

* Encoding: UTF-8.

* ShortForm2017_clinic_FrailtyIndex_35items.

* Construction of a Frailty Index 35 items based on TOPICS-MDS Short Form 2017 - clinic WITH casemix (morbidity and cognitive functioning (dementia yes/no) during hospital stay).

* Last updated: December 5, 2019.

* Protocol of Searle et al. 2008 "A standard procedure for creating a frailty index" BMC Geriatrics.

* Convert values of included health deficits to indicate worsening condition - Range of 0 to 1.

* ADVICE: run this syntax in pieces; running it all at once may create errors/problems.

*-----DATA TRANSFORMATIONS-----

***** Define deficits *****.

*** Psych sub-scale ***.

IF (SF_TO_PW_BLUE = 6) SF_TO_FI_blue=0.

IF (SF_TO_PW_BLUE = 5) SF_TO_FI_blue=0.2.

IF (SF_TO_PW_BLUE = 4) SF_TO_FI_blue=0.4.

IF (SF_TO_PW_BLUE = 3) SF_TO_FI_blue=0.6.

IF (SF_TO_PW_BLUE = 2) SF_TO_FI_blue=0.8.

IF (SF_TO_PW_BLUE = 1) SF_TO_FI_blue=1.

EXECUTE.

IF (SF_TO_PW_CALM = 6) SF_TO_FI_calm=1.

IF (SF_TO_PW_CALM = 5) SF_TO_FI_calm=0.8.

IF (SF_TO_PW_CALM = 4) SF_TO_FI_calm=0.6.

IF (SF_TO_PW_CALM = 3) SF_TO_FI_calm=0.4.

IF (SF_TO_PW_CALM = 2) SF_TO_FI_calm=0.2.

IF (SF_TO_PW_CALM = 1) SF_TO_FI_calm=0.

EXECUTE.

IF (SF_TO_PW_HAPPY = 6) SF_TO_FI_happy=1.
IF (SF_TO_PW_HAPPY = 5) SF_TO_FI_happy=0.8.
IF (SF_TO_PW_HAPPY = 4) SF_TO_FI_happy=0.6.
IF (SF_TO_PW_HAPPY = 3) SF_TO_FI_happy=0.4.
IF (SF_TO_PW_HAPPY = 2) SF_TO_FI_happy=0.2.
IF (SF_TO_PW_HAPPY = 1) SF_TO_FI_happy=0.
EXECUTE.

*** EQ-5D-5L***.

IF (SF_TO_EQ5PAIN= 1) SF_TO_FI_EQ_pain=0.
IF (SF_TO_EQ5PAIN = 2) SF_TO_FI_EQ_pain=0.25.
IF (SF_TO_EQ5PAIN = 3) SF_TO_FI_EQ_pain=0.5.
IF (SF_TO_EQ5PAIN = 4) SF_TO_FI_EQ_pain=0.75.
IF (SF_TO_EQ5PAIN = 5) SF_TO_FI_EQ_pain=1.
EXECUTE.

*** Social functioning and self-reported health ***.

IF (SF_TO_SOCFUNC = 5) SF_TO_FI_SocFunc=0.
IF (SF_TO_SOCFUNC = 4) SF_TO_FI_SocFunc=0.25.
IF (SF_TO_SOCFUNC = 3) SF_TO_FI_SocFunc=0.50.
IF (SF_TO_SOCFUNC = 2) SF_TO_FI_SocFunc=0.75.
IF (SF_TO_SOCFUNC = 1) SF_TO_FI_SocFunc=1.
EXECUTE.

IF (SF_TO_HEALTH = 0) SF_TO_FI_Health=1.
IF (SF_TO_HEALTH = 1) SF_TO_FI_Health=0.9.
IF (SF_TO_HEALTH = 2) SF_TO_FI_Health=0.8.
IF (SF_TO_HEALTH = 3) SF_TO_FI_Health=0.7.
IF (SF_TO_HEALTH = 4) SF_TO_FI_Health=0.6.
IF (SF_TO_HEALTH = 5) SF_TO_FI_Health=0.5.

IF (SF_TO_HEALTH = 6) SF_TO_FI_Health=0.4.
IF (SF_TO_HEALTH = 7) SF_TO_FI_Health=0.3.
IF (SF_TO_HEALTH = 8) SF_TO_FI_Health=0.2.
IF (SF_TO_HEALTH = 9) SF_TO_FI_Health=0.1.
IF (SF_TO_HEALTH = 10) SF_TO_FI_Health=0.
EXECUTE.

*** Tasks and occupations in daily life ***.

IF (SF_TO_GARS_DRES=1) SF_TO_FI_GARS_DRES=0.
IF (SF_TO_GARS_DRES=2) SF_TO_FI_GARS_DRES=0.33.
IF (SF_TO_GARS_DRES=3) SF_TO_FI_GARS_DRES=0.66.
IF (SF_TO_GARS_DRES=4) SF_TO_FI_GARS_DRES=1.
EXECUTE.

IF (SF_TO_GARS_CHAIR=1) SF_TO_FI_GARS_CHAIR=0.
IF (SF_TO_GARS_CHAIR=2) SF_TO_FI_GARS_CHAIR=0.33.
IF (SF_TO_GARS_CHAIR=3) SF_TO_FI_GARS_CHAIR=0.66.
IF (SF_TO_GARS_CHAIR=4) SF_TO_FI_GARS_CHAIR=1.
EXECUTE.

IF (SF_TO_GARS_WASH=1) SF_TO_FI_GARS_WASH=0.
IF (SF_TO_GARS_WASH=2) SF_TO_FI_GARS_WASH=0.33.
IF (SF_TO_GARS_WASH=3) SF_TO_FI_GARS_WASH=0.66.
IF (SF_TO_GARS_WASH=4) SF_TO_FI_GARS_WASH=1.
EXECUTE.

IF (SF_TO_GARS_STAIRS=1) SF_TO_FI_GARS_STAIRS=0.
IF (SF_TO_GARS_STAIRS=2) SF_TO_FI_GARS_STAIRS=0.33.
IF (SF_TO_GARS_STAIRS=3) SF_TO_FI_GARS_STAIRS=0.66.
IF (SF_TO_GARS_STAIRS=4) SF_TO_FI_GARS_STAIRS=1.
EXECUTE.

IF (SF_TO_GARS_WALK=1) SF_TO_FI_GARS_WALK=0.
IF (SF_TO_GARS_WALK=2) SF_TO_FI_GARS_WALK=0.33.
IF (SF_TO_GARS_WALK=3) SF_TO_FI_GARS_WALK=0.66.
IF (SF_TO_GARS_WALK=4) SF_TO_FI_GARS_WALK=1.
EXECUTE.

IF (SF_TO_GARS_FEET=1) SF_TO_FI_GARS_FEET=0.
IF (SF_TO_GARS_FEET=2) SF_TO_FI_GARS_FEET=0.33.
IF (SF_TO_GARS_FEET=3) SF_TO_FI_GARS_FEET=0.66.
IF (SF_TO_GARS_FEET=4) SF_TO_FI_GARS_FEET=1.
EXECUTE.

IF (SF_TO_GARS_HH=1) SF_TO_FI_GARS_HH=0.
IF (SF_TO_GARS_HH=2) SF_TO_FI_GARS_HH=0.33.
IF (SF_TO_GARS_HH=3) SF_TO_FI_GARS_HH=0.66.
IF (SF_TO_GARS_HH=4) SF_TO_FI_GARS_HH=1.
EXECUTE.

IF (SF_TO_GARS_SHOP=1) SF_TO_FI_GARS_SHOP=0.
IF (SF_TO_GARS_SHOP=2) SF_TO_FI_GARS_SHOP=0.33.
IF (SF_TO_GARS_SHOP=3) SF_TO_FI_GARS_SHOP=0.66.
IF (SF_TO_GARS_SHOP=4) SF_TO_FI_GARS_SHOP=1.
EXECUTE.

IF (SF_TO_LASA_MED=1) SF_TO_FI_LASA_MED=0.
IF (SF_TO_LASA_MED=2) SF_TO_FI_LASA_MED=0.33.
IF (SF_TO_LASA_MED=3) SF_TO_FI_LASA_MED=0.66.
IF (SF_TO_LASA_MED=4) SF_TO_FI_LASA_MED=1.
EXECUTE.

IF (SF_TO_LASA_TRANSP=1) SF_TO_FI_LASA_TRANSP=0.

IF (SF_TO_LASA_TRANSP=2) SF_TO_FI_LASA_TRANSP=0.33.

IF (SF_TO_LASA_TRANSP=3) SF_TO_FI_LASA_TRANSP=0.66.

IF (SF_TO_LASA_TRANSP=4) SF_TO_FI_LASA_TRANSP=1.

EXECUTE.

*** Cognitive functioning during hospital stay (dementia) ***.

* Dichotomize SF_TO_COGNFUNC_ADMIS: Dementia =1, other =0.

COMPUTE SF_TO_COGNFUNC_ADMIS_DICH=\$sysmis.

EXECUTE.

FORMATS SF_TO_COGNFUNC_ADMIS_DICH (F1.0).

RECODE SF_TO_COGNFUNC_ADMIS (1=0, 2=0, 3=1, 4=0, 5=0) INTO SF_TO_COGNFUNC_ADMIS_DICH.

EXECUTE.

VALUE LABELS SF_TO_COGNFUNC_ADMIS_DICH 0 'No' 1 'Yes'.

*** SF_TO_LASA_MEMO1 asks for the complaints on memory loss: yes(1) and no(0); No data transformation for this variable is required.

*** SF_TO_MORBa through SF_TO_MORBq ask for presence of diseases/conditons: yes(1) and no(0); No data transformation for these variables are required.

*** SF_TO_COGNFUNC_ADMIS_DICH asks for presence of dementia: yes(1) and no(0); No data transformation for this variable is required.

*-----FRAILTY INDEX CALCULATIONS-----.

*** Compute SF_TO_FI ***.

*** First determine the number of missing values ***.

```
COMPUTE SF_TO_Missing_number_FI=NMISS(SF_TO_PW_BLUE, SF_TO_PW_CALM,  
SF_TO_PW_HAPPY, SF_TO_EQ5PAIN, SF_TO_SOCFUNC, SF_TO_HEALTH,  
SF_TO_GARS_DRES,SF_TO_GARS_CHAIR, SF_TO_GARS_WASH, SF_TO_GARS_STAIRS,  
  
SF_TO_GARS_WALK, SF_TO_GARS_FEET, SF_TO_GARS_HH, SF_TO_GARS_SHOP, SF_TO_LASA_MED,  
SF_TO_LASA_TRANSP, SF_TO_LASA_MEMO1, SF_TO_MORBa, SF_TO_MORBb, SF_TO_MORBc,  
SF_TO_MORBd, SF_TO_MORBe, SF_TO_MORBf,  
  
SF_TO_MORBg, SF_TO_MORBh, SF_TO_MORBi, SF_TO_MORBj, SF_TO_MORBk, SF_TO_MORBl,  
SF_TO_MORBm, SF_TO_MORBn, SF_TO_MORBo, SF_TO_MORBp, SF_TO_MORBq,  
SF_TO_COGNFUNC_ADMIS_DICH).
```

EXECUTE.

*** Calculate the frailty index by the total number of deficits accrued ***.

```
COMPUTE SF_TO_Frailty_total = sum (SF_TO_FI_blue, SF_TO_FI_calm, SF_TO_FI_happy,  
SF_TO_FI_EQ_pain, SF_TO_FI_SocFunc, SF_TO_FI_Health, SF_TO_FI_GARS_DRES,  
SF_TO_FI_GARS_CHAIR, SF_TO_FI_GARS_WASH, SF_TO_FI_GARS_STAIRS, SF_TO_FI_GARS_WALK,  
  
SF_TO_FI_GARS_FEET, SF_TO_FI_GARS_HH, SF_TO_FI_GARS_SHOP, SF_TO_FI_LASA_MED,  
SF_TO_FI_LASA_TRANSP, SF_TO_LASA_MEMO1, SF_TO_MORBa, SF_TO_MORBb, SF_TO_MORBc,  
SF_TO_MORBd, SF_TO_MORBe, SF_TO_MORBf,  
  
SF_TO_MORBg, SF_TO_MORBh, SF_TO_MORBi, SF_TO_MORBj, SF_TO_MORBk, SF_TO_MORBl,  
SF_TO_MORBm, SF_TO_MORBn, SF_tO_MORBo, SF_TO_MORBp, SF_TO_MORBq,  
SF_TO_COGNFUNC_ADMIS_DICH).
```

EXECUTE.

*** Examine different methods to address missing ***.

*** Complete case analysis - all deficits must be present (no missing values) ***.

*** WARNING --> Results in high levels of missing values ***.

DO IF

SF_TO_Missing_number_FI = 0.

COMPUTE SF_TO_FI_complete_case=SF_TO_Frailty_total/35.

END IF.

EXECUTE.

*** Establish a minimum number of permissible missing deficits ***.

*** Adjustment of base for missing data ***.

IF (SF_T0_Missing_number_FI <= 10) SF_T0_FI_corrected=SF_T0_Frailty_total/(35-SF_T0_Missing_number_FI).

EXECUTE.

*** Dichotomize the frailty index ***.

*** No established threshold, cut-offs generally made at either 0.25 or 0.20 (see Searle et al. 2008 above) ***.

IF (SF_T0_FI_corrected ge 0.25) SF_T0_FI_binary_25cut=1.

IF (SF_T0_FI_corrected lt 0.25) SF_T0_FI_binary_25cut=0.

EXECUTE.

IF (SF_T0_FI_corrected ge 0.2) SF_T0_FI_binary_20cut=1.

IF (SF_T0_FI_corrected lt 0.2) SF_T0_FI_binary_20cut=0.

EXECUTE.