```
*-------------------------------------------*
* Clean & Merge W1Core, W1SN, W2Core, W2SN   *
* Cross-Sectional Regression Wave 1 & Wave 2 *
* Longitudinal Regression Wave 1 -> Wave 2   *
* By: Jaehoon Ahn                           *
*-------------------------------------------*

**************************
*Clean nshap_w1_network    *
**************************

*Use Wave 1 Social Network Data
use "P:\5707\5707B\Administrative\Research Team\Jae's work\Thesis\Data
\nshap_w1_network.dta", clear

*unique == 1 for every unique su_id
by su_id, sort: gen unique = _n == 1

*Only including Section A alters
drop if section != 1

* ------------------------------------ *
* Generate network structural variables *
* ------------------------------------ *

*NUMBER OF ALTERS(num_alters)
gen member = 1
egen w1_num_alters = sum(member),by(su_id)
label variable w1_num_alters "Number of R core-network alters"

*KIN COMPOSITION (ord_kin)
recode relat 1=1 4/10=1 2/3=0 11/18=0, gen(kin)
egen num_kin = sum(kin), by(su_id)
gen percent_kin = num_kin/w1_num_alters
*Break kin composision into tertiles
gen w1_ord_kin = 0
replace w1_ord_kin = 1 if percent_kin>0.25 & percent_kin<=0.5
replace w1_ord_kin = 2 if percent_kin>0.5 & percent_kin<=0.75
replace w1_ord_kin = 3 if percent_kin>0.75 & percent_kin<=1
label variable w1_ord_kin "Kin composition tertiles"

*CLOSENESS TO ALTERS (avg_close)
egen sum_close = sum(howclose), by(su_id)
gen w1_avg_close = sum_close/w1_num_alters
label variable w1_avg_close "Average closeness with alters"

*FREQUENCY OF CONTACT (avg_contact)
recode talkfreq0 (1=.5) (2=1) (3=2) (4=12) (5=24) (6=52) (7=182) (8=365),
gen(contact)
egen sum_contact = sum(contact), by(su_id)
gen w1_avg_contact = sum_contact/w1_num_alters
label variable w1_avg_contact "Average contact with alters"

* ------------------------- *
* Generate bridging variable *
* ------------------------- *

*Makes talkfreq into 0 = not acquainted, 1 = acquainted
label define acquaintancelabel 0 "not acquainted" 1 "acquainted" .a "refused" .b
"don't know" .c "not applicable"
forval n=1/5 {
            recode talkfreq`n' (0/1=0) (2/8=1), gen(acquainted`n')
            label variable acquainted`n' "Acquaintance"
            label values acquainted`n' acquaintancelabel
}

*Takes care of gen(a1a2~a1a5)
forval n=2/5 {
            gen a1a`n' = acquainted`n'
            recode a1a`n' (0/1=.c) (.a=.c) (.b=.c) if lineno!=1
            egen a1a`n'f = max(a1a`n'), by(su_id)
```

```
}
*Takes care of gen(a2a3~a2a5)
forval n=3/5 {
            gen a2a`n' = acquainted`n'
            recode a2a`n' (0/1=.c) (.a=.c) (.b=.c) if lineno!=2
            egen a2a`n'f = max(a2a`n'), by(su_id)
}
*Takes care of a3a4~a3a5
forval n=4/5 {
            gen a3a`n' = acquainted`n'
            recode a3a`n' (0/1=.c) (.a=.c) (.b=.c) if lineno!=3
            egen a3a`n'f = max(a3a`n'), by(su_id)
}
*Takes care of a4a5
gen a4a5 = acquainted5
recode a4a5 (0/1=.c) (.a=.c) (.b=.c) if lineno!=4
egen a4a5f = max(a4a5), by(su_id)

*Number of alter-alter pairs(num_alterpairs)
egen w1_num_alterpairs = rownonmiss(a1a2f a1a3f a1a4f a1a5f a2a3f a2a4f a2a5f a3a4f
a3a5f a4a5f)
label variable w1_num_alterpairs "Number of total alter-pairs"

*BRIDGING ACTIVITY(num_bridge)
egen w1_num_bridge = anycount(a1a2f a1a3f a1a4f a1a5f a2a3f a2a4f a2a5f a3a4f a3a5f
a4a5f), values(0)
label variable w1_num_bridge "Number of bridging alter-pairs"
egen w1_num_nonbridge = anycount(a1a2f a1a3f a1a4f a1a5f a2a3f a2a4f a2a5f a3a4f
a3a5f a4a5f), values(1)
label variable w1_num_nonbridge "Number of non-bridging alter pairs"
*sensitivity check: dichotomous bridge variable (any_bridge)
recode w1_num_bridge (0=0) (1/10=1), gen(w1_any_bridge)
label variable w1_any_bridge "Is the ego ever a bridge?"
label define any_bridge_label 0 "Never bridges" 1 "Bridges at least once"
label values w1_any_bridge any_bridge_label

*Prepare select variables for merge with "nshap_w1_core.dta"
drop if unique != 1
keep su_id w1_num_alters w1_num_alterpairs w1_ord_kin w1_avg_close w1_avg_contact
w1_num_bridge w1_any_bridge

*Save Data
save "P:\5707\5707B\Administrative\Research Team\Jae's work\Thesis\Data
\nshap_w1_network_v2.dta"

************************
*Clean nshap_w1_core    *
************************

use "P:\5707\5707B\Administrative\Research Team\Jae's work\Thesis\Data
\nshap_w1_core.dta", clear

*Transform variables
*AGE (w1_age)
gen w1_age = age/10
label variable w1_age "W1 Age"
*FEMALE (w1_female)
recode gender (2=1) (1=0), gen(w1_female)
label variable w1_female "W1 Female"
*BLACK (w1_black)
gen w1_black = (ethgrp==2)
label variable w1_black "W1 Black"
*HISPANIC (w1_hispanic)
gen w1_hispanic = (ethgrp==3)
label variable w1_hispanic "W1 Hispanic"

*EDUCTION: binary variables for education status
gen w1_hs_less = (educ == 1)
label variable w1_hs_less "W1 Less than High School"
gen w1_hs_grad = (educ == 2)
label variable w1_hs_grad "W1 High School Graduate"
```

```
gen w1_some_college = (educ == 3)
label variable w1_some_college "W1 Some College"
gen w1_college_grad = (educ == 4)
label variable w1_college_grad "W1 College Graduate"
*RETIRED
gen w1_retired = (jobstat_2 ==1)
label variable w1_retired "W1 Retired"
*MARITAL&COHABITATION (w1_cohabitate)
gen w1_cohabitate = (maritlst==1|maritlst==2)
label variable w1_cohabitate "W1 Cohabitating"
*MENTAL & PHYSICAL HEALTH
label define bin_hlth_label 0 "Good Health" 1 "Less than Good Health"

recode mntlhlth (1/2=1) (3/5=0), gen(w1_bin_mntlhlth)
label variable w1_bin_mntlhlth "W1 Binary Mental Health Status"
label values w1_bin_mntlhlth bin_hlth_label

recode physhlth (1/2=1) (3/5=0), gen(w1_bin_physhlth)
label variable w1_bin_physhlth "W1 Binary Physical Health Status"
label values w1_bin_physhlth bin_hlth_label

*Discard non-important variables
keep su_id w1_age w1_female w1_black w1_hispanic w1_hs_less w1_hs_grad
w1_some_college w1_college_grad w1_retired w1_cohabitate w1_bin_mntlhlth
w1_bin_physhlth

save "P:\5707\5707B\Administrative\Research Team\Jae's work\Thesis\Data
\nshap_w1_core_v2.dta"

*******************************************************
*Create prospective study dataset                     *
*MERGE: w1_core + w1_network + w2_core + w2_network *
*******************************************************

*Merge nshap_w2_core_v2 & nshap_w2_network_v2
use "P:\5707\5707B\Administrative\Research Team\Jae's work\Thesis\Data
\nshap_w2_core_v2.dta", clear
merge 1:1 su_id using "P:\5707\5707B\Administrative\Research Team\Jae's work\Thesis
\Data\nshap_w2_network_v2.dta"
drop if _merge != 3
drop _merge
*Merge nshap_w1_core_v2
merge 1:1 su_id using "P:\5707\5707B\Administrative\Research Team\Jae's work\Thesis
\Data\nshap_w1_core_v2.dta"
drop if _merge != 3
drop _merge
*Merge nshap_w1_network_v2
merge 1:1 su_id using "P:\5707\5707B\Administrative\Research Team\Jae's work\Thesis
\Data\nshap_w1_network_v2.dta"
drop if _merge != 3
drop _merge
*Save
save "P:\5707\5707B\Administrative\Research Team\Jae's work\Thesis\Data
\w1w2_core_network.dta"

************************
* Statistical Analysis *
************************
* ------------ *
* Preparation *
* ------------ *
use "P:\5707\5707B\Administrative\Research Team\Jae's work\Thesis\Data
\w1w2_core_network.dta"

*Set Macro
*Wave 1
local w1_sociodemographic_controls    w1_female w1_black w1_hispanic w1_cohabitate
w1_hs_less w1_hs_grad w1_some_college w1_college_grad w1_retired
local w1_network_controls                        w1_num_alterpairs w1_ord_kin
w1_avg_close w1_avg_contact
*Wave 2
```

```
local w2_sociodemographic_controls    w2_female w2_black w2_hispanic w2_cohabitate
w2_hs_less w2_hs_grad w2_some_college w2_college_grad w2_retired
local w2_network_controls                        w2_num_alterpairs w2_ord_kin
w2_avg_close w2_avg_contact

* ------------------- *
* Summary Statistics  *
* ------------------- *

*Applying W2 sample weights
svyset cluster [pweight=weight_adj], strata(stratum)
          *Health measures
svy: mean w2_bin_mntlhlth w2_bin_physhlth ///
          /*Bridging measures*/ ///
          w2_num_bridge w2_any_bridge ///
         /*Network structural controls*/ ///
         w2_num_alterpairs w2_ord_kin w2_avg_close w2_avg_contact ///
         /*Sociodemographic characteristics*/ ///
         w2_age w2_female w2_black w2_hispanic w2_hs_less w2_hs_grad
w2_some_college w2_college_grad ///
         w2_cohabitate w2_retired
estat sd

* ------------------- *
* Histograms          *
* ------------------- *
hist w1_num_alterpairs, percent xtitle("Number of alter-pairs in respondent's W1
network") addl
hist w1_num_bridge, percent xtitle("Number of bridging activity in respondent's W1
network") addl
hist w2_num_alterpairs, percent xtitle("Number of alter-pairs in respondent's W2
network") addl
hist w2_num_bridge, percent xtitle("Number of bridging activity in respondent's W2
network") addl

* ------------------- *
* Correlation Table   *
* ------------------- *
pwcorr w1_num_bridge `w1_network_controls', sig

* --------------------------------*
* Longitudinal (W1->W2) Regression*
* --------------------------------*

* Regression 1: Physical decline without extra controls
svy: logit w2_bin_physhlth w1_num_bridge w1_bin_physhlth
`w1_sociodemographic_controls'
outreg2 using "P:\5707\5707B\Administrative\Research Team\Jae's work\Thesis\Data
Tables\long_reg_bin_physhlth_table.doc", ///
              replace label

* Regression 2: Physical decline
svy: logit w2_bin_physhlth w1_num_bridge w1_bin_physhlth
`w1_sociodemographic_controls' `w1_network_controls'
outreg2 using "P:\5707\5707B\Administrative\Research Team\Jae's work\Thesis\Data
Tables\long_reg_bin_physhlth_table.doc", ///
             append label

* Regression 3: Mental decline without extra controls
svy: logit w2_bin_mntlhlth w1_num_bridge w1_bin_mntlhlth
`w1_sociodemographic_controls'
outreg2 using "P:\5707\5707B\Administrative\Research Team\Jae's work\Thesis\Data
Tables\long_reg_bin_mntlhlth_table.doc", ///
             replace label

* Regression 4: Mental decline
svy: logit w2_bin_mntlhlth w1_num_bridge w1_bin_mntlhlth
`w1_sociodemographic_controls' `w1_network_controls'
outreg2 using "P:\5707\5707B\Administrative\Research Team\Jae's work\Thesis\Data
Tables\long_reg_bin_mntlhlth_table.doc", ///
             append label
```

Cross-sectional Regression: W1 Binary Mental Health

LABELS	W1_Binary Mental Health	W1_Binary Mental Health
W1 Number of bridging alter-pairs	0.0216	0.0601
	(0.0346)	(0.0416)
W1 Female	0.186	0.282
	(0.175)	(0.182)
W1 Black	0.0929	0.0855
	(0.229)	(0.242)
W1 Hispanic	0.591**	0.510**
	(0.222)	(0.212)
W1 Cohabitating or Married	-0.352**	-0.292*
	(0.148)	(0.163)
W1 Education (Ref. = less than high school)		
Graduated from high school	1.888***	1.815***
	(0.265)	(0.278)
Some college	1.112***	1.053***
	(0.245)	(0.254)
College graduate or higher	0.825***	0.770***
	(0.264)	(0.271)
W1 Retirement status	-0.276*	-0.249
	(0.155)	(0.171)
W1 Number of total alter-pairs		-0.0450*
		(0.0263)
W1 Kin composition tertiles		0.0376
		(0.0653)
W1 Average closeness with alters		-0.583***
		(0.157)
W1 Average contact with alters		0.000831
		(0.000724)
Constant	-3.048***	-1.375**
	(0.278)	(0.517)
Observations	2,923	2,923

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Cross-sectional Regression: W1 Binary Physical Health

LABELS	W1_Binary Physical Health	W1_Binary Physical Health
W1 Number of bridging alter-pairs	-0.00424	0.0102
	(0.0235)	(0.0334)
W1 Female	-0.301**	-0.262**
	(0.123)	(0.125)
W1 Black	0.255*	0.249*
	(0.134)	(0.141)
W1 Hispanic	0.388	0.336
	(0.287)	(0.289)
W1 Cohabitating or married	-0.497***	-0.489***
	(0.104)	(0.105)
W1 Education (Ref. = less than high school)		
Graduated from high School	1.467***	1.420***
	(0.179)	(0.176)
Some college	0.750***	0.716***
	(0.184)	(0.181)
College graduate or higher	0.447**	0.419*
	(0.212)	(0.211)
W1 Retirement status	0.0481	0.0681
	(0.146)	(0.151)
W1 Number of total alter-pairs		-0.0126
		(0.0180)
W1 Kin composition tertiles		0.0376
		(0.0575)
W1 Average closeness with alters		-0.371**
		(0.144)
W1 Average contact with alters		0.000931*
		(0.000507)
Constant	-1.377***	-0.451
	(0.251)	(0.489)
Observations	2,922	2,922

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Longitudinal Regression: W1->W2 Binary Mental Health

LABELS	W2_Binary Mental Health	W2_Binary Mental Health
W1 Number of bridging alter-pairs	-0.0141	0.0592
	(0.0308)	(0.0413)
W1 Binary Mental Health Status	2.057***	2.026***
	(0.198)	(0.204)
W1 Female	0.145	0.195
	(0.172)	(0.172)
W1 Black	0.0906	0.0799
	(0.176)	(0.189)
W1 Hispanic	-0.0832	-0.201
	(0.242)	(0.241)
W1 Cohabitating or married	-0.00538	0.00673
	(0.187)	(0.194)
W1 Education (Ref. = less than high school)		
Graduated from high school	0.871***	0.773***
	(0.279)	(0.287)
Some college	0.844***	0.787**
	(0.289)	(0.296)
College graduate or higher	0.332	0.293
	(0.240)	(0.239)
W1 Retirement status	-0.174	-0.150
	(0.149)	(0.155)
W1 Number of total alter-pairs		-0.0587**
		(0.0274)
W1 Kin composition tertiles		0.0782
		(0.0810)
W1 Average closeness with alters		-0.265
		(0.209)
W1 Average contact with alters		0.000992
		(0.00110)
Constant	-2.881***	-2.199***
	(0.329)	(0.746)
Observations	2,205	2,205

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Longitudinal Regression: W1->W2 Binary Physical Health

LABELS	W2_Binary Physical Health	W2_Binary Physical Health
W1 Number of bridging alter-pairs	0.0579	0.0888**
	(0.0352)	(0.0392)
W1 Binary Physical Health Status	2.245***	2.248***
	(0.144)	(0.141)
W1 Female	-0.0595	-0.0620
	(0.135)	(0.153)
W1 Black	-0.139	-0.141
	(0.201)	(0.198)
W1 Hispanic	0.129	0.0894
	(0.176)	(0.185)
W1 Cohabitating	0.0102	-0.00829
	(0.180)	(0.177)
W1 Education (Ref. = less than high school)		
Graduated from high school	1.200***	1.173***
	(0.262)	(0.261)
Some college	0.584**	0.568**
	(0.224)	(0.220)
College graduate or higher	0.315	0.311
	(0.247)	(0.241)
W1 Retirement status	0.187	0.193
	(0.150)	(0.152)
W1 Number of total alter-pairs		-0.0142
		(0.0253)
W1 Kin composition tertiles		0.0762
		(0.0611)
W1 Average closeness with alters		0.000414
		(0.171)
W1 Average contact with alters		0.000221
		(0.000915)
Constant	-2.414***	-2.558***
	(0.230)	(0.598)
Observations	2,203	2,203

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1