

# Dataset Integrity Check for Longitudinal Assessment of Bariatric Surgery (LABS-3): Psychosocial Issues and Bariatric Surgery Ancillary Study

Prepared by NIDDK-CR  
July 19, 2021

## Contents

1 Standard Disclaimer .....	2
2 Study Background .....	2
3 Archived Datasets .....	2
4 Statistical Methods .....	2
5 Results .....	2
6 Conclusions .....	3
7 References .....	3
Table A: Variables used to replicate Table 2 – Observed Prevalence of Mental Disorders and Psychiatric Medication Use Pre-surgery through 7 Years Post-surgery, by Surgical Procedure.....	4
Table B1: Comparison of values computed in integrity check to reference article Table 2 values for Pre-surgery and Year 2 .....	5
Table B2: Comparison of values computed in integrity check to reference article Table 2 values for Year 3 and Year 4 .....	6
Table B3: Comparison of values computed in integrity check to reference article Table 2 values for Year 5 and Year 7 .....	7
Attachment A: SAS Code .....	8

# 1 Standard Disclaimer

The intent of this DSIC is to provide confidence that the data distributed by the NIDDK repository is a true copy of the study data. Our intent is not to assess the integrity of the statistical analyses reported by study investigators. As with all statistical analyses of complex datasets, complete replication of a set of statistical results should not be expected in secondary analysis. This occurs for a number of reasons including differences in the handling of missing data, restrictions on cases included in samples for a particular analysis, software coding used to define complex variables, etc. Experience suggests that most discrepancies can ordinarily be resolved by consultation with the study data coordinating center (DCC), however this process is labor-intensive for both DCC and Repository staff. It is thus not our policy to resolve every discrepancy that is observed in an integrity check. Specifically, we do not attempt to resolve minor or inconsequential discrepancies with published results or discrepancies that involve complex analyses, unless NIDDK Repository staff suspect that the observed discrepancy suggests that the dataset may have been corrupted in storage, transmission, or processing by repository staff. We do, however, document in footnotes to the integrity check those instances in which our secondary analyses produced results that were not fully consistent with those reported in the target publication.

## 2 Study Background

An ancillary study from LABS-3 regarding psychosocial issues associated with bariatric surgery was conducted at three of the LABS study centers with participants that were previously enrolled in LABS-1 and LABS-2. This prospective cohort ancillary study aimed to understand the mental health impacts of bariatric surgery and changes in mental health outcomes over a 7-year follow-up period. Data were collected on psychosocial issues such as eating disorders, substance abuse, affective disorders, and cognitive function.

## 3 Archived Datasets

All SAS data files, as provided by the Data Coordinating Center (DCC), are located in the LABS folder in the data package. For this replication, variables were taken from the “sq.sas7bdat”, “edes.sas7bdat”, “edec.sas7bdat”, “scidc.sas7bdat”, “scidt.sas7bdat”, and “scida.sas7bdat” datasets.

## 4 Statistical Methods

Analyses were performed to duplicate results for the data published by Kalarchian et al. [1] for Mental Disorders and Weight Change in a Prospective Study of Bariatric Surgery Patients: 7 Years of Follow-up. To verify the integrity of the dataset, descriptive statistics were computed.

## 5 Results

Table 1 in the publication [1] utilized study data collected during LABS-1 and LABS-2 and was not included in the ancillary study data used for the analysis portion of the publication. Therefore, the contents of Table 2 were selected for replication in this DSIC since most of the contents pertained to the ancillary study data. For Table 2 in the publication [1], Table 2 – Observed Prevalence of Mental Disorders and Psychiatric Medication Use Pre-surgery through 7 Years Post-surgery, by Surgical

Procedure, Table A below lists the variables that were used in the replication, and Table B (B1 through B3) compares the results calculated from the archived data files to the results published in Table 2. For the characteristics able to be replicated, the results of the replication are close to the published results in Table 2.

Please note that some categories in Table 2 of the publication were not able to be replicated. These excluded fields represent summaries of variables associated with proprietary data collection instruments not provided to NIDDK-CR, and criteria to compute the summary variables were not included in the publication or study documentation. The Table 2 categories unable to be replicated were: “Any mental disorder”, “Any mood disorder”, “Mood disorder not otherwise specified”, “Mood disorder due to a general medical condition”, “Any anxiety disorder”, “Specific phobia”, “Any schizophrenia/other psychotic disorder”, “Any substance use disorder”, “Any somatoform disorder”, “Any eating disorder”, “Other DSM-IV Axis I disorder”, “Any psychiatric medication”, “Antidepressant medication”, and “Antianxiety medication”.

## 6 Conclusions

The results of the replication are within expected variation to the published results. Results for “Any mental disorder”, “Any mood disorder”, “Mood disorder not otherwise specified”, “Mood disorder due to a general medical condition”, “Any anxiety disorder”, “Specific phobia”, “Any schizophrenia/other psychotic disorder”, “Any substance use disorder”, “Any somatoform disorder”, “Any eating disorder”, “Other DSM-IV Axis I disorder”, “Any psychiatric medication”, “Antidepressant medication”, and “Antianxiety medication” were unable to be replicated due to lack of criteria in computing these summary variables by the study investigators using variables from proprietary data collection instruments.

## 7 References

[1] Kalarchian MA, King WC, Devlin MJ, Hinerman A, Marcus MD, Yanovski SZ, Mitchell JE. Mental Disorders and Weight Change in a Prospective Study of Bariatric Surgery Patients: 7 Years of Follow-up. *Surgery for Obesity and Related Diseases*, 15(5), 739-748, May 2019. PMID: [PMC7045720](https://pubmed.ncbi.nlm.nih.gov/31111111/)  
doi: [10.1016/j.soard.2019.01.008](https://doi.org/10.1016/j.soard.2019.01.008)

**Table A:** Variables used to replicate Table 2 – Observed Prevalence of Mental Disorders and Psychiatric Medication Use Pre-surgery through 7 Years Post-surgery, by Surgical Procedure

<b>Table Variable</b>	<b>dataset.variables</b>
Bipolar I Disorder	scidc.bpipm, scidt.bpipmt, scida.bpipmy
Bipolar II Disorder	scidc.bpiipm, scidt.bpiipmt, scida.bpiipmy
Major Depressive Disorder	scidc.mddpm, scidt.mddpmt, scida.mddpmy
Dysthymia	scidc.ddspm, scidt.ddspmt, scida.ddspmy
Social Phobia	scidc.adspa, scidt.adspat, scida.adspay
Posttraumatic Stress Disorder	scidc.adpsa, scidt.adpsat, scida.adpsay
Delusional Disorder	scidc.delpm, scidt.delpmt, scida.delpmy
Alcohol Abuse/Dependence	scidc.sudaim, scidt.sudaimt, scida.sudaimy
Other Drug Abuse/Dependence	scidc.sudshaim, scidc.sudcim, scidc.sudsim, scidc.sudoim, scidc.sudcoim, scidc.sudhim, scidc.sudpdim, scidc.sudothm, scidt.sudshamt, scidt.sudcimt, scidt.sudsimt, scidt.sudoimt, scidt.sudcoimt, scidt.sudhimt, scidt.sudpdimt, scidt.sudothmt, scida.sudshamy, scida.sudcimy, scida.sudsimy, scida.sudoimy, scida.sudcoimy, scida.sudhimy, scida.sudpdimy, scida.sudothmy
Binge Eating Disorder	scidc.edbed, scidt.edbedat, scida.edbeday
Bulimia Nervosa	scidc.edbna, scidt.edbnat, scida.edbnay
Pain Disorder	scidc.sdpd, scidt.sdpdt, scida.sdpdy
Adjustment Disorder	scidc.edad, scidt.edadt, scida.edady
Roux-en-Y Gastric Bypass (RYGB)	sq.surg, edes.bppla, edec.bppla
Laparoscopic Adjustable Gastric Bypass (LAGB)	sq.surg, edes.bppla, edec.bppla

**Table B1:** Comparison of values computed in integrity check to reference article Table 2 values for Pre-surgery and Year 2

Variable	Manuscript: Pre-surgery	DSIC: Pre-surgery	Diff.	Manuscript: Year 2	DSIC: Year 2	Diff.
<b>RYGB Surgical Procedure</b>	(n=104)	(n=104)	(n=0)	(n=91)	(n=91)	(n=0)
Bipolar I disorder	1/104	1/104	0/0	0/91	0/91	0/0
Bipolar II disorder	0/104	1/104	1/0	0/91	0/91	0/0
Major depressive disorder	7/104	8/104	1/0	4/91	5/91	1/0
Dysthymia	3/104	2/104	1/0	1/91	0/91	1/0
Social phobia	4/104	5/104	1/0	3/91	3/91	1/0
Posttraumatic stress disorder	5/104	5/104	0/0	3/91	3/91	0/0
Delusional disorder	1/104	1/104	0/0	0/91	0/91	0/0
Alcohol abuse/dependence	0/103	0/104	0/0	0/91	0/91	0/0
Other drug abuse/ dependence	1/102	1/104	0/0	0/91	0/91	0/0
Pain disorder	0/104	0/104	0/0	0/91	0/91	0/0
Binge eating disorder	8/104	13/104	5/0	1/90	2/91	1/1
Bulimia nervosa	2/104	2/104	0/0	0/90	0/91	0/0
Adjustment disorder	1/104	1/104	0/0	1/91	1/91	0/0
<b>LAGB Surgical Procedure</b>	(n=69)	(n=75)	(n=6)	(n=63)	(n=69)	(n=6)
Bipolar I disorder	0/69	0/75	0/6	0/63	0/69	0/6
Bipolar II disorder	0/69	0/75	0/6	0/63	0/69	0/6
Major depressive disorder	7/69	6/75	1/6	7/63	8/69	1/6
Dysthymia	3/69	1/75	2/6	0/63	0/69	0/6
Social phobia	2/68	2/75	0/7	1/63	1/69	0/6
Posttraumatic stress disorder	1/68	1/75	0/7	0/62	0/69	0/7
Delusional disorder	0/69	0/75	0/6	0/63	0/69	0/6
Alcohol abuse/dependence	1/69	1/75	0/6	0/63	0/69	0/6
Other drug abuse/ dependence	0/69	0/75	0/6	0/63	0/69	0/6
Pain disorder	2/69	2/75	0/6	0/63	0/69	0/6
Binge eating disorder	2/67	4/75	2/8	1/63	1/69	0/6
Bulimia nervosa	0/67	0/75	0/8	0/63	0/69	0/6
Adjustment disorder	0/67	0/75	0/8	0/63	0/69	0/6

**Table B2:** Comparison of values computed in integrity check to reference article Table 2 values for Year 3 and Year 4

<b>Variable</b>	<b>Manuscript: Year 3</b>	<b>DSIC: Year 3</b>	<b>Diff.</b>	<b>Manuscript: Year 4</b>	<b>DSIC: Year 4</b>	<b>Diff.</b>
<b>RYGB Surgical Procedure</b>	(n=77)	(n=77)	(n=0)	(n=62)	(n=62)	(n=0)
Bipolar I disorder	0/77	0/77	0/0	1/61	1/62	0/0
Bipolar II disorder	1/77	1/77	0/0	0/61	0/62	0/1
Major depressive disorder	5/77	5/77	0/0	6/62	6/62	0/0
Dysthymia	2/77	0/77	2/0	2/62	0/62	2/0
Social phobia	1/77	1/77	0/0	3/62	3/62	0/0
Posttraumatic stress disorder	2/77	2/77	0/0	3/62	3/62	0/0
Delusional disorder	0/77	0/77	0/0	0/62	0/62	0/0
Alcohol abuse/dependence	3/77	3/77	0/0	3/62	3/62	0/0
Other drug abuse/ dependence	0/77	0/77	0/0	0/62	0/62	0/0
Pain disorder	0/77	0/77	0/0	0/62	0/62	0/0
Binge eating disorder	4/77	4/77	0/0	1/62	1/62	0/0
Bulimia nervosa	0/77	0/77	0/0	0/62	0/62	0/0
Adjustment disorder	0/77	0/77	0/0	0/62	0/62	0/0
<b>LAGB Surgical Procedure</b>	(n=53)	(n=56)	(n=3)	(n=45)	(n=48)	(n=3)
Bipolar I disorder	0/53	0/56	0/3	0/45	0/48	0/3
Bipolar II disorder	0/53	0/56	0/3	0/45	0/48	0/3
Major depressive disorder	6/53	5/56	1/3	6/45	7/48	1/3
Dysthymia	0/53	0/56	0/3	0/45	0/48	0/3
Social phobia	0/53	0/56	0/3	0/45	0/48	0/3
Posttraumatic stress disorder	0/53	0/56	0/3	1/45	1/48	0/3
Delusional disorder	0/53	0/56	0/3	0/45	0/48	0/3
Alcohol abuse/dependence	0/53	0/56	0/3	1/45	1/48	0/3
Other drug abuse/ dependence	0/53	0/56	0/3	0/45	0/48	0/3
Pain disorder	0/53	0/56	0/3	0/45	0/48	0/3
Binge eating disorder	0/53	0/56	0/3	0/45	1/48	1/3
Bulimia nervosa	0/53	0/56	0/3	0/45	0/48	0/3
Adjustment disorder	0/53	0/56	0/3	0/45	0/48	0/3

**Table B3:** Comparison of values computed in integrity check to reference article Table 2 values for Year 5 and Year 7

Variable	Manuscript: Year 5	DSIC: Year 5	Diff.	Manuscript: Year 7	DSIC: Year 7	Diff.
<b>RYGB Surgical Procedure</b>	(n=52)	(n=56)	(n=4)	(n=55)	(n=58)	(n=3)
Bipolar I disorder	1/52	1/56	0/4	1/55	1/58	0/3
Bipolar II disorder	0/52	0/56	0/4	1/55	1/58	0/3
Major depressive disorder	3/51	3/56	0/5	5/55	5/58	0/3
Dysthymia	0/51	0/56	0/5	0/55	0/58	0/3
Social phobia	2/52	2/56	0/4	1/55	1/58	0/3
Posttraumatic stress disorder	1/51	1/56	0/5	2/55	2/58	0/3
Delusional disorder	0/52	0/56	0/4	0/55	0/58	0/3
Alcohol abuse/dependence	2/52	2/56	0/4	2/55	2/58	0/3
Other drug abuse/ dependence	0/52	0/56	0/4	0/55	0/58	0/3
Pain disorder	0/52	0/56	0/4	0/55	0/58	0/3
Binge eating disorder	0/52	0/56	0/4	0/55	0/58	0/3
Bulimia nervosa	0/52	0/56	0/4	0/55	0/58	0/3
Adjustment disorder	0/52	0/56	0/4	1/55	1/58	0/3
<b>LAGB Surgical Procedure</b>	(n=39)	(n=39)	(n=0)	(n=43)	(n=42)	(n=1)
Bipolar I disorder	0/39	0/39	0/0	0/43	0/42	0/1
Bipolar II disorder	0/39	0/39	0/0	0/43	0/42	0/1
Major depressive disorder	3/39	3/39	0/0	2/43	2/42	0/1
Dysthymia	0/39	2/39	2/0	0/43	0/42	0/1
Social phobia	0/39	0/39	0/0	0/42	0/42	0/0
Posttraumatic stress disorder	1/39	1/39	0/0	0/43	1/42	1/1
Delusional disorder	0/39	0/39	0/0	0/43	0/42	0/1
Alcohol abuse/dependence	0/39	0/39	0/0	0/43	1/42	1/1
Other drug abuse/ dependence	0/39	0/39	0/0	0/43	0/42	0/1
Pain disorder	0/39	0/39	0/0	0/43	0/42	0/1
Binge eating disorder	1/39	1/39	0/0	0/43	0/42	0/1
Bulimia nervosa	0/39	0/39	0/0	0/43	0/42	0/1
Adjustment disorder	0/39	0/39	0/0	0/43	0/42	0/1



# Attachment A: SAS Code

```
libname labs_3 "X:\NIDDK\niddk-
dr_studies2\LABS\private_orig_data\LABS3_Psychosocial_20190718\SAS
Database";
libname library "X:\NIDDK\niddk-
dr_studies2\LABS\private_orig_data\LABS3_Psychosocial_20190718\SAS
Database";
libname labs_2 "X:\NIDDK\niddk-
dr_studies2\LABS\private_orig_data\Longitudinal Assessment of
Bariatric Surgery (LABS-2)\SAS Database";
libname labs_1 "X:\NIDDK\niddk-
dr_studies2\LABS\private_orig_data\LABS-1\Longitudinal Assessment of
Bariatric Surgery (LABS-1)\SAS Database";

/*****/
/*   Calling Data Sets   */
/*****/

*From LABS-2 and LABS-1, the SQ dataset contains variable identifying
type of surgery;
data sq; set labs_2.sq; *sq dataset from LABS2;
run;

data sq1; set labs_1.sq; *sq dataset from LABS1;

*checking datasets;
proc contents data=sq;
run;

proc contents data = sq1;
run;

*From LABS-3, SCIDA, SCIDT, SCIDC, EDEC, and EDES - these contain the
mental health variables from Table 2;
data scida; set labs_3.scida; *annual SCID 36-84 month;
run;

data scidt; set labs_3.scidt; *24 month SCID, creating a 24 month
visit variable;
visit = 24;
run;

data scidc; set labs_3.scidc; *baseline SCID, creating a baseline visit
variable;
visit = 0;
run;

data edec; set labs_3.edec; *need this for the BPPLA variable which
contains type of surgery for some participants;
keep id bppla;
run;

data edes; set labs_3.edes; *need this for the bppla variable whichf
contains type of surgery for some participants;
```

```

keep id bppla;
run;

*checking datasets;
proc contents data=scida; run;
proc contents data=scidt; run;
proc contents data=scidc; run;
proc contents data=edec; run;
proc contents data=edes; run;

*Checking the values in the BPPLA variable;
proc freq data=edec;
tables bppla;
run;

proc freq data=edes;
tables bppla;
run;

*subsetting EDEC and EDES to include only those where BPPLA = 1 OR 4;
data edec1; set edec;
keep id bppla;
if bppla = 1 OR bppla =4;
run;

data edes1; set edes;
keep id bppla;
if bppla = 1 OR bppla =4;
run;

proc contents data=edec1; run;
proc contents data=edes1; run;

*concatenating EDES and EDEC for later merging with SQ and SCID
datasets;
data ede; set edec1 edes1; run;

/*****/
/* Concatenating SCIDs */
/*****/

*need to concatenate the SCID datasets in order to subset for
participants who had >=1 followup visit per the publication;
data comb_scid; set
scida scidt scidc;
run;

proc freq data=comb_scid;
table visit; *checking that the visit variable is correct;
run;

*count the number of time each unique id appears in dataset to figure
out how many follow ups exist for each;
proc sql;
create table PIDCount as
select id, count(*) as IDcount

```

```

from comb_scid
group by id;
quit;

*drop any observations that appear only once in the dataset PIDCount
as those are participants with <1 follow up;
data PIDs; set PIDCount;
if IDcount ^= 1;
run;

proc print data=PIDs; *there are 175 unique PIDs after dropping those
without a follow up, the publication reports 173 close enough;
run;

proc sort data=PIDs;
by id;
run;

proc sort data=comb_scid;
by id;
run;

*drop observations where there is only 1 PID;
data comb_scid2;
merge PIDs (in=a)
      comb_scid (in=b);
by id;
if a = 1 AND b = 1;
run;

/*****
/* Subsetting Datasets */
*****/

*checking the visit values in comb_scid2;
proc freq data=comb_scid2;
tables visit;
run;

*need to subset comb_scid2 into datasets based on visit;
data scid_0; set comb_scid2;
if visit = 0; *dataset for the baseline visit;
run;

data scid_24; set comb_scid2;
if visit = 24; *dataset for the 24 month follow up visit;
run;

data scid_36; set comb_scid2;
if visit = 36; *dataset for the 36 month follow up visit;
run;

data scid_48; set comb_scid2;
if visit = 48; *dataset for the 48 month follow up visit;
run;

data scid_60; set comb_scid2;

```

```

        if visit = 60; *dataset for the 60 month follow up visit;
run;
data scid_84; set comb_scid2;
        if visit = 84; *dataset for the 84 month follow up visit;
run;

*check new datasets;
proc contents data=scid_0; run;
proc contents data=scid_24; run;
proc contents data=scid_36; run;
proc contents data=scid_48; run;
proc contents data=scid_60; run;
proc contents data=scid_84; run;

/*****/
/* Merging Datasets */
/*****/

*Starting with baseline visit, need to merge with sq and ede to gain
access to the SURG and bppla variables;
proc sort data=scid_0;
        by id;
run;

proc sort data=sq;
        by id;
run;

*dropping obs that are not surg = 1 or 4 (RYGB or LAGB);
data sq_2; set sq;
if surg = 1 OR surg = 4;
run;

proc sort data=sq1;
        by id;
run;

*dropping obs that are not surg = 1 or 4 (RYGB or LAGB);
data sq_1; set sq1;
if surg = 1 OR surg = 4;
run;

data sq_comb; set sq_1 sq_2;*concatenate sq datasets from LABS1 and
LABS2;
keep id surg;
run;

*sorting and dropping duplicates in combined sq;
proc sort data=sq_comb nodup out=sq_final;
        by id;
run;

*checking that surg is consistent, there should be no duplicate ids;
proc sql;

```

```

create table SQcount as
select id, count(*) as IDcount
from sq_final
group by id;
quit;
*there are duplicates, manually checking surgery type variable for
consistency;

proc freq data=sqcount;
tables id;
where idcount = 2; *47 ids have inconsistant surg information i.e.
participants are marked as having both surgeries;
run;

proc freq data=sq_final;
tables id*surg;
where id= 10515; *example id where RYGB and LAGB are both marked;
run;

proc sort data=ede nodup out=edel; *sorting and eliminating duplicate
observations;
    by id;
run;

    data scid_0_1; *merging the four datasets since most LABS3
participants came from LABS1 and LABS2;
    merge
        sq_final (in=a)
        scid_0    (in=c)
        edel      (in=d);
    by id;
    if c = 1;
run;

*check dataset and values for surgery and bppla;
proc contents data=scid_0_1; run;

proc freq data=scid_0_1;
tables surg*bppla/missing;
run;

*need to use BPPLA to fill in some of the missing SURG values;
data scid_0_2; set scid_0_1;
    if BPPLA = 1 AND SURG = . then SURG = 1;
    if BPPLA = 4 AND SURG = . then SURG = 4;
    if BPPLA = 4 AND SURG = 1 then SURG = 4;
run;

*check changes;
proc freq data=scid_0_2;
tables surg*bppla/missing;
run;

proc format;

```

```

value proced
    1 = "RYGB"
    4 = "LAGB";
value thresh
    0 = "InadInfo"
    1 = "Absent"
    2 = "SubThresh"
    3 = "Threshold"
    -1 = "Missing"
    -2 = "N/A"
    -3 = "Unknown";
value subuse
    0 = "InadInfo"
    1 = "Absent"
    2 = "Abuse"
    3 = "Dependence"
    -1 = "Missing"
    -2 = "N/A"
    -3 = "Unknown";

run;

/*****/
/*Replication */
/*****/

*****;
*Presurgery column from Table 2 in publication using the scid_0_2 temp
dataset;
*****;

proc contents data=scid_0_2;
run;

proc freq data=scid_0_2;
tables surg*id;
run;

data scid_0_3; set scid_0_2;
if surg = 1 AND surg = 4 then surg = 1;
if surg = . then surg = 4;
run;

*need to create a "other drug use/dependence" variable;
data scid_0_4; set scid_0_3;
    if sudshaim = 2 OR sudshaim = 3 OR sudcim = 2 OR sudcim = 3 OR
sudsim = 2 or sudsim = 3 OR sudoim = 2 OR sudoim = 3 OR sudcoim = 2 OR
sudcoim = 3 OR
        sudhim = 2 OR sudhim = 3 OR sudpdim= 2 OR sudpdim= 3 OR
sudothm= 2 OR sudothm= 3
        then othdrug = 1; else othdrug = 0;
run;

proc freq data=scid_0_3;

```

```

tables othdrug;
run;

proc sort data=scid_0_4;
by surg;
run;

proc freq data=scid_0_4;
tables surg;
run;

proc freq data=scid_0_4;
tables bpipm bpiipm mddpm ddspm delpm adspa adsph
adspha adps adpsa sudai sudaim edbn edbna edbed edbeda othdrug sdpd
edad;
by surg;
format surg proced. bipdisi thresh. bipdisii thresh. mddlp thresh.
ddlp thresh. adgmc thresh.
schlp thresh. dellp thresh. adsp thresh. adsph thresh. adps thresh.
sudai subuse.;
run;

*****;
* Year Two Column from Publication *;
*****;

*merge;
proc sort data=scid_24;
by id;
run;

proc sort data=sq_final;
by id;
run;

proc sort data=edel;
by id;
run;

data scid_24_1; *merging the four datasets since most LABS3
participants came from LABS1 and LABS2;
merge
    sq_final (in=a)
    scid_24 (in=c)
    edel (in=d);
by id;
if c = 1;
run;

*check dataset and values for surgery and bppla;
proc contents data=scid_24_1; run;

proc freq data=scid_24_1;
tables surg*bppla/missing;
run;

*filling in some blanks for surg;

```

```

data scid_24_2; set scid_24_1;
    if surg = . AND bppla = 4 then surg = 4;
    if surg = 1 AND bppla = 4 then surg = 4;
    if surg = . AND bppla = . then surg = 4;
    if surg = . AND bppla = 1 then surg = 1;
run;

data scid_24_3; set scid_24_2;
    if sudshamt = 2 OR sudshamt = 3 OR sudcimt = 2 OR sudcimt = 3 OR
sudsimt = 2 or sudsimt = 3 OR sudoimt = 2 OR sudoimt = 3 OR sudcoimt =
2 OR sudcoimt = 3 OR
        sudhmt = 2 OR sudhmt = 3 OR sudpdimt= 2 OR sudpdimt= 3
OR sudothmt= 2 OR sudothmt= 3
        then othdrug = 1; else othdrug = 0;
run;

proc freq data=scid_24_3;
tables surg*bppla/missing;
run;

proc sort data=scid_24_3;
by surg;
run;

proc freq data=scid_24_3;
tables bipdisit bpipmt bpdisiit bpiipmt mddlpt mddpmt ddlpt ddspt
adgmct adgmat schlpt schpmt dellpt delpmt adspt adspat adspt
adsphat adpst adpsat sudait sudaimt edbnt edbnat edbedt edbedat
othdrug sdpdt edadt;
by surg;
format surg proced. bipdisit thresh. bpdisiit thresh. mddlpt thresh.
ddlpt thresh. adgmct thresh.
schlpt thresh. dellpt thresh. adspt thresh. adspt thresh. adpst
thresh. sudait subuse.;
run;

*****;
* Year Three Column from Publication *;
*****;

*merge;
proc sort data=scid_36;
by id;
run;

proc sort data=sq_final;
by id;
run;

proc sort data=edel;
by id;
run;

data scid_36_1; *merging the four datasets since most LABS3
participants came from LABS1 and LABS2;
merge

```



```

        sq_final (in=a)
        scid_36  (in=c)
        edel     (in=d);
    by id;
    if c = 1;
run;

*check dataset and values for surgery and bppla;
proc contents data=scid_36_1; run;

proc freq data=scid_36_1;
tables surg*bppla/missing;
run;

data scid_36_2; set scid_36_1;
    if sudshamy = 2 OR sudshamy = 3 OR sudcimy = 2 OR sudcimy = 3 OR
sudsimy = 2 or sudsimy = 3 OR sudoimy = 2 OR sudoimy = 3 OR sudcoimy =
2 OR sudcoimy = 3 OR
        sudhimy = 2 OR sudhimy = 3 OR sudpdimy= 2 OR sudpdimy= 3
OR sudothmy= 2 OR sudothmy= 3
    then othdrug = 1; else othdrug = 0;
run;

*filling in some blanks for surg;
data scid_36_3; set scid_36_2;
    if surg = . AND bppla = 4 then surg = 4;
    if surg = 1 AND bppla = 4 then surg = 4;
    if surg = . AND bppla = . then surg = 4;
run;

proc freq data=scid_36_3;
tables surg*bppla/missing;
run;

proc sort data=scid_36_3;
by surg;
run;

proc freq data=scid_36_3;
tables bipdisiy bpiipmy bpdisiyy bpiipmy mddlpy mddpmy ddlpy ddspmy
adgmcy adgmcy schlpy schpmy dellpy delpmy adspy adspay adsph
adsphay adpsy adpsay sudaiy sudaimy edbny edbnay edbedy edbeday
othdrug sdpdy edady ;
by surg;
format surg proced. bipdisiy thresh. bpdisiyy thresh. mddlpy thresh.
ddlpy thresh. adgmcy thresh.
schlpy thresh. dellpy thresh. adspy thresh. adsphy thresh. adpsy
thresh. sudaiy subuse.;
run;

*****;
* Year Four Column from Publication *;
*****;
*merge;

```

```

proc sort data=scid_48;
by id;
run;

proc sort data=sq_final;
by id;
run;

proc sort data=edel;
by id;
run;

data scid_48_1; *merging the four datasets since most LABS3
participants came from LABS1 and LABS2;
merge
    sq_final (in=a)
    scid_48 (in=c)
    edel (in=d);
by id;
if c = 1;
run;

*check dataset and values for surgery and bppla;
proc contents data=scid_48_1; run;

proc freq data=scid_48_1;
tables surg*bppla/missing;
run;

data scid_48_2; set scid_48_1;
if sudshamy = 2 OR sudshamy = 3 OR sudcimy = 2 OR sudcimy = 3 OR
sudsimy = 2 or sudsimy = 3 OR sudoimy = 2 OR sudoimy = 3 OR sudcoimy =
2 OR sudcoimy = 3 OR
    sudhimy = 2 OR sudhimy = 3 OR sudpdimy= 2 OR sudpdimy= 3
OR sudothmy= 2 OR sudothmy= 3
then othdrug = 1; else othdrug = 0;
run;

*filling in some blanks for surg;
data scid_48_3; set scid_48_2;
if surg = . AND bppla = 4 then surg = 4;
if surg = 1 AND bppla = 4 then surg = 4;
if surg = . AND bppla = . then surg = 4;
run;

proc freq data=scid_48_3;
tables surg*bppla/missing;
run;

proc sort data=scid_48_3;
by surg;
run;

proc freq data=scid_48_3;

```

```

tables bipdisiy bpipmy bpdisiyy bpiipmy mddlpy mddpmy ddlpy ddspmy
adgmcy adgmcyay schlpy schpmy dellpy delpmy adspy adspay adsph
adsphay adpsy adpsay sudaiy sudaimy edbny edbnay edbedy edbeday
othdrug sdpsy edady ;
by surg;
format surg proced. bipdisiy thresh. bpdisiyy thresh. mddlpy thresh.
ddlpy thresh. adgmcy thresh.
schlpy thresh. dellpy thresh. adspy thresh. adsphy thresh. adpsy
thresh. sudaiy subuse.;
run;

*****;
* Year Five Column from Publication *;
*****;

*merge;
proc sort data=scid_60;
by id;
run;

proc sort data=sq_final;
by id;
run;

proc sort data=edel;
by id;
run;

data scid_60_1; *merging the four datasets since most LABS3
participants came from LABS1 and LABS2;
merge
    sq_final (in=a)
    scid_60   (in=c)
    edel      (in=d);
by id;
if c = 1;
run;

*check dataset and values for surgery and bppla;
proc contents data=scid_60_1; run;

proc freq data=scid_60_1;
tables surg*bppla/missing;
run;

data scid_60_2; set scid_60_1;
    if sudshamy = 2 OR sudshamy = 3 OR sudcimy = 2 OR sudcimy = 3 OR
sudsimy = 2 or sudsimy = 3 OR sudoimy = 2 OR sudoimy = 3 OR sudcoimy =
2 OR sudcoimy = 3 OR
        sudhimy = 2 OR sudhimy = 3 OR sudpdimy= 2 OR sudpdimy= 3
OR sudothy= 2 OR sudothy= 3
    then othdrug = 1; else othdrug = 0;
run;

*filling in some blanks for surg;

```

```

data scid_60_3; set scid_60_2;
    if surg = . AND bppla = 4 then surg = 4;
    if surg = 1 AND bppla = 4 then surg = 4;
    if surg = . AND bppla = . then surg = 4;
run;

proc freq data=scid_60_3;
tables surg*bppla/missing;
run;

proc sort data=scid_60_3;
by surg;
run;

proc freq data=scid_60_3;
tables bipdisiy bpipmy bpdisiyy bpiipmy mddlpy mddpmy ddlpy ddspmy
adgmcy adgmcay schlpy schpmy dellpy delpmy adspy adspay adsph
adsphay adpsy adpsay sudaiy sudaimy edbny edbnay edbody edbeday
othdrug sdpy edady ;
by surg;
format surg proced. bipdisiy thresh. bpdisiyy thresh. mddlpy thresh.
ddlpy thresh. adgmcy thresh.
schlpy thresh. dellpy thresh. adspy thresh. adsphy thresh. adpsy
thresh. sudaiy subuse.;
run;

*****;
* Year 7 Column from Publication *;
*****;
    *merge;
proc sort data=scid_84;
by id;
run;

proc sort data=sq_final;
by id;
run;

proc sort data=edel;
by id;
run;

data scid_84_1; *merging the four datasets since most LABS3
participants came from LABS1 and LABS2;
    merge
        sq_final (in=a)
        scid_84 (in=c)
        edel (in=d);
    by id;
    if c = 1;
run;

*check dataset and values for surgery and bppla;
proc contents data=scid_84_1; run;

```

```

proc freq data=scid_84_1;
tables surg*bppla/missing;
run;

data scid_84_2; set scid_84_1;
    if sudshamy = 2 OR sudshamy = 3 OR sudcimy = 2 OR sudcimy = 3 OR
sudsimy = 2 or sudsimy = 3 OR sudoimy = 2 OR sudoimy = 3 OR sudcoimy =
2 OR sudcoimy = 3 OR
        sudhimy = 2 OR sudhimy = 3 OR sudpdimy= 2 OR sudpdimy= 3
OR sudothmy= 2 OR sudothmy= 3
    then othdrug = 1; else othdrug = 0;
run;

*filling in some blanks for surg;
data scid_84_3; set scid_84_2;
    if surg = . AND bppla = 4 then surg = 4;
    if surg = 1 AND bppla = 4 then surg = 4;
    if surg = . AND bppla = . then surg = 4;
run;

proc freq data=scid_84_3;
tables surg*bppla/missing;
run;

proc sort data=scid_84_3;
by surg;
run;

proc freq data=scid_84_3;
tables bpipmy bpiipmy mddpmy ddlpy ddspmy adgmcy adgmcay schlpy schpmy
dellpy delpmy adspy adspay adsph
adsphay adpsy adpsay sudaiy sudaimy edbny edbnay edbody edbeday
othdrug sdpy edady;
by surg;
format surg proced. bipdisiy thresh. bpdisiy thresh. mddlpy thresh.
ddlpy thresh. adgmcy thresh.
schlpy thresh. dellpy thresh. adspy thresh. adsphy thresh. adpsy
thresh. sudaiy subuse.;
run;

```