" or "<=". Someone from DHS know the answer to that?

Subject: Re: Where can I find z-scores?
Posted by alimnoushad on Sat, 30 Mar 2013 09:12:43 GMT
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The WHO has introduced a software called WHO Anthro. By using the Anthro anyone can easily calculate Z scores on the NCHS and new WHO growth standard.

Subject: Re: Where can I find z-scores?
Posted by giacomo on Thu, 10 Jul 2014 14:01:37 GMT
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Reduced-For(u)m wrote on Mon, 18 March 2013 16:42
If you are a STATA user, there is a new package called "haz06" which you can install that will calculate the WHO standards using the height and age variables, which is particularly convenient when you are using older DHS surveys that only have the old standards. You have to be careful that you are using age and height in the right units (months and cm - I think).

Forgive me for contributing to a very old post, but my problem is related to this and in the future others may have the same issue.

I need to construct HAZ scores based on 2006 WHO standards for old rounds of the DHS data. To test the "zscore06" package in STATA I first tried to replicate the HAZ score provided by DHS in a recent dataset (Round V). The results I obtained for some observations are substantially different. I read the help provided with the package and the code (and variables' units) I used should be correct. Has anyone had experience on successfully replicating the HAZ scores with the "zscore06" package?

For your info, this is the code I used in a children dataset:

```
gen hw2_2 = hw2/10          /// Convert weight in Kg
gen hw3_2 = hw3/10          /// Convert height in cm

zscore06, a(hw1) s(b4) h(hw3_2) w(hw2_2)

gen HAZ = haz06 * 100

list HAZ hw70
```

Many thanks,
Giacomo

Subject: Re: Where can I find z-scores?
Posted by Trevor-DHS on Thu, 10 Jul 2014 17:20:37 GMT

Hi Giacomo,

A couple of notes for you:
1) You don't need to compute the z-scores for older rounds of data. The Z-scores for the older rounds of surveys are available in separate data files that can be downloaded. These are the HW (Height and Weight scores) files, for example for Benin 2001 the file is BJHW41xx.zip (where xx is the type of data file).
2) The reason you are not matching the z-scores in the DHS data is because of the calculation of age used in the computation of the Z-scores. HW1 only gives age rounded off to the month, but in the calculation of the z-scores we compute age to the day, as follows:

```
* Calculate measurement date in days
gen mdate = mdy(hw18, hw17, hw19)
* Calculate birth date in days
gen bdate = mdy(b1, hw16, b2) if hw16 <= 31
replace bdate = mdy(b1, 15, b2) if hw16 > 31
* Calculate age in months with days expressed as decimals.
gen age = (mdate-bdate)/30.4375
* Compute Z-scores
zscore06, a(age) s(b4) h(hw3_2) w(hw2_2)
```

Note, though that the zscore06 software does not handle some of the flagging of data that we do, so you will find some differences related to flagged cases and to cases where the data of birth was imputed (where b10 != 1).

I hope this helps.

Subject: Re: Where can I find z-scores?
Posted by giacomo on Thu, 10 Jul 2014 17:32:47 GMT

Dear Trevor,

That is a very exhaustive reply! Thank you very much for your help. I am aware of the separate files for HW scores but I initially thought would have been easier to compute the score in Stata. However, you raised a good point about the flagging.

Thank you again,
Giacomo

Subject: Re: Where can I find z-scores?

Posted by Gowokani on Wed, 03 May 2017 13:42:26 GMT
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Giacomo

Any luck with the dofile of how to generate the HAZ, WAZ, and WHZ using this methord for ealier versions of DHS?

Gowo

Subject: Re: Where can I find z-scores?
Posted by Trevor-DHS on Wed, 03 May 2017 17:15:07 GMT
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I'm not sure what exactly you are looking for. We have no additional dofile - we don't use Stata as the standard software for most of our processing. I recommend either using the downloadable datasets we have already produced, or calculating the scores as given earlier.

Subject: Re: Where can I find z-scores?
Posted by Gowokani on Mon, 08 May 2017 11:07:38 GMT
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Dear Trevor,

I am trying to calculate the HAZ and WAZ for 1992, 2000, 2006. I understand that you say these can simply be dowloaded in a "seperate file" which is available. Is this downloadable file located where we download the other datasets for a sepcific coutnrty? I cannot fid this. And if so, how is it matched to the individual data for a child/ mother characteristics in the other files/

Gowo

Subject: Re: Where can I find z-scores?
Posted by Trevor-DHS on Mon, 08 May 2017 14:35:54 GMT
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You didn't say which country you are interested in data for, but I'm guessing that you are looking for data for Malawi. If so, for example, you can go to the Malawi datasets download page for 1992, and find the files marked "Height and Weight Scores - WHO Child Growth Standards". These files contains the anthropometric z-scores. In the zip files for the height and weight scores you will find a document called merge.doc that describes how to merge the HW files to the other datasets.

Subject: Re: Where can I find z-scores?
Posted by Gowokani on Mon, 08 May 2017 14:42:58 GMT
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Trevor

Many thanks, you are a star- so fats and helpful

Gowo

Subject: Re: Where can I find z-scores?
Posted by habt_lancs on Fri, 14 Jul 2017 10:34:04 GMT
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Dear Liz-DHS,

I a couple of questions:

I am working on Ghana DHS

1. So let say we open the children's recod of DHS Ghana 2008. In that you will see two variables as far as height/age standard deviation is concerned: hw5 and hw70. What is the difference between them?

2. If you open the 1988 data of DHS Ghana in the 'height and weight' file you see, for-instance, ht/a standard deviations (according to who) or hc70. is this variable constructed using the new WHO growth standard (haz2006) or does it follow a different standard? Or, are hw 70 and hc70 comparable (constructed with same WHO growth standard)

3. i see these variables are reported in 100s points (like -200, -100), should i divide them by 100 to get the standard deviation- the Z-score?

Best Regards,

Subject: Re: Where can I find z-scores?
Posted by habt_lancs on Fri, 14 Jul 2017 10:40:52 GMT
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Dear Trevor,

The question is does the "Height and Weight Scores - WHO Child Growth Standards" file, say, in Ghana DHS 1988 constructed based on the new WHO growth standard? Can we merge it and compare it with like DHS 2008 height for age data?

best,

Subject: Re: Where can I find z-scores?
Posted by Trevor-DHS on Fri, 14 Jul 2017 15:30:23 GMT
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In 2006 WHO released new Child Growth Standards (http://www.who.int/childgrowth/en/). The anthropometric z-scores for these can be found in hc70 and hw70. Prior to 2006 we used the NCHS/CDC/WHO Growth reference and the z-scores for these can be found in hc5 and hw5.

The hc variables are part of the person's recode file for household members, and these provide the data for all children living in the household or who stayed in the household the previous night. The hw variables are restricted to children of interviewed women who were residents of the household or stayed in the household the previous night, and are a copy of the hc variables for that restricted subset.

The data are stored with 2 implied decimal places, and the values should be divided by 100 to restore the decimals. Howeveer, if you are just comparing to cut-offs such as -2 SD, then you can just write hc70 < -200 instead.

In DHS tabulations for nutritional status, we analyze the hc70 series variables.

The separate "Height and Weight Scores - WHO Child Growth Standards" are the z-scores for the new growth standard for older surveys and are design to be merged directly into the recode files, either with the KR file if the data were originally collected just for children of interviewed women (the earlier surveys), or with the PR file if te data were collected as part of the household questionnaire (later surveys).

Subject: Re: Where can I find z-scores?
Posted by habt_lancs on Fri, 14 Jul 2017 15:39:32 GMT
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Thanks so much; that helps a lot.

Subject: Re: Where can I find z-scores?
Posted by habt_lancs on Fri, 14 Jul 2017 16:28:14 GMT
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Dear Trevor,

I could not find household level information for Ghana DHS 1988. Variables like household head information and wealth.

any help?

Subject: Re: Where can I find z-scores?
Posted by Trevor-DHS on Fri, 14 Jul 2017 18:01:22 GMT
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These typically don't exist for the oldest surveys. The wealth index was not developed until the early 1990s and requires a good number of asset questions that were not asked in earlier surveys. Similarly, household and persons recode datasets do not exist for the DHS-I surveys, but you can find the household raw data and can construct some information about the head of household from that.

Subject: Re: Where can I find z-scores?
Posted by habt_lancs on Fri, 14 Jul 2017 18:11:19 GMT
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Thanks so much.

Subject: Re: Where can I find z-scores?
Posted by habt_lancs on Thu, 14 Sep 2017 15:17:35 GMT
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Dear Trevor-DHS

In the 1988 Ghana DHS, three regions (namely: northern , upper western and upper eastern) are combined together and coded as region 8.
It is very important that these regions are separated for my analysis.

Is there any way i can separate this region 8 in to three regions: northern , upper western and upper eastern.

Thanks.

Best,

Subject: Re: Where can I find z-scores?
Posted by Trevor-DHS on Thu, 14 Sep 2017 16:28:59 GMT
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Here are the cluster numbers in these regions:
Northern : 1292 1302 1312 1322 1422 1475 1485 1495
Upper West: 1332
Upper East: 1342 1352 1362 1372 1382 1505

however, please note that the sample was not designed to provide estimates separately for these three regions and any results produced for these regions would likely be inaccurate and not

representative of the population of those regions.

Subject: Re: Where can I find z-scores?
Posted by habt_lancs on Thu, 14 Sep 2017 17:22:52 GMT
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Thank You,

where do you get this information.

can you get me the source please.

Best,

Subject: Re: Where can I find z-scores?
Posted by Trevor-DHS on Thu, 14 Sep 2017 17:26:54 GMT
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Personal notes - I worked on this survey.

Subject: Re: Where can I find z-scores?
Posted by habt_lancs on Thu, 14 Sep 2017 17:27:53 GMT
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okay great.

Thanks.

Subject: Re: Where can I find z-scores?
Posted by habt_lancs on Wed, 13 Dec 2017 17:02:07 GMT
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hello,

I am using the household members recode by pooling the surveys conducted in different periods. And in this case i have to de-normalilize the weight by using the following procedure :

HV005*=HV005x(total number of residential households in the country at the time of the survey)/(total number of households interviewed in the survey)

Unlike, the population of female 15 -49 data that can be obtained from UN, i do not know how to get data on "total number of residential households in the country at the time of the survey".

any help please...

Best,

Subject: Re: Where can I find z-scores?
Posted by Liz-DHS on Thu, 24 May 2018 20:24:43 GMT
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Dear User, Do you still need assistance with this post?

Subject: Calculating Z-scores
Posted by hussainulahmad@gmail.com on Sun, 24 Jun 2018 13:14:23 GMT
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I want to calculate Z-scores for weight for age... Can anyone help in this matter... As I have tried R and SPSS package programs but these are giving errors and I can't resolve them....the file is attached....

File Attachments
1) survey.csv, downloaded 1074 times

Subject: Re: Calculating Z-scores
Posted by Trevor-DHS on Wed, 27 Jun 2018 20:08:41 GMT
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Try WHO Anthro at http://www.who.int/childgrowth/software/en/

Subject: Re: Calculating Z-scores
Posted by Trevor-DHS on Wed, 27 Jun 2018 21:09:09 GMT
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Actually here is a file created using ENA for SMART (https://smartmethodology.org/survey-planning-tools/smart-eme rgency-nutrition-assessment/) using your data, saved as a CSV file and with the data in the format for use with ENA.

File Attachments
1) user_survey.as, downloaded 1240 times
2) user_survey.csv, downloaded 1249 times

Subject: Re: Where can I find z-scores?
Posted by alohciN on Tue, 24 Sep 2019 17:18:58 GMT
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Hi,

I am trying to re-calculate the Height For Age Z score and was wondering if this replace code is correct.

Is this replace code correct ?

replace bdate = mdy(b1,15,b2) if hw16>31

Or should it be:-

replace bdate = mdy(b1,hw16,b2) if hw16>31

I would greatly appreciate your help with this.

Regards,
Nichola

Subject: Re: Where can I find z-scores?
Posted by Trevor-DHS on Tue, 24 Sep 2019 18:21:34 GMT
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No, the code provided is correct. The first line is if the day of birth was reported (hw16 <= 31), and the second line is used if the day of birth was not reported, i.e. is "don't know" (98) or missing (99), in which case the value of 15 is used as the midpoint of the month.

gen bdate = mdy(b1, hw16, b2) if hw16 <= 31
replace bdate = mdy(b1, 15, b2) if hw16 > 31

Subject: Re: Where can I find z-scores?
Posted by alohciN on Wed, 25 Sep 2019 10:53:40 GMT
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Hi Trevor,

Much thanks for our reply.

I tried your codes but my results did not correspond with the calculated height for age (hw70).

I know it would not be exact but it seems way off. Also, I have lost a few observations in the process. I am not sure if I did something wr

Subject: Re: Where can I find z-scores?
Posted by Trevor-DHS on Wed, 25 Sep 2019 14:05:59 GMT
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Can you share your code, and which dataset you are using.

Subject: Re: Where can I find z-scores?
Posted by alohciN on Wed, 25 Sep 2019 16:40:54 GMT
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Dear Trevor,

Here is the code used:-

```
gen mdate = mdy(hw18,hw17,hw19)
gen bdate = mdy(b1,hw16,b2) if hw16<=31
replace bdate = mdy(b1,15,b2) if hw16>31
gen age = (mdate-bdate)/30.4375
zscore06, a(age) s(b4) h(hw3_2) w(hw2_2)
```

I am working with DHS Guyana 2009 Data.

Subject: Re: Where can I find z-scores?
Posted by Trevor-DHS on Wed, 25 Sep 2019 20:44:57 GMT
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The code described earlier is a little simplistic and doesn't handle all of the special cases that need to be taken into account. The code below addresses these. The code displays cases where the output of zscore06 and the DHS variables differs, but these should all be flagged cases where DHS has set the variables to a special value.

The following special situations are handled:
1) Setting the weight or height to missing if the child was not weighed or measured
2) Setting the age to missing if either the month or year of birth was not given, but assuming day 15 if only day of birth was not given. Some dates are imputed, but these are not used as they are not accurate measures of age in months (values of b10 > 1)
3) Setting whether the child was measured lying or standing.
4) DHS has used a special rule that if reported as "standing" but age is < 8 month (actually 240 days), this is ignored and the child is assumed to have been lying. Similarly if reported as "lying" but age 3 years or older (>1095 days) the child is assumed to have been standing. Note that this rule is likely to change in future surveys following WHO guidance to ignore "standing" if the child is less than 9 months of age, but permit "lying" for children older than 3 years.
5) zscore06 does not flag cases with implausible values. The code below flags H/A, W/A and W/H based on the zscore06 output variables. zscore06 leaves the implausible zscores in the data, while DHS replaces them with special values.

6) In earlier survey such as Guyana 2009, DHS variables hw70, hw71, or hw72 are all marked as flagged if any of the 3 indicators were flagged in 5) above. This has changed in more recent surveys so that only the individual indicator is marked as flagged.

```
gen hw2_2 = hw2/10
* set weight to missing if not weighed for any reason
replace hw2_2 = . if hw2 >= 990
gen hw3_2 = hw3/10
* set height to missing if not measured for any reason
replace hw3_2 = . if hw3 >= 9990

* calculate date of measurement and date of birth
gen mdate = mdy(hw18,hw17,hw19)
gen bdate = mdy(b1,hw16,b2) if hw16<=31
replace bdate = mdy(b1,15,b2) if hw16>31
* if month or year of birth not reported, we don't have accurate age
replace bdate = . if b10 > 1
gen age = (mdate-bdate)/30.4375

* lying or standing
gen measure = hw15
replace measure = . if measure == 9
* DHS ignores lying or standing if: "standing" but < 8 months (240 days); or "lying", but >= 36 months (>1095 days)
replace measure = . if measure==2 & age <   8 & age!=.
replace measure = . if measure==1 & age >= 36 & age!=.

* calculate z-scores
zscore06, a(age) s(b4) h(hw3_2) w(hw2_2) measure(measure)

* mark those with different results - these should all be flagged cases
gen dif_ha = (round(haz06*100,1) == hw70) if hw3_2 != .
gen dif_wa = (round(waz06*100,1) == hw71) if hw2_2 != .
gen dif_wh = (round(whz06*100,1) == hw72) if hw2_2 != . & hw3_2 != .

* generate flag variables from the zscore06 variables
gen flag_ha = (haz06 < -6 | haz06 > 6)
gen flag_wa = (waz06 < -6 | waz06 > 5)
gen flag_wh = (whz06 < -5 | whz06 > 5)

* just show the cases with some difference to check
browse b4 b10 hw2_2 hw3_2 hw15 age haz06 waz06 whz06 flag_ha flag_wa flag_wh hw70 hw71 hw72 dif_ha dif_wa dif_wh if dif_ha == 0 | dif_wa == 0 | dif_wh == 0
```

Note that the code above is for use with the HW series of variables in the KR file. In fact, for most analyses of anthropometric data, DHS uses the PR file and the equivalent HC variables. The difference is that the PR file includes all children in the KR file, plus children who were residents of the household, but whose mother did not live in the household or was not interviewed, whereas

the KR file only includes children of interviewed women.

Subject: Re: Where can I find z-scores?
Posted by alohciN on Wed, 25 Sep 2019 21:17:32 GMT
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Hi Trevor,

Many thanks.

I have merged the Individual Recode (IR) and the Children's Recode (KR) to derive the mother with children born in the last 5 years. I was wondering if this is a right approach for the mother and child data. I also tried merging with the household data but I found my observations decreased.

I am interested in the mother with children data to examine the height for age z-score. Please let me know if the codes that you have sent can be used for the merged mother (IR) and child (KR)data.

Regards

Subject: Re: Where can I find z-scores?
Posted by Trevor-DHS on Wed, 25 Sep 2019 22:26:35 GMT
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This sounds ok, but you shouldn't have to merge the mother's variables from the IR file as most of those variables are already merged into the KR file.

Subject: Re: Where can I find z-scores?
Posted by Trevor-DHS on Wed, 25 Sep 2019 22:27:47 GMT
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This sounds ok, but you shouldn't have to merge the IR file into the KR file as most of the mother's variables from the IR file are already merged into the KR file.

Subject: Re: Where can I find z-scores?
Posted by alohciN on Thu, 26 Sep 2019 11:07:55 GMT
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Hi Trevor,

Many thanks for the codes! I was able to extract the data (haz06, waz06 etc) and it corresponds with the ones I had obtained from the DHS.

Thanks very much for all your help and guidance!

Regards

Subject: Re: How to convert mother's height in the DHS to feet
Posted by alohciN on Thu, 31 Oct 2019 16:30:20 GMT
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Hi Trevor,

Can you say how mother's height is calculated? In addition,
is it possible to have the codes to convert the cm-1d to feet?

Regards

Subject: Re: How to convert mother's height in the DHS to feet
Posted by Trevor-DHS on Thu, 31 Oct 2019 19:03:09 GMT
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Mother's height is measured - see the DHS biomarker questionnaire. You can use google to find out how to convert from centimeters to feet.