China Health and Retirement Longitudinal Study

Followup 2015

Blood Data Release Note

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![CHARLS logo]

China Center for Economic Research

Institute of Social Science Survey

Peking University

1 Introduction

CHARLS is harmonized to the Health and Retirement Study (HRS) and surveys in the family of related surveys. CHARLS began with a pilot study in two provinces in 2008 which is described in Zhao et al. (2009). The national baseline survey was then conducted in 2011-2012 with a follow-up wave in 2013. This follow-up wave did not include the collection of biomarkers. Wave 3 was then mainly completed between July and October 2015 (one PSU was collected in 2016). This included the second wave of blood collection that is described here. The CHARLS national sample includes respondents in 150 counties/districts, 450 villages/urban communities, across the country. In the first wave, 17,708 individuals in 10,257 households, reflecting the Chinese mid-aged and elderly population collectively, were interviewed. Blood data were available for 11,847 participants. In Wave 2, 19,055 were interviewed. In Wave 3, 21,100 were interviewed.

2 Blood-Based Bioassays

The venous blood samples described in this document have been assayed for high-sensitivity C-reactive protein (hsCRP), glycated hemoglobin (HbA1c), total cholesterol, HDL cholesterol, LDL cholesterol, triglycerides, glucose, blood urea nitrogen (BUN), creatinine, uric acid, and cystatin C. In addition information from a complete blood count (CBC) analysis done at local county health centers is described (this included hemoglobin, hematocrit, white blood cell count, platelet counts and mean corpuscular volume).

A more detailed description of released variables can be found in Table 1.

All the data sets are stored in Stata 13 format, you can also find the summary information of variables from the released codebook.

3 ID

The variable "ID" can be used to match the blood data with the other Wave 3 data, as well as with data from earlier waves including the Wave 1 blood data. You need to adjust the householdID and ID in the baseline, as noted in the release note of 2013 wave.

4 Response Rate

The target sample for taking blood samples was the entire group of 21,100 individuals who were interviewed in CHARLS wave 3 (20,284 were cross sectional sample). Out of this, we collected blood samples for 13,420 individuals (13,013 for cross sectional sample), a response rate of 64% (see Table 2). Women had a 3.77 response rate than men (65.95% versus 62.18%), and rural respondents had a 6.88 rate: 66.94% versus 60.06% for urban respondents.

5 Weights

We will only release cross-sectional weights from this wave, since panel weights depend on analysis purpose. Users can construct panel weights according to any appropriate sample arrition adjustment method.

The released **cross-sectional** blood sample weight, which call `Blood_weight` in the blood data, was constructed in the same way as that in wave 1 (Zhao et al., 2014). The weight is calculated based on the individual cross-sectional weights and a logit regression of whether the individual responses in blood collection, the blood level inverse probability weight factor is calculated by the inverse of predicted probability for each individual (cap at the 99th percentile).

6 Ethical Approval

The protocol of the blood-based biomarker sample collection study was approved by the ethical review committee (IRB) of Peking University (IRB 00001052-11014). Written informed consent was obtained from all study participants. For any inquiry about IRB document of CHARLS blood sample collection, please contact charls_info@pku.edu.cn.

7 Documentation

For a detailed description of the process of blood collection, the methods for blood-based bioassays and descriptive results, please refer to the following forthcoming paper: Xinxin Chen, Eileen Crimmins, Peifeng (Perry) Hu, Jung Ki Kim, Qinqin Meng, John Strauss, Yafeng Wang, Junxia Zeng, Yuan Zhang, Yaohui Zhao (2019), "Venous Blood-based Biomarkers in the China Health and Retirement Longitudinal Study (CHARLS): Rational, Design, and Results of the 2015 Wave", *American Journal of Epidemiology*, forthcoming.

Reference

[1] Yaohui Zhao, John Strauss, Albert Park, Yan Shen, Yan Sun (2009), "China Health and Retirement Longitudinal Study - Pilot Users' Guide", http://charls.pku.edu.cn/uploads/document/2008-charls-pilot/application/User_s_guide_Updated_on_Feb_16__2013_.doc

[2] Yaohui Zhao, Eileen Crimmins, Perry Hu, Yisong Hu, Tao Ge, Jung Ki Kim, John Strauss, Gonghuan Yang，Xiangjun Yin，Yafeng Wang (2014), "China Health and Retirement Longitudinal Study 2011-2012 National Baseline Blood Data Users' Guide", http://charls.pku.edu.cn/uploads/document/2011-charls-wave1/application/blood_user_guide_en_20140429.pdf

Table 1: Released Variables

Variable	Definition	Unit
bl_fasting	Fasting Blood Sample or not	—
bl_wbc	White Blood Cell	1000
bl_hgb	Hemoglobin	g/dl
bl_hct	Hematocrit	%
bl_mcv	Mean Corpuscular Volume	fl
bl_plt	Platelets	10^9/L
bl_tg	Triglycerides	mg/dl
bl_top_coding_tg	Whether top-coding Triglycerides values to 500 if orginal Triglycerides values more than 500	—
bl_crea	Creatinine	mg/dl
bl_bun	Blood Urea Nitrogen (BUN)	mg/dl
bl_hdl	High Density Lipoprotein Cholesterol	mg/dl
bl_ldl	Low Density Lipoprotein Cholesterol	mg/dl
bl_cho	Total Cholesterol	mg/dl
bl_glu	Glucose	mg/dl
bl_ua	Uric Acid	mg/dl
bl_cysc	Cystatin C	mg/l
bl_crp	C-Reactive Protein (CRP)	mg/l
bl_hbalc	Glycated Hemoglobin	%

Table 2: Blood Sample Response Rate

	Total	Cross Section				
		Total	Female	Male	Rural	Urban
Target Sample	21,100	20,284	10,625	9,659	12,075	8,209
Response Sample	13,420	13,013	7,007	6,006	8,083	4,930
Response Rate (%)	63.60	64.15	65.95	62.18	66.94	60.06