CHRIS Study

Interview – Thyroid Diseases

Version 1.1

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1. Introduction

This module stores information related to the diseases of the thyroid of the participant, that was collected at the interview.

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". The interview occurs always after the spiralography and the blood drawing, for most as the last session, after the ECG assessment and the self-administered questionnaire (workflows B, C, E, F, H, I, L). For the remainder, the interview occurs after breakfast and just before the self-administered questionnaire (workflows A and G) or in between the blood drawing and the anthropometry (workflow D).

The interview full text and its corresponding answer lists are available at CHRIS Baseline/Interview. This first version of the module is based on the SCHILDDRÜSE module of the follow-up F4 questionnaire of the KORA Study (*Kooperative Gesundheitsforschung in der Region Augsburg*). The second and third version have been reviewed and restructured with the collaboration of Dr. Helmuth Weiß (Hospital of Schlanders).

2. History version changes

Version 1 of this interview module was in use between August 24th,2011 and November 2nd, 2012; Version 2 in use between November 5th, 2012 and November 20th, 2013; Version 3 in use since November 21st, 2013.

Version 1 to Version 2

variables dropped: x0th11, x0th11b

variables added: x0th07, x0th07a, x0th08, x0th09a, x0th09b, x0th12b, x0th12c, x0th13, x0th13a, x0th13b, x0th14, x0th14a, x0th14b, x0th14c, x0th14d, x0th14e, x0th14f, x0th14g

question order changed: from
(1) x0th01 (2) x0th02 (3) x0th03 (4) x0th04 (5) x0th05 (6) x0th06, to
(1) x0th02 (2) x0th07 (3) x0th01 (4) x0th05 (5) x0th03 (6) x0th04 (7) x0th06

question filtering criteria changed: x0th12

question rephrased: x0th01 (de), x0th02 (de), x0th05 (it), x0th06 (it), x0th09 (de)

Version 2 to Version 3

question filtering criteria changed: x0th12 (no restriction), x0th13 (no restriction)

3. Data cleaning

1. The main CHRIS dataset was loaded.
2. The variables on thyroid diseases ever diagnosed, x0th00, had it observations transformed into:
   a) "Unexpected missing" (-89) if they were missing,
   b) "Don't know" (-88) if the third answer option "I do not know" was chosen.
3. The variables on diagnosis of hyperthyroidism, hypothyroidism, goiter, nodule, Graves'/Basedow disease, thyroid cancer, and other thyroid diseases, x0th01, x0th02, x0th03, x0th04, x0th05, x0th06, and x0th09, had their missing observations transformed into:
   a) "Missing by design" (-99) if no thyroid disease ever was reported (x0th00="No", "Missing by design" or "Don't know")
   b) "Unexpected missing" otherwise.
4. The variables on the year at diagnosis of hyperthyroidism, hypothyroidism, goiter, nodule, Graves'/Basedow disease, thyroid cancer, and other thyroid diseases, x0th01a, x0th02a, x0th03a, x0th04a, x0th05a, x0th06a, and x0th09a, had their observations set to:
   a) "Missing by design" (-99) if they were missing and that specific disease was not reported (x0th0*= "No", "Missing by design" or "Don't know"),
   b) "Unexpected missing" if they were missing,
   c) "Don't know" if the year reported was 9999.
5. The variables on diagnosis of Hashimoto's disease, and other alteration of the thyroid function during pregnancy, x0th07 and x0th08, had their missing observations transformed into:
   a) "Not in use" if the questionnaire version x0thver was the first,
   b) "Missing by design" (-99) if no thyroid disease ever was reported (x0th00="No", "Missing by design" or "Don't know"),
   c) "Unexpected missing" otherwise.
6. The variable on the year at diagnosis of Hashimoto's diseases, x0th07a, had its observations set to:
   a) "Missing by design" (-99) if they were missing and Hashimoto's disease was not reported (x0th07= "No", "Missing by design" or "Don't know"),
   b) "Unexpected missing" if they were missing,
   c) "Don't know" if the year reported was 9999.
7. The variable on treatment with radioiodine therapy, x0th11, had its observations transformed into:
   a) "Not in use" if they were missing and the questionnaire version x0thver was not the first,
   b) "Unexpected missing" if they were missing,
   c) "Don't know" if the third answer option "I do not know" was chosen.
8. The variable on the year of the radioiodine therapy, x0th11a, had its missing observations transformed into:
   a) "Not in use" the questionnaire version x0thver was not the first,
   b) "Missing by design" if the radioiodine therapy was never undergone (x0th11="No", "Missing by design" or "Don't know"),

c) "Unexpected missing" otherwise.
9. The variable on surgery of the thyroid gland, x0th12, had its observations transformed into:
   a) "Missing by design" if they were missing and the questionnaire version x0thver was the second and no thyroid disease ever was reported (x0th00="No", "Missing by design" or "Don't know"),
   b) "Unexpected missing" if they were missing,
   c) "Don't know" if the third answer option "I do not know" was chosen.
10. The variable on the year of thyroid gland surgery, x0th12a, had its observations transformed into:
    a) "Missing by design" if they were missing and no thyroid surgery was reported (x0th12="No", "Missing by design" or "Don't know"),
    b) "Unexpected missing" if they were missing,
    c) "Don't know" if the year provided was 9999.
11. The variable on the type of thyroid gland surgery, x0th12b, had its observations transformed into:
    a) "Not in use" if they were missing and the questionnaire version x0thver was the first,
    b) "Missing by design" if they were missing and no thyroid surgery was reported (x0th12="No", "Missing by design" or "Don't know"),
    c) "Unexpected missing" if they were missing,
    d) "Don't know" if the specification variable x0th12c reported the participant did not know the surgery type.
12. The variable on thyroid therapy ever, x0th13, available since the second version, had its observations transformed into:
    a) "Not in use" if they were missing and the questionnaire version x0thver was the first,
    b) "Missing by design" if they were missing, the version was the second and no thyroid disease ever was reported (x0th00="No", "Missing by design" or "Don't know"),
    c) "Unexpected missing" if they were missing,
    d) "Don't know" if the fourth answer option "I do not know" was chosen.
13. The variable on current thyroid therapy, x0th13c, had its observations transformed into "Y" if the reported discontinuation year in x0th13b was 3000. The variable on discontinuation of thyroid therapy, x0th13b, was set to the examination year, x0_examy, if it was missing or 3000.
14. The variables on the start and discontinuation of the thyroid therapy, x0th13a and x0th13b, had their missing observations transformed into:
    a) "Not in use" the questionnaire version x0thver was the first,
    b) "Missing by design" if the thyroid therapy was never undergone (x0th13="No", "Missing by design" or "Don't know"),
    c) "Unexpected missing" otherwise.
15. The variable on thyroid diseases in the family, x0th14, had its observations transformed into:
    a) "Not in use" if they were missing and the questionnaire version x0thver was the first,
    b) "Unexpected missing" if they were missing,
    c) "Don't know" if the third answer option "I do not know" was chosen.
16. The variables on which relative had a thyroid disease, x0th14a- x0th14f, had their observations transformed into:
    a) "Not in use" if they were missing and the questionnaire version x0thver was the first,

b) "Missing by design" if no thyroid disease was reported among their relatives (x0th14="No", "Missing by design" or "Don't know"),

c) "Unexpected missing" if they were missing,

17. The variable on thyroid diseases in the family, x0th14, was corrected into "Yes" if in any relative was reported to have a thyroid disease in x0th14a- x0th14f.

18. All the age variables, x0th01b, x0th02b, x0th03b, x0th04b, x0th05b, x0th06b, x0th07b, x0th09c, x0th11b, x0th12d, were dropped in favor of the year variables, x0th01a, x0th02a, x0th03a, x0th04a, x0th05a, x0th06a, x0th07a, x0th09b, x0th11a, x0th12c.

19. The variables with free text on the surgery type, x0th12c, and on other not mentioned relatives with a thyroid disease, x0th14g, were translated and categorized.

20. The variable storing the notes additional information on thyroid diseases, thyroid surgery, thyroid therapy, and thyroid diseases familiarity, x0thn1, x0thn2, x0thn3, x0thn4, x0thnote, were translated and categorized when possible.

21. The content on the free text variables on thyroid diseases familiarity, x0th14g and x0thn4, was harmonized so that x0th14g contained only which other relative had a thyroid disorder, and x0thn4 included information also on the diagnoses for each relative.

22. The baseline dataset was saved.

4. Advices for the analysis

The content of the nurse's notes, referring to thyroid diseases, can include reporting information on thyroid treatment changes or multiple thyroid diagnoses, as well as multiple diagnoses made to their close relatives. Additionally, circumstances of thyroid malfunction (e.g. after a certain treatment) or borderline values are reported in x0thnote.

The questions on current treatment, despite available only for the second version, can be complemented with the drugs module x0dd, where the participant let their current medication packages be scanned by the nurse at the study center. Specifically, the variable x0dd24 reports on thyroid disease current treatment use.

Due to the availability in German of common words to describe most conditions, the typical word for hyperthyroidism is "Überfunktion" and for hypothyroidism is "Unterfunktion". Consequently, many participants were unaware if their condition classifies as hyper- or hypothyroidism. For this reason, multiple questions on specific types of hypothyroidism (e.g., Hashimoto disease in x0th07) and hyperthyroidism (e.g., Graves' disease in x0th05) were asked. Additionally, the analyst can use the values of blood analyses TSH, FT3, and FT4 (x0lp35, x0lp36a, and x0lp37, respectively) to distinguish objectively between hyperthyroidism and hypothyroidism.

Finally, the analyst should always take into account that the operator in charge of carrying out the interview might have influenced how the participant reported their answers. The analyst should therefore adjust for the operator variable, x0_opintc, when possible.

5. References

Löwel H, Döring A, Schneider A, Heier M, Thorand B, Meisinger C. The MONICA Augsburg surveys - basis for prospective cohort studies. Gesundheitswesen. 2005;67(Sonderheft 1):S13–S18. DOI: 10.1055/s-2005-858234

Holle R, Happich M, Löwel H, Wichmann H-E. KORA-A Research Platform for Population Based Health Research. Gesundheitswesen. 2005;67(Sonderheft 1):S19–S25. DOI: 10.1055/s-2005-858235