Introduction to Wave V of Add Health Data

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Outline

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Introduction

- National Longitudinal Study of Adolescent Health (Add Health) is a study that the Carolina Population Center at the University of North Carolina-Chapel Hill has conducted to follow a nationally representative sample of adolescents in grades 7-12 since 1994.
- These adolescents were first interviewed in 1994-1995 (Wave I) and followed up in 1996 (Wave II), 2001-2002 (Wave III), 2007-2008 (Wave IV) and finally 2016-2019 (Wave V).
- Add Health also has supplemental education data file. In fall 2001, the Population Research Center at that University of Texas-Austin collected data that supplement Add Health. These supplementary data focus on (1) educational achievement, (2) course taking patterns, (3) curricular exposure, and (4) educational contexts of Add Health respondents at Wave III.



What Is Special about Add Health?

- Add Health has a large sample that represents adolescents in grades 7 through 12 of the United States in 1994.
- Add Health collects comprehensive information on biological and psychological developments of adolescents and the social contexts, such as home, friends, intimate relationships, schools, and neighborhoods.
- With the Wave V of Add Health data, researchers can better understand how an individual's life change from adolescence to late adulthood.
- When all five waves of data combined, researchers can examine how social, psychological, and biological factors influence an individual's life through adolescence, young adulthood, and later adulthood.



Survey Design

- Add Health used the stratified two-stage sampling method:
 - The sampling frame is stratified by region, urbanization, school size, school type, and race composition
 - 80 high schools and 52 middle schools were selected with an unequal probability at the first stage
 - 90,000 students were selected to fill out in-school Add Health questionnaire, and 27,000 of them fill out in-home questionnaire
- Add Health oversampled twins and siblings of twins; nonrelated adolescents residing together; disabled minority students; blacks from well-educated families; and minority students who are Chinese, Cubans, and Puerto Ricans.
- Data were collected with Computer-Assisted Personal Interviewing (CAPI) and questionnaire.



Survey Design (Cont.)

Supplemental Education Data:

- The sample consists of all respondents at Wave III of Add Health.
- The study collected high school transcripts and other data from high schools that Add Health respondents last attended.
- The data were collected from 130 Add Health high schools and 1,400 additional high schools.
- Education data were collected for approximately 12,000 respondents, which is abut 80% of Add Health respondents at Wave III.



Survey Design (Cont.)

Tab 1. The Life Segament covered by Wave V of Add Health (N=12,300)																																					
	Adolescence					Young Adult Hood							Later Adulthood														M	idlife	Total								
Age at W1	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	4	5-64	
11	1	2	2					3	3					4	4								5	5													6
12		1,2	2	2				3	3					4	4	4							5	5	5	5											321
13			1,2	2	2			3	3	3				4	4	4	4						5	5	5	5	5										1,421
14				1,2	2	2			3	3	3				4	4	4	4						5	5	5	5	5									1,735
15					1,2	2	2			3	3	3				4	4	4	4						5	5	5	5	5								2,152
16						1,2	2	2			3	3	3				4	4	4	4						5	5	5	5	5							2,362
17							1,2	2	2			3	3	3				4	4	4	4						5	5	5	5	5						2,300
18								1,2	2	2			3	3	3				4	4	4	4						5	5	5	5	5					1,693
19									1,2	2	2			3	3	3				4	4	4	4						5	5	5	5	5				262
20										1,2						3	3					4	4	4							5	5	5				41
21											1,2						3	3					4	4							5	5	5	5			7

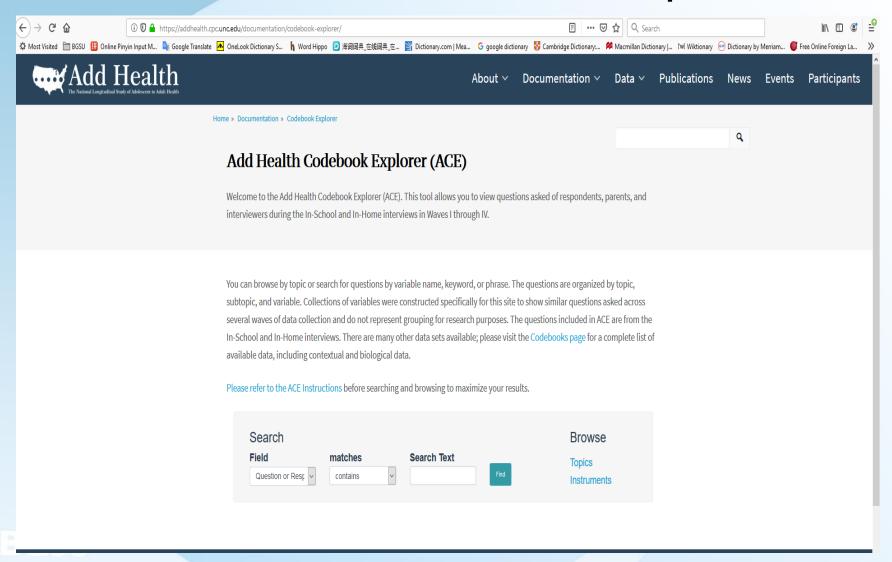


Subject Areas

- Add Health covers many interesting subject areas.
- Some of the areas have been covered at each wave, whereas others are covered at only certain wave or waves.
- The list of sections in the codebooks at each wave shows what subject areas were covered at each wave.
- When a subject area is covered across waves, it does not necessarily mean all questions about the subject area were asked across waves. So, it is very important to check at which waves a certain question was asked.

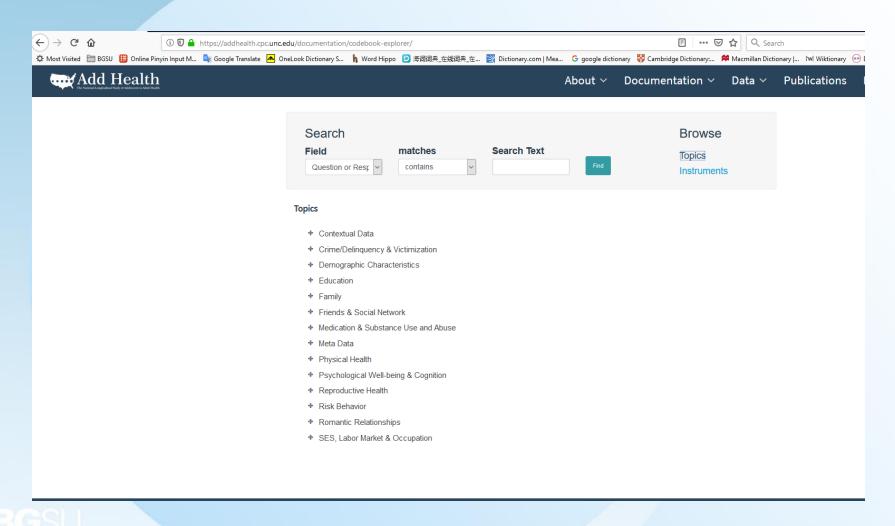


Add Health Codebook Explorer





Add Health Codebook Explorer (Cont.)



Data Files

- CFDR stores a copy of public data in the public folder
 (R:\CFDR\Public\Data\AddHealth). In addition, public data can
 be downloaded from ICPSR website
 (http://www.icpsr.umich.edu/icpsrweb/ICPSR/studies/21600).
- CFDR stores a copy of restricted data on the secured server (R:\AddHealth). Only people who have obtained the permission from the Carolina Population Center at the University of North Carolina-Chapel Hill can access the data.
- The difference between the public data and the restricted data is that public data contain about only one third of observations, whereas the restricted data have all of observations.



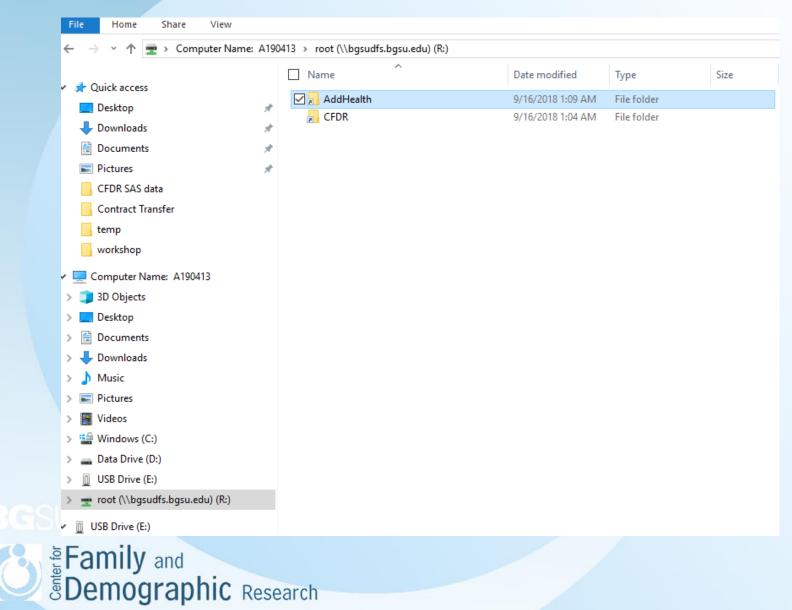
Data Files (Cont.)

- Supplemental Education Data
 - All education data are restricted data
 - CFDR stores a copy of restricted data on the secured server (R:\AddHealth). Only people who have obtained the permission from the Carolina Population Center at the University of North Carolina-Chapel Hill can access the data
- CFDR has constructed some SAS data sets from the restricted Add Health data, including the in-home interview data, weighted data, and family structure measures from Wave I through IV. These constructed data are stored in the folder "R:\AddHealth\ADD Health\Add Health study\CFDR SAS data."
- If you need to use restricted Add Health data, please contact Dr. Danielle Kuhl (dckuhl@bgsu.edu).

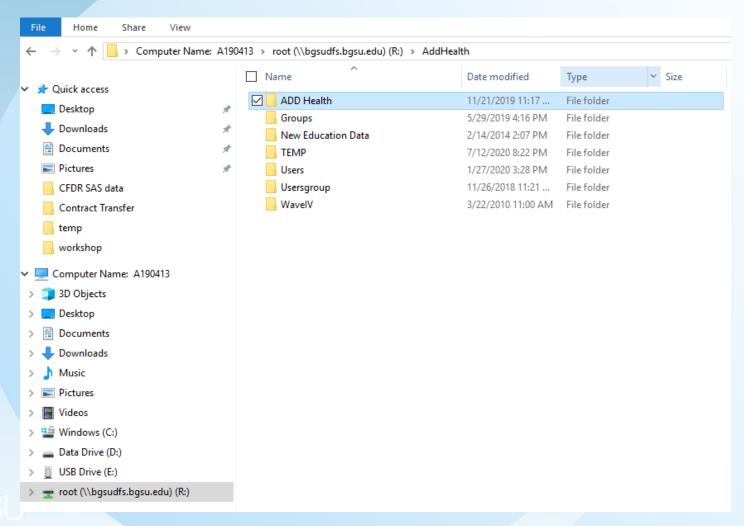


File Location

Folder name: R:\

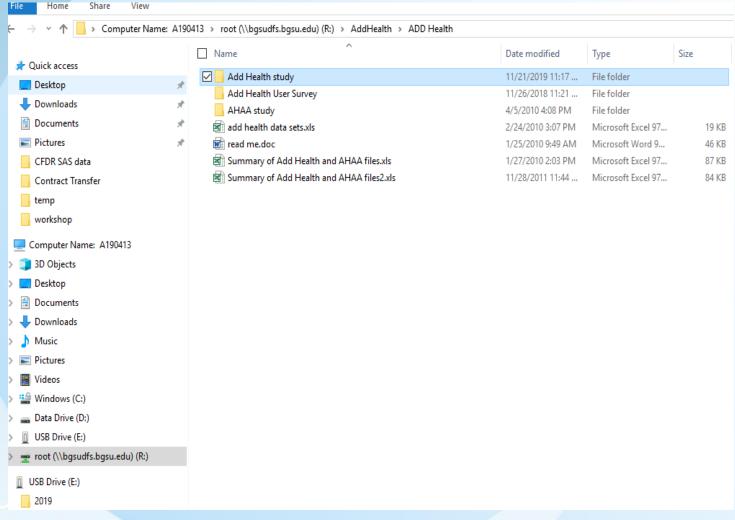


Former name: R:\AddHealth



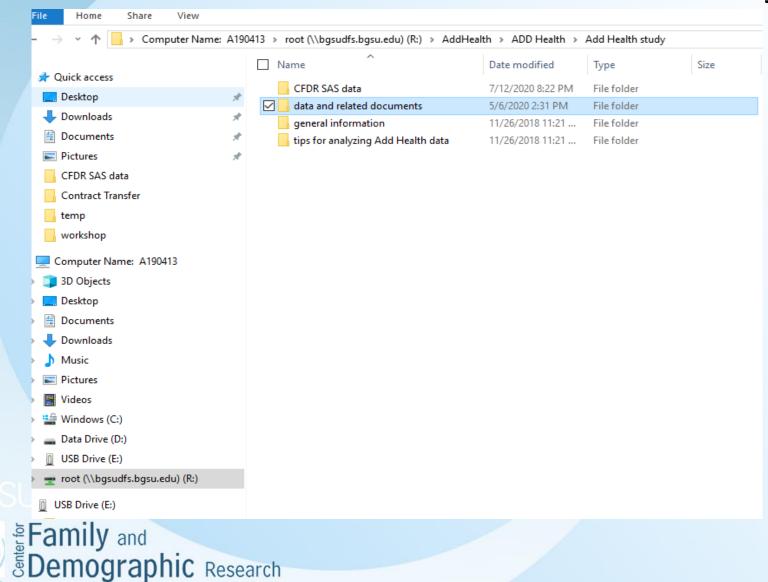


Folder name: R:\AddHealth\ADD Health

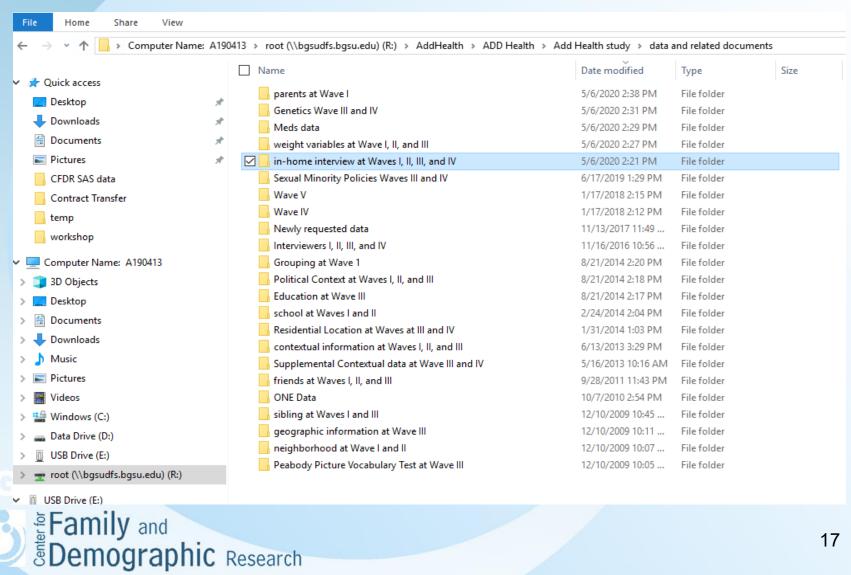




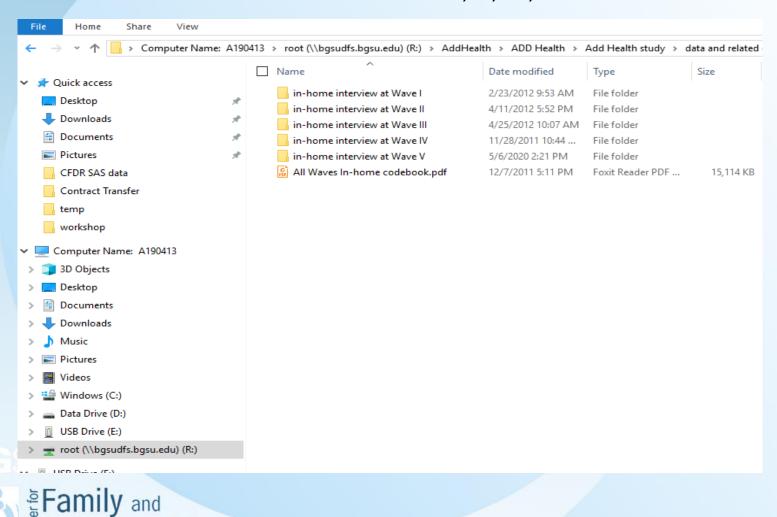
Folder name: R:\AddHealth\ADD Health\Add Health study



Main Add Health Data Folders: "R:\AddHealth\ADD Health\Add Health study\data and related documents"



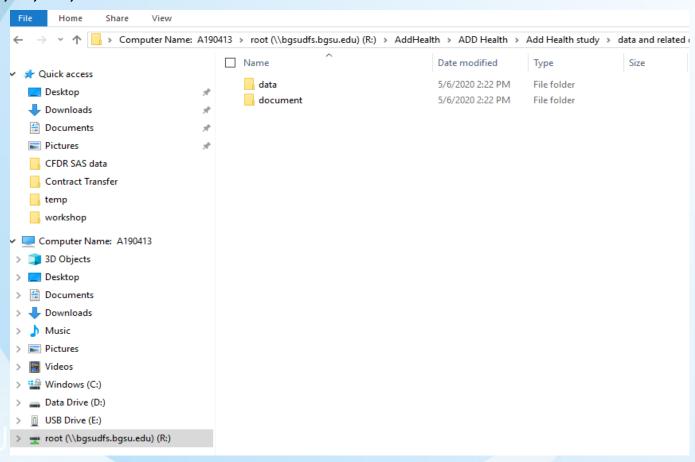
The location of first four waves of In-home interview data: "R:\AddHealth\ADD Health\Add Health study\data and related documents\in-home interview at Waves I, II, III, and IV"



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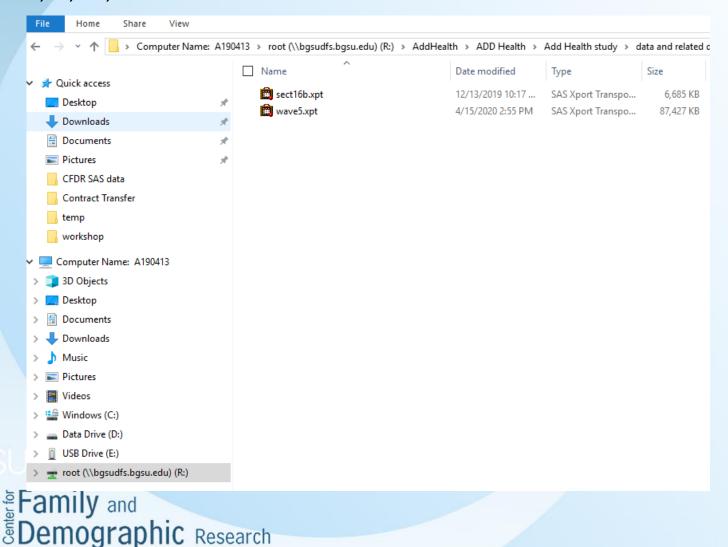


The location of In-home interview data at Wave V: "R:\AddHealth\ADD Health\Add Health study\data and related documents\in-home interview at Waves I, II, III, and IV\in-home interview at Wave V"

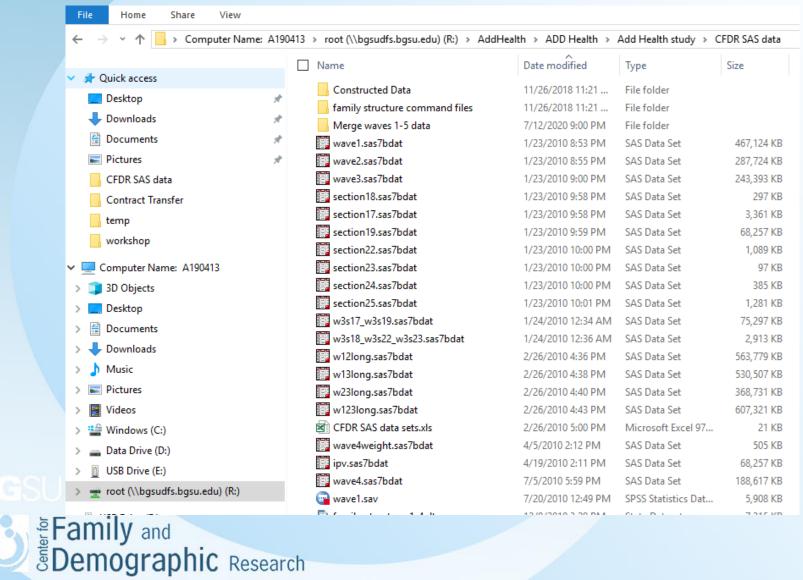




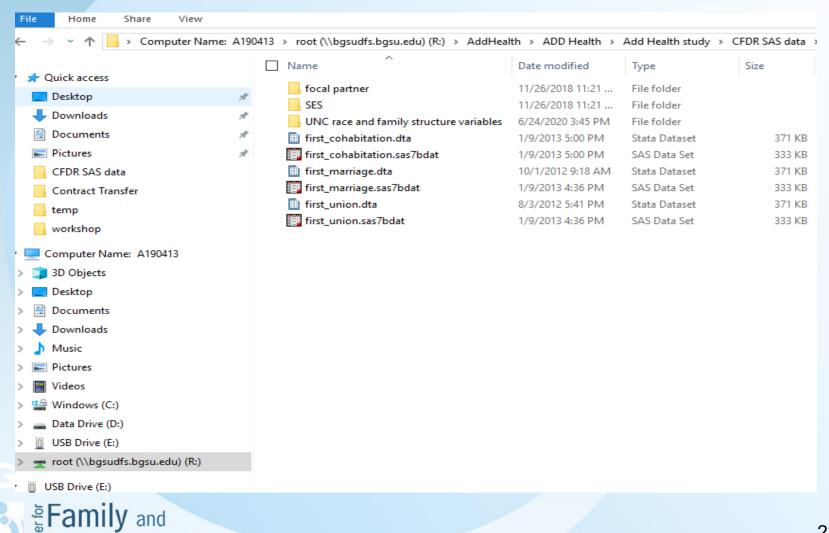
The location of In-home interview data at Wave V: "R:\AddHealth\ADD Health\Add Health study\data and related documents\in-home interview at Waves I, II, III, and IV\in-home interview at Wave V\data"



CFDR puts our constructed data and variables in a specific folder: R:\AddHealth\ADD Health\Add Health study\CFDR SAS data

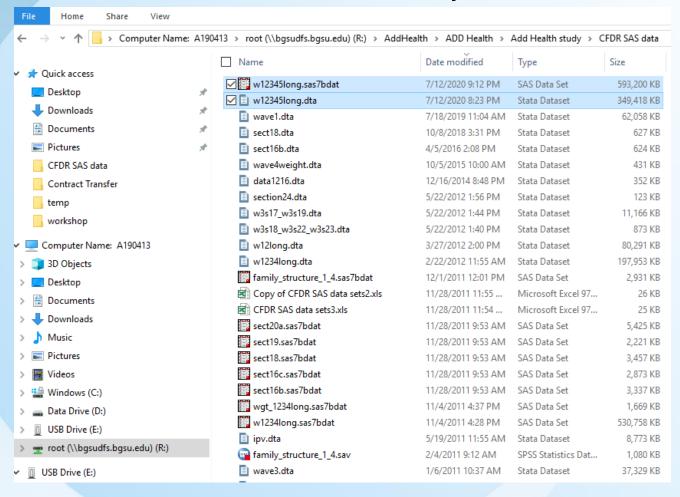


The content of the folder: R:\AddHealth\ADD Health\Add Health study\CFDR SAS data\Constructed Data



Demographic Research

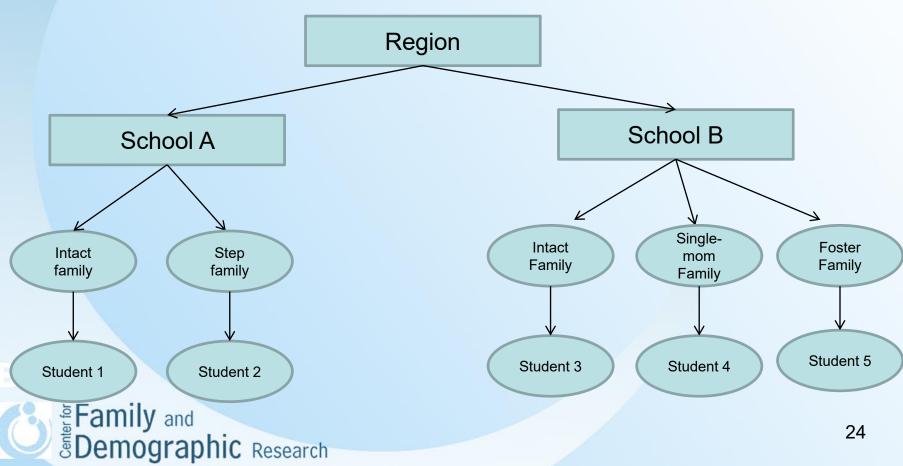
All Five Waves of In-Home interview individual data are in the folder "R:\AddHealth\ADD Health\Add Health study\CFDR SAS data"





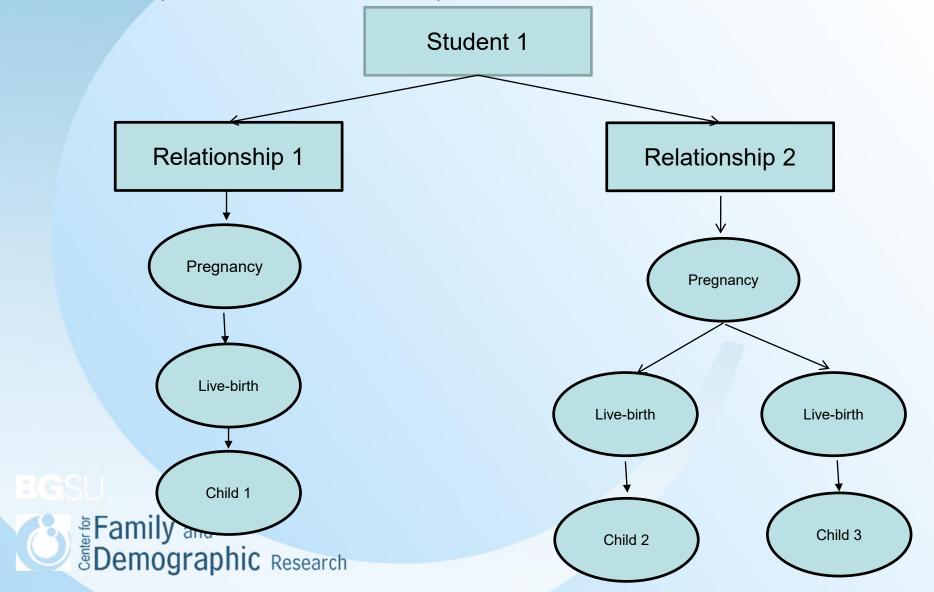
Unit of Analysis

- Add Health collects information on individual adolescents, their social environment (e.g., neighborhood, school, family) and various aspects of social relations and experiences (e.g., intimate relationship, pregnancy, live births, and parent-children relationship).
- An example of the nested structure of neighborhood, school, family, and individual adolescents as follows:



Unit of Analysis (Cont.)

• An example of the nested structure of Individual, relationship, pregnancy, live births, and parent-children relationship as follows:



Analytic Tips

- How to find the variables you need?
- How to read Add Health data?
- How to merge data?
- How to weight Add Health data?
- How to change the unit of analysis?



How to Find the Variables You Need?

- Use codebooks or Add Health Codebook Explorer to locate the variables of interest
- Add Health provides codebooks that list all of the names and wordings of the variables at each wave. Thus, if you are interested in the in-home interview data, you should start finding your variables by reading through the following codebooks:
 - WAVE1NDX.PDF
 - WAVE2NDX.PDF

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- wave3ndx.pdf
- wave4ndx.pdf
- WaveVMixed_ModeSurveyCodebook.pdf and WaveVSection16BCodebook
- Each subject area usually has its own codebook, and you can only find value labels in each codebook
 Family and

How to Read Add Health Data?

- The public data of Add Health may be in SAS, Stata, or SPSS format. You can use Stat/Transfer to change the data from one format to another
- The restricted data of Add Health are initially in SAS export format. The following codes provide instructions on how to use SAS and Stata to read in the SAS export file

How to Read Add Health Data? (Cont.)

SAS code:

LIBNAME wave1 xport "R:\ADD Health\Add Health study\data and related documents\in-home interview at Waves I, II, and III\in-home interview at Wave I\data\allwave1.exp";

LIBNAME out "r:\Add Health\temp";

```
Data out.wave1;
Set wave1.allwave1;
Run;
```

Stata code:

fdause "R:\ADD Health\Add Health study\data and related documents\in-home interview at Waves I, II, and III\in-home interview at Wave I\data\allwave1.exp"

describe



How to Merge Data?

- When do data need to be merged?
 - If you want to combine data from different waves of Add Health
 - If you want to combine data with different unit of measurements
 - If you want to use both Add Health data and Education data
- SAS and Stata sample commands to merge Waves I and II data are shown in the following slides:



How to Merge Data? (Cont.)

SAS code:

```
Libname in "R:\AddHealth";

*******************

PROC SORT DATA=in.wave1;

BY aid;

RUN;

*********************

PROC SORT DATA=in.wave2;

BY aid;

RUN;

*********************

DATA in.wave12;

MERGE in.wave1 (IN=in_wave1) in.wave2 (IN=in_wave2);

BY aid;

RUN;
```



How to Merge Data? (Cont.)

Stata code:

```
use "R:\AddHealth\wave1.dta"
  sort aid
  save "R:\AddHealth\wave1 2.dta", replace
  **********
  use "R:\AddHealth\wave2.dta"
  sort aid
  save "R:\AddHealth\wave2 2.dta", replace
  *********
  use "R:\AddHealth\wave1 2.dta", clear
  sort aid
  merge aid using "R:\AddHealth\wave2 2.dta
  tab1 merge
  rename merge wave12
  label variable wave12 "indicator for merging waves 1 and 2"
  sort aid
  save "R:\AddHealth\wave12.dta", replace
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```

How to Weight Add Health Data?

- Add Health data were collected with a complex survey design. Therefore, each respondent does not have the same probability of being selected into the sample and thus needs to be reweighted
- Clustering of students from the same regions and schools
- The analysis of Add Health data always needs to be weighted in order to adjust for the effects of its complex survey design
- SAS and Stata differ in their abilities of performing statistical analyses, while controlling for the effects of the complex survey design



How to Weight Add Health Data? (Cont.)

Table 3. Select Stata and SAS procedures for Analyzing Survey Data

Analysis	Stata command	SAS command
Estimate means for survey data	svy: mean	Proc Surveymeans
Estimate proportions for survey data	svy: tab	Proc Surveyfreq
Linear regression for survey data	svy: regress	Proc Surveyreg
Logistic regression for survey data, reporting odds ratios	svy: logistic	Proc Surveylogistic
Cox proportional hazards model for survey data	svy: stcox	Proc Surveyphreg
Ordered logistic regression for survey data	svy: ologit	
Ordered probit regression for survey data	svy: oprobit	
Multinomial (polytomous) logistic regression for survey data	svy: mlogit	
Multinomial probit regression for survey data	svy: mprobit	
Parametric survival models for survey data	svy: streg	
Generalized linear models for survey data	svy: glm	
Generalized negative binomial regression for survey data	svy: gnbreg	
Poisson regression for survey data	svy: poisson	
Zero-inflated negative binomial regression for survey data	svy: zinb	
Zero-inflated Poisson regression for survey data	svy: zip	



How to Weight Add Health Data? (Cont.)

If you use the full sample in the analysis, you can use either SAS or Stata for the analysis.

SAS code:

```
Libname in "R:\AddHealth\TEMP";

proc surveylogistic data= in.logit3;
cluster psuscid3;
weight gswgt3;
strata region3;
model h3ed3 = bio_sex3 calcage3;
run;
```

Stata code:

```
use "R:\AddHealth\TEMP\logit3.dta", clear
svyset psuscid3 [pweight =gswgt3], strata(region3)
svy: logit h3ed3 bio_sex3 calcage3
```



How to Weight Add Health Data? (Cont.)

If you use only part of the sample in the analysis, you should use Stata for the analysis because SAS has the sub-population options for the Proc Surveymeans command only.

Stata code:

```
use "R:\AddHealth\TEMP\logit3.dta", clear
svyset psuscid3 [pweight =gswgt3], strata(region3)
svy, subpop(marker): logit h3ed3 bio_sex3 calcage3
```



How to Change the Unit of Analysis?

- Changing the unit of analysis means changing the unit of observations in the data set. Because of the nested structure of Add Health data, you can change the unit of observations from one level to another
- When the unit of analysis changes, the number of valid observation changes, too

Table 2. The number of Units at Different Levels of Analysis for Section 25 of the Wave III of Add Health

Unit of Analysis	Number of Analysis Units
CHILD	4,181
BIRTH	4,181
PREGNANCY	4,055
RELATION	3,293
RESPONDENT	2,960

SAS and Stata examples of changing unit from birth to pregnancy



How to Change the Unit of Analysis? (Cont.)

SAS code: PROC SORT DATA = out.sect25 OUT=out.preg; BY aid rrelno rpregno; RUN; PROC FREQ DATA = out.preq; TABLES birthno; RUN; PROC TRANSPOSE DATA =out.preq OUT=out.f preg PREFIX =birth; BY aid rrelno rpregno; ID birthno; VAR c age; RUN; PROC CONTENTS DATA = out.sect25; RUN; PROC CONTENTS DATA = out.f preg; **Demographic** Research

How to Change the Unit of Analysis? (Cont.)

Stata code:

```
use r:\Add Health\temp\sect25.dta, clear
```

```
gen c_age = h3kk1
label variable c_age "S25Q1 AGE OF CHILD-W3"
keep aid rrelno rpregno birthno c_age
des aid rrelno rpregno
sum rrelno rpregno
```

```
tab1 birthno, mis reshape wide c_age, i(aid rrelno rpregno) j(birthno)
```

des

rename c_age1 birth1 rename c_age2 birth2



Studies Using Add Health Data

- There have been more than 4,000 publications using Add Health. You can locate them through Add Health or ICPSR web site:
 - Add Health Web site: https://addhealth.cpc.unc.edu/publications/
 - ICPSR website: After you find Add Health data, click on the "Data-Related Publications"

Help with Add Health Analyses

CFDR Add Health Working Group

This group provides a forum for Add Health users at BGSU to present their findings and obtain feedback from its members. This group is organized and supervised by an experienced Add Health user, Dr. Danielle Kuhl. If you are interested in joining the working group, please contact her at dckuhl@bgsu.edu.

Official Add Health listserve

Listserve is a place where Add Health users ask and answer questions about analyzing Add Health data. To subscribe the official Add Health listserv, send e-mail to: listserv@unc.edu and in the body of the message put: subscribe addhealth2 <firstname lastname>

Add Health Users Conference

Carolina Population Center at University of North Carolina has hosted 9 Add Health Users Conferences on how to construct and analyze Add Health data. Add Health website (http://www.cpc.unc.edu/projects/addhealth/news) provides information on the upcoming Add Health User Conference

CFDR Programming Help

If you have programming problems, contact Hsueh-Sheng Wu at whu@bgsu.edu



Conclusions

- Add Health is an excellent data set for studying how adolescents make transitions into adulthood and how such transitions are influenced by their families, peers, schools, and neighborhoods.
- When using Add Health data, researchers should allow themselves sufficient time to construct variables because they may need to correct for possible inconsistences in data from different measurement units and/or across different waves before they can construct variables for their analyses.
- The analysis of Add Health data always needs to be weighted in order to adjust for the effects of its complex survey design.
- If you have any questions about using, coding, or analyzing Add Health data, please feel free to contact me (wuh@bgsu.edu).

