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* Encoding: UTF-8.

************************************************************.

* CR_Baseline_MDS2017_FrailtyIndex_42 items.

* Construction of a Frailty Index 42 items based on TOPICS-MDS questionnaire 2017 (baseline).

* Last updated: March 15, 2018.

* 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.

************************************************************.


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


*** Psych sub-scale ***.


IF (T0_PW_NERV = 6) T0_FI_nerv=0.

IF (T0_PW_NERV = 5) T0_FI_nerv=0.2.

IF (T0_PW_NERV = 4) T0_FI_nerv=0.4.

IF (T0_PW_NERV = 3) T0_FI_nerv=0.6.

IF (T0_PW_NERV = 2) T0_FI_nerv=0.8.

IF (T0_PW_NERV = 1) T0_FI_nerv=1.

EXECUTE.


IF (T0_PW_BLUE = 6) T0_FI_blue=0.

IF (T0_PW_BLUE = 5) T0_FI_blue=0.2.

IF (T0_PW_BLUE = 4) T0_FI_blue=0.4.

IF (T0_PW_BLUE = 3) T0_FI_blue=0.6.
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IF (T0_PW_BLUE = 2) T0_FI_blue=0.8.

IF (T0_PW_BLUE = 1) T0_FI_blue=1.

EXECUTE.


IF (T0_PW_DOWN = 6) T0_FI_down=0.

IF (T0_PW_DOWN = 5) T0_FI_down=0.2.

IF (T0_PW_DOWN = 4) T0_FI_down=0.4.

IF (T0_PW_DOWN = 3) T0_FI_down=0.6.

IF (T0_PW_DOWN = 2) T0_FI_down=0.8.

IF (T0_PW_DOWN = 1) T0_FI_down=1.

EXECUTE.


IF (T0_PW_CALM = 6) T0_FI_calm=1.

IF (T0_PW_CALM = 5) T0_FI_calm=0.8.

IF (T0_PW_CALM = 4) T0_FI_calm=0.6.

IF (T0_PW_CALM = 3) T0_FI_calm=0.4.

IF (T0_PW_CALM = 2) T0_FI_calm=0.2.

IF (T0_PW_CALM = 1) T0_FI_calm=0.

EXECUTE.


IF (T0_PW_HAPPY = 6) T0_FI_happy=1.

IF (T0_PW_HAPPY = 5) T0_FI_happy=0.8.

IF (T0_PW_HAPPY = 4) T0_FI_happy=0.6.

IF (T0_PW_HAPPY = 3) T0_FI_happy=0.4.

IF (T0_PW_HAPPY = 2) T0_FI_happy=0.2.

IF (T0_PW_HAPPY = 1) T0_FI_happy=0.

EXECUTE.
```

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

IF (T0_EQ5MO = 1) T0_FI_EQ_mob=0.

IF (T0_EQ5MO = 2) T0_FI_EQ_mob=0.25.

IF (T0_EQ5MO = 3) T0_FI_EQ_mob=0.5.

IF (T0_EQ5MO = 4) T0_FI_EQ_mob=0.75.

IF (T0_EQ5MO = 5) T0_FI_EQ_mob=1.

EXECUTE.

IF (T0_EQ5SC = 1) T0_FI_EQ_selfcare=0.

IF (T0_EQ5SC = 2) T0_FI_EQ_selfcare=0.25.

IF (T0_EQ5SC = 3) T0_FI_EQ_selfcare=0.5.

IF (T0_EQ5SC = 4) T0_FI_EQ_selfcare=0.75.

IF (T0_EQ5SC = 5) T0_FI_EQ_selfcare=1.

EXECUTE.

IF (T0_EQ5ACT= 1) T0_FI_EQ_act=0.

IF (T0_EQ5ACT = 2) T0_FI_EQ_act=0.25.

IF (T0_EQ5ACT = 3) T0_FI_EQ_act=0.5.

IF (T0_EQ5ACT = 4) T0_FI_EQ_act=0.75.

IF (T0_EQ5ACT = 5) T0_FI_EQ_act=1.

EXECUTE.

IF (T0_EQ5PAIN= 1) T0_FI_EQ_pain=0.

IF (T0_EQ5PAIN = 2) T0_FI_EQ_pain=0.25.

IF (T0_EQ5PAIN = 3) T0_FI_EQ_pain=0.5.

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IF (T0_EQ5PAIN = 4) T0_FI_EQ_pain=0.75.
IF (T0_EQ5PAIN = 5) T0_FI_EQ_pain=1.
EXECUTE.

IF (T0_EQ5ANX= 1) T0_FI_EQ_mood=0.
IF (T0_EQ5ANX = 2) T0_FI_EQ_mood=0.25.
IF (T0_EQ5ANX = 3) T0_FI_EQ_mood=0.5.
IF (T0_EQ5ANX = 4) T0_FI_EQ_mood=0.75.
IF (T0_EQ5ANX = 5) T0_FI_EQ_mood=1.
EXECUTE.

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

IF (T0_SOCFUNC = 5) T0_FI_SocFunc=0.
IF (T0_SOCFUNC = 4) T0_FI_SocFunc=0.25.
IF (T0_SOCFUNC = 3) T0_FI_SocFunc=0.50.
IF (T0_SOCFUNC = 2) T0_FI_SocFunc=0.75.
IF (T0_SOCFUNC = 1) T0_FI_SocFunc=1.
EXECUTE.

IF (T0_HEALTH = 0) T0_FI_Health=1.
IF (T0_HEALTH = 1) T0_FI_Health=0.9.
IF (T0_HEALTH = 2) T0_FI_Health=0.8.
IF (T0_HEALTH = 3) T0_FI_Health=0.7.
IF (T0_HEALTH = 4) T0_FI_Health=0.6.
IF (T0_HEALTH = 5) T0_FI_Health=0.5.
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IF (T0_HEALTH = 6) T0_FI_Health=0.4.

IF (T0_HEALTH = 7) T0_FI_Health=0.3.

IF (T0_HEALTH = 8) T0_FI_Health=0.2.

IF (T0_HEALTH = 9) T0_FI_Health=0.1.

IF (T0_HEALTH = 10) T0_FI_Health=0.

EXECUTE.

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

IF (T0_GARS_DRES=1) T0_FI_GARS_DRES=0.

IF (T0_GARS_DRES=2) T0_FI_GARS_DRES=0.33.

IF (T0_GARS_DRES=3) T0_FI_GARS_DRES=0.66.

IF (T0_GARS_DRES=4) T0_FI_GARS_DRES=1.

EXECUTE.

IF (T0_GARS_CHAIR=1) T0_FI_GARS_CHAIR=0.

IF (T0_GARS_CHAIR=2) T0_FI_GARS_CHAIR=0.33.

IF (T0_GARS_CHAIR=3) T0_FI_GARS_CHAIR=0.66.

IF (T0_GARS_CHAIR=4) T0_FI_GARS_CHAIR=1.

EXECUTE.

IF (T0_GARS_WASH=1) T0_FI_GARS_WASH=0.

IF (T0_GARS_WASH=2) T0_FI_GARS_WASH=0.33.

IF (T0_GARS_WASH=3) T0_FI_GARS_WASH=0.66.

IF (T0_GARS_WASH=4) T0_FI_GARS_WASH=1.

EXECUTE.
```

```
IF (T0_GARS_STAIRS=1) T0_FI_GARS_STAIRS=0.
IF (T0_GARS_STAIRS=2) T0_FI_GARS_STAIRS=0.33.
IF (T0_GARS_STAIRS=3) T0_FI_GARS_STAIRS=0.66.
IF (T0_GARS_STAIRS=4) T0_FI_GARS_STAIRS=1.
EXECUTE.

IF (T0_GARS_WALK=1) T0_FI_GARS_WALK=0.
IF (T0_GARS_WALK=2) T0_FI_GARS_WALK=0.33.
IF (T0_GARS_WALK=3) T0_FI_GARS_WALK=0.66.
IF (T0_GARS_WALK=4) T0_FI_GARS_WALK=1.
EXECUTE.

IF (T0_GARS_FEET=1) T0_FI_GARS_FEET=0.
IF (T0_GARS_FEET=2) T0_FI_GARS_FEET=0.33.
IF (T0_GARS_FEET=3) T0_FI_GARS_FEET=0.66.
IF (T0_GARS_FEET=4) T0_FI_GARS_FEET=1.
EXECUTE.

IF (T0_GARS_HH=1) T0_FI_GARS_HH=0.
IF (T0_GARS_HH=2) T0_FI_GARS_HH=0.33.
IF (T0_GARS_HH=3) T0_FI_GARS_HH=0.66.
IF (T0_GARS_HH=4) T0_FI_GARS_HH=1.
EXECUTE.

IF (T0_GARS_SHOP=1) T0_FI_GARS_SHOP=0.
IF (T0_GARS_SHOP=2) T0_FI_GARS_SHOP=0.33.
IF (T0_GARS_SHOP=3) T0_FI_GARS_SHOP=0.66.
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```
IF (T0_GARS_SHOP=4) T0_FI_GARS_SHOP=1.
EXECUTE.

IF (T0_LASA_MED=1) T0_FI_LASA_MED=0.
IF (T0_LASA_MED=2) T0_FI_LASA_MED=0.33.
IF (T0_LASA_MED=3) T0_FI_LASA_MED=0.66.
IF (T0_LASA_MED=4) T0_FI_LASA_MED=1.
EXECUTE.

IF (T0_LASA_TRANSP=1) T0_FI_LASA_TRANSP=0.
IF (T0_LASA_TRANSP=2) T0_FI_LASA_TRANSP=0.33.
IF (T0_LASA_TRANSP=3) T0_FI_LASA_TRANSP=0.66.
IF (T0_LASA_TRANSP=4) T0_FI_LASA_TRANSP=1.
EXECUTE.

*** Dental care is counted as one deficit ***.

IF (T0_MOUTH_PAIN=1) T0_FI_MOUTH_PAIN = 0.25.
IF (T0_MOUTH_PAIN=0) T0_FI_MOUTH_PAIN = 0.
IF (T0_MOUTH_CHEW=1) T0_FI_MOUTH_CHEW = 0.25.
IF (T0_MOUTH_CHEW=0) T0_FI_MOUTH_CHEW = 0.
IF (T0_MOUTH_DRY=1) T0_FI_MOUTH_DRY = 0.25.
IF (T0_MOUTH_DRY=0) T0_FI_MOUTH_DRY = 0.
IF (T0_MOUTH_SWAL=1) T0_FI_MOUTH_SWAL = 0.25.
IF (T0_MOUTH_SWAL=0) T0_FI_MOUTH_SWAL = 0.
EXECUTE.

COMPUTE T0_FI_MOUTH = SUM (T0_FI_MOUTH_PAIN, T0_FI_MOUTH_CHEW, T0_FI_MOUTH_DRY,
T0_FI_MOUTH_SWAL).
```

```
EXECUTE.


*** Compute T0_FI ***.

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


COMPUTE T0_Missing_number_FI=NMISS (T0_FI_Health, T0_FI_EQ_mob, T0_FI_EQ_selfcare,
T0_FI_EQ_act, T0_FI_EQ_pain, T0_FI_EQ_mood, T0_LASA_MEMO1, T0_LASA_FALL, T0_MORB1,

 T0_MORB2, T0_MORB3, T0_MORB4, T0_MORB5, T0_MORB6, T0_MORB7, T0_MORB8, T0_MORB9,
T0_MORB10, T0_MORB11, T0_MORB12, T0_MORB13, T0_MORB14,

T0_MORB15, T0_MORB16, T0_MORB17, T0_FI_GARS_DRES, T0_FI_GARS_CHAIR,
T0_FI_GARS_WASH, T0_FI_GARS_STAIRS,

T0_FI_GARS_WALK, T0_FI_GARS_FEET, T0_FI_GARS_HH, T0_FI_GARS_SHOP, T0_FI_LASA_MED,
T0_FI_LASA_TRANSP, T0_FI_MOUTH, T0_FI_nerv, T0_FI_calm,

 T0_FI_blue, T0_FI_happy, T0_FI_down, T0_FI_SocFunc).

EXECUTE.


*** Calculate the total number of deficits accrued ***.


COMPUTE T0_Frailty_total = sum (T0_FI_Health, T0_FI_EQ_mob, T0_FI_EQ_selfcare, T0_FI_EQ_act,
T0_FI_EQ_pain, T0_FI_EQ_mood, T0_LASA_MEMO1, T0_LASA_FALL, T0_MORB1,

 T0_MORB2, T0_MORB3, T0_MORB4, T0_MORB5, T0_MORB6, T0_MORB7, T0_MORB8, T0_MORB9,
T0_MORB10, T0_MORB11, T0_MORB12, T0_MORB13, T0_MORB14,

T0_MORB15, T0_MORB16, T0_MORB17, T0_FI_GARS_DRES, T0_FI_GARS_CHAIR,
T0_FI_GARS_WASH, T0_FI_GARS_STAIRS,

T0_FI_GARS_WALK, T0_FI_GARS_FEET, T0_FI_GARS_HH, T0_FI_GARS_SHOP, T0_FI_LASA_MED,
T0_FI_LASA_TRANSP, T0_FI_MOUTH, T0_FI_nerv, T0_FI_calm,

 T0_FI_blue, T0_FI_happy, T0_FI_down, T0_FI_SocFunc).

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
T0_Missing_number_FI = 0.
COMPUTE T0_FI_complete_case=T0_Frailty_total/42.
END IF.
EXECUTE.
```

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

*** NB! Previous research has identified improved predicative validity with inclusion of 30 deficits (see Searle et al. 2008 above) ***.

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

```
IF (T0_Missing_number_FI  <= 12) T0_FI_corrected=T0_Frailty_total/(42-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 (T0_FI_corrected ge 0.25) T0_FI_binary_25cut=1.
IF (T0_FI_corrected lt 0.25) T0_FI_binary_25cut=0.
EXECUTE.
```

```
IF (T0_FI_corrected ge 0.2) T0_FI_binary_20cut=1.
IF (T0_FI_corrected lt 0.2) T0_FI_binary_20cut=0.
EXECUTE.
```