CHRIS Study

Blood collection form

Version 1.1

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1. Introduction

The information on the fasting status of the participant was collected for all participants at the CHRIS study center in Schlanders Hospital by means of a self-administered questionnaire, which was filled out on a tablet. The participant had the possibility to ask for clarification to a study assistant.

Participants book a morning appointment at the CHRIS study center, ranging from 7.45 to 8.45 a.m. Each study participant is assigned a workflow at the reception. If there are ten study participants (maximum capacity), there are ten different workflows, marked with the letters from "A" to "K". The current workflow is as follows: A-B-C-D-E-F-G-H-I-K. All the workflows can be found in the documentation of CHRIS Baseline/General information/Administrative data, in the file named “Workflows at baseline assessment”.

When making the appointment, participants are asked to stay fasting overnight and to drink only water before coming to the study center. During the self-administered questionnaire session, participants fill in the blood collection form where they can report deviations from the instructions given, including fasting status, alcohol drunk in the last 24 hours and cigarette smoked in the last three hours. Participants can have breakfast at the study center after the collection of the biological samples. The self-administered questionnaire is always administered after the blood drawing, and after breakfast.

This module was self-developed by IfB researchers when designing the study.

2. History version changes

The blood collection form was collected since August 24th, 2011. The cleaning process resulted in the following variables added:

variables added: x0bc03a x0bc06a x0bc09 x0bc12 x0bc12a x0bc13 x0bc13a

3. Data cleaning

1. The variables x0bc01 x0bc05 x0bc08 x0bc10 x0bc11 had their missing values set to “unexpected missing” (-89).
2. The variable x0bc01 (“Have you eaten during the 12 hours prior to the blood drawing?”), is followed by three further questions on the actual timing of the last time the participant ate, namely x0bc02, x0bc03, and x0bc04.
   These variables x0bc02-x0bc04 had their missing values set as
   a) “missing by design” (-99) if x0oc01=”No” or x0oc01=”missing by design”
   b) “unexpected missing” (-89) if x0oc01=”Yes” or x0oc01=”unexpected missing”
3. The variable “When have you eaten the last time?” (x0bc02) when still missing was completed according to the answers to the following question “At what time?” (x0ob03). Its missing values were set to:
   a) “Yesterday” if x0bc03 was between 20:00 and 00:00,
   b) “Today” if x0bc03 was between 00:00 and 08:00.
4. The variable “When have you eaten the last time?” (x0bc02) was corrected if the last mealtime (x0bc03) was after 18:00 and they answered “Today”: in that case, it was replaced with “Yesterday”.

5. If instead, the participant reported in x0bc02 to have eaten the last time yesterday, but the time given was in the morning, between 04:00 and 11:59, x0bc03 was turned from a.m. to p.m. time, adding 12 hours, storing it in the variable x0bc03a.
6. If the participant had eaten last time yesterday at 12:00, then x0bc03a was turned from p.m. to a.m. time, removing 12 hours.
7. If, lastly, the participant reported to have eaten the last time yesterday (x0bc02), between 00:00 and 03:00, then the value of x0bc02 was replaced with “Today”.
8. A categorical variable summarizing on which day and time the participant last ate, x0bc12a, is created. Its values are derived from x0bc02 and x0bc03a. Its values are: "Nothing (last 12 hours)", "yesterday, since 20 pm", "today, before 9 am", "today, since 9 am", "yesterday, before 20 pm", "yesterday", "today", "see blood drawing note”. The values “yesterday” and “today” are assigned to x0lp12a according to the value of x0bc02 when x0bc03 is missing.
9. The variable “Time last meal” x0bc12a was simplified into the dichotomic variable “Fasting status (yes/no)”, named x0bc12. The categories "yesterday, since 20 pm" and "today, before 9 am" are mapped into “No”, the categories “Nothing (last 12 hours)” and “today, since 9 am” into “Yes”. The last is based on the assumption that the participant referred to the breakfast offered after the blood test at the study center.
10. The values of x0bc12 and x0bc12a are corrected into “see blood drawing note” and into “No” respectively when the note reports that the participant has not fasted or that has drank some coffee/juice beforehand.
11. The variables storing which type of drink the participant had were corrected according to the free text (x0bc07e) reported.
    a) If “nothing” or “water” was reported, then the variable “Drink in the last 8 hours” was corrected into “No”.
    b) If “Tea” was reported in the free text, the variables x0bc07a and x0bc07b were set to “yes” according to whether the tea was with or without sugar, respectively.
    c) If any type of “juice” was reported in the free text, the variable x0bc07d (“juice”) was set to “yes”.
12. The variable x0bc07e was translated into German if an Italian text was given.
13. The variable x0bc07e was set to blank text if something other than a drink was reported.
14. A new variable, x0bc13a, was created based on the time of the last drink, x0bc06a. Its categories are "Nothing (last 8 hours)", "until 9 am", "between 9 am and 4 pm", "after 4 pm".
15. The variable x0bc13a was dichotomized into x0bc13 (“Self-reported no drinking”) as follows
    a) “after 4 pm” and “Nothing (last 8 hours)” were mapped into “Yes”
    b) The category “until 9 am” was mapped into “No”
    c) The category "between 9 am and 4 pm" was mapped into “unexpected missing” (-89)
16. The variable on alcohol drunk in the previous 24 hours, x0bc08, has been corrected into “yes” if in the free text drink variable, x0bc07e, an alcoholic drink was reported.
17. The variables describing which and how much alcohol was drunk, x0bc09a - x0bc09c, are set to “unexpected missing” if x0bc07e reports their corresponding beverage (beer, wine, schnapps, respectively) and no quantity information was provided by the participant.
18. If some quantity of beer (x0bc09a) was provided, then the missing values of wine (x0bc09b) and schnapps (x0bc09c) are set to 0. The same is done if only wine’s or schnapps’ quantity were provided.

19. The combinations of alcohol drinking and alcohol types are saved into a new variable named x0bc09, with categories “No alc”, “missing”, “beer only”, “wine only”, “schnapps only”, “beer+wine”, "beer+schnapps", "wine+schnapps", "beer+wine+schnapps", and "other".
20. The variable x0bc09 is set to “missing by design” if x0bc08=”No” and to “unexpected missing” if each of x0bc09a-x0bc09c is missing and x0bc08!=”No”

4. Advices for the analysis

Once analyzing the biochemical traits, the fasting status has to be taken into account. The variables of the blood collection form that best summarize the deviations are x0bc12 and x0bc13, i.e. the self-reported fasting and no-drinking status, respectively. Additionally, the number of cigarettes smoked (x0bc10) in the previous three hours and the inflammations, fever, infections in the previous ten days (x0bc11) can also help to understand out of range blood and urine parameters.

Generally, information such as the time of last meal (x0bc03) or last drink other than water (x0bc06) is prone to recall bias and is subject to various typos, including mixing a.m. with p.m. times and vice versa. For these reasons only the cleaned version variables are shared: x0bc03a and x0bc06a.

The poor quality of the answers of the alcohol quantities (x0lp09a-x0lp09c) does not ensure the usability of the variables within an analysis.

The quantity of smoked cigarettes (x0bc10) in the previous three hours is in certain cases too high to be trusted and might refer to daily consumption, especially when above ten. Additionally, some participants might declare in the interview not to be smokers, even though they reported in the self-administered survey that the smoke at least one cigarette in the previous three hours.

Similar inconsistencies arise with the alcohol consumption (x0bc05-x0bc08), which is more seldom in the interview data with respect to self-administered questionnaire.

5. References

Malenica M, Prnjavorac B, Bego T, Dujic T, Semiz S, Skrbo S, Amar Gusic A, Ajla Hadzic A, Causevic A, Effect of Cigarette Smoking on Haematological Parameters in Healthy Population, Med Arch 2017 Apr;71(2):132-136. DOI: 10.5455/medarh.2017.71.132-136

Šupak-Smolčić V, Antončić D, Ožanić D, Vladilo I, Bilić-Zulle L, Influence of a prolonged fasting and mild activity on routine laboratory tests, Clin Biochem 2015 Jan;48(1-2):85-8. DOI: 10.1016/j.clinbiochem.2014.10.005