

Derived Variable–Depression (DEP)

(Tracking and Comprehensive Assessments)

Screening for depressive symptoms in the CLSA is done using the Center for Epidemiologic Studies Short Depression Scale (CESD-10) (1), which contains 10 questions about such items as feelings of depression, loneliness, hopefulness for the future, and restless sleep. Four possible response options are provided for each question: all of the time, occasionally, some of the time, and rarely or never. CESD-10 is a screening tool for depression and not a diagnostic tool.

There are two derived variables (DVs) in the DEP module: the overall CESD-10 score, and an indicator of a positive screen for depression. Furthermore, there is also a variable indicating the number of missing items on the CESD-10.

If there is one missing item, its value is imputed by taking the mean of the 9 other items, as suggested by Andresen et al. (1). The overall score is then obtained using the imputed value. If there is more than one missing item, missing values are not imputed. For the purposes of the CLSA, the partial information available is used to determine a positive or negative screen for depression, if it is feasible to do so. To do this, we consider the number of missing items and determine if the current classification could be altered if those missing values were known. If it could not, then the classification of a positive or negative screen for depression is made. If the classification could be altered, the indicator is set to missing.

These DVs are created for participants in both the Tracking and Comprehensive assessments. For simplicity, we describe it here for the Tracking assessment, however, the process of creating the DV for the Comprehensive assessment is identical. Distinguishing the two are the variable name endings; all variable names in the Tracking assessment end in ‘TRM’ and in the Comprehensive assessment in ‘COM’. For example, the DV named DEP_CESD10_**TRM** in the Tracking assessment is named DEP_CESD10_**COM** in the Comprehensive assessment.

(1)Andresen EM,Malmgren JA, Carter WB, Patrick DL. Screening for depression in well older adults: evaluation of a short form of the CES-D(Center for Epidemiologic Studies Depression Scale).AmJPrevMed1994;10(2):77-84.

1) Number of Missing Items on the CESD-10

Variable Name: DEP _NBRMIS_TRM

Description: This variable counts the total number of items on the CESD-10 for which the participant did not provide a response which could be scored.

Based on: DEP_BOTR_TRM, DEP_MIND_TRM, DEP_FLDP_TRM, DEP_FFRT_TRM, DEP_HPFL_TRM, DEP_FRFL_TRM, DEP_RSTLS_TRM, DEP_HAPP_TRM, DEP_LONLY_TRM, DEP_GTGO_TRM

Temporary Indicator Variables: In order to count the number of missing items on the CESD-10, we first create 10 temporary indicator variables, DEP_IMBOTR_TRM, DEP_IMMIND_TRM, DEP_IMFLDP_TRM, DEP_IMFFRT_TRM, DEP_IMHPFL_TRM, DEP_IMFRFL_TRM, DEP_IMRSTLS_TRM, DEP_IMHAPP_TRM, DEP_IMLONLY_TRM, and DEP_IMGTGO_TRM, to indicate if there are missing responses for any of the 10 items. These indicator variables are not included in the CLSA dataset.

Value	Condition(s)	Description
DEP_IMBOTR_TRM= 1	DEP_BOTR_TRM≠ (1, 2, 3, 4)	Missing value
DEP_IMBOTR_TRM= 0	DEP_BOTR_TRM= (1, 2, 3, 4)	Not missing value
DEP_IMMIND_TRM= 1	DEP_MIND_TRM≠ (1, 2, 3, 4)	Missing value
DEP_IMMIND_TRM= 0	DEP_MIND_TRM= (1, 2, 3, 4)	Not missing value
DEP_IMFLDP_TRM= 1	DEP_FLDP_TRM≠ (1, 2, 3, 4)	Missing value
DEP_IMFLDP_TRM= 0	DEP_FLDP_TRM= (1, 2, 3, 4)	Not missing value
DEP_IMFFRT_TRM= 1	DEP_FFRT_TRM≠ (1, 2, 3, 4)	Missing value
DEP_IMFFRT_TRM= 0	DEP_FFRT_TRM= (1, 2, 3, 4)	Not missing value
DEP_IMHPFL_TRM= 1	DEP_HPFL_TRM≠ (1, 2, 3, 4)	Missing value
DEP_IMHPFL_TRM= 0	DEP_HPFL_TRM= (1, 2, 3, 4)	Not missing value
DEP_IMFRFL_TRM= 1	DEP_FRFL_TRM≠ (1, 2, 3, 4)	Missing value
DEP_IMFRFL_TRM= 0	DEP_FRFL_TRM= (1, 2, 3, 4)	Not missing value
DEP_IMRSTLS_TRM= 1	DEP_RSTLS_TRM≠ (1, 2, 3, 4)	Missing value
DEP_IMRSTLS_TRM= 0	DEP_RSTLS_TRM= (1, 2, 3, 4)	Not missing value
DEP_IMHAPP_TRM= 1	DEP_HAPP_TRM≠ (1, 2, 3, 4)	Missing value



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DEP_IMHAPP_TRM= 0	DEP_HAPP_TRM= (1, 2, 3, 4)	Not missing value
DEP_IMLONLY_TRM= 1	DEP_LONLY_TRM≠ (1, 2, 3, 4)	Missing value
DEP_IMLONLY_TRM= 0	DEP_LONLY_TRM= (1, 2, 3, 4)	Not missing value
DEP_IMGTGO_TRM= 1	DEP_GTGO_TRM≠ (1, 2, 3, 4)	Missing value
DEP_IMGTGO_TRM= 0	DEP_GTGO_TRM= (1, 2, 3, 4)	Not missing value

Variable Specifications:

Value	Description	Notes
DEP_IMBOTR_TRM + DEP_IMMIND_TRM + DEP_IMFLDP_TRM + DEP_IMFFRT_TRM + DEP_IMHPFL_TRM + DEP_IMFRFL_TRM + DEP_IMRSTLS_TRM + DEP_IMHAPP_TRM + DEP_IMLONLY_TRM + DEP_IMGTGO_TRM	Number of missing items on CESD-10.	(Min: 0; Max: 10)

2) Center for Epidemiological Studies Short Depression Scale (CESD-10) score – Temporary Variable

Derived Variable Name: DEP_TCESD10_TRM

Description: This variable is the overall score on the CESD-10, and it is obtained by summing the individual response values from the 10 items included in the tool. If there is one missing item, the CLSA imputes the value of the missing item using the mean of the 9 other items (1). If there is more than one missing item, there is no imputation, and the score is obtained by summing the values of the completed items. This variable is not included in the CLSA dataset.

Based on: DEP_BOTR_TRM, DEP_MIND_TRM, DEP_FLDP_TRM, DEP_FFRT_TRM, DEP_HPFL_TRM, DEP_FRFL_TRM, DEP_RSTLS_TRM, DEP_HAPP_TRM, DEP_LONLY_TRM, DEP_GTGO_TRM

Temporary Reformat: Responses to the 10 items are coded in the CLSA data as follows:

1 - "All of the time (5-7 days)"

2 - "Occasionally (3-4 days)"

3 - "Some of the time (1-2 days)"

4 - "Rarely or never (less than 1 day)"

8 - "Don't know/No answer"

9 - "Refused"

In order to obtain the CESD-10 score, the responses were temporarily reformatted for DEP_BOTR_TRM, DEP_MIND_TRM, DEP_FLDP_TRM, DEP_FFRT_TRM, DEP_FRFL_TRM, DEP_RSTLS_TRM, DEP_LONLY_TRM, DEP_GTGO_TRM as follows:

0 - "Rarely or never (less than 1 day)"

1 - "Some of the time (1-2 days)"

2 - "Occasionally (3-4 days)"

3 - "All of the time (5-7 days)"

The variables DEP_HPFL_TRM and DEP_HAPP_TRM were temporarily reformatted as follows:

0 - "All of the time (5-7 days)"

1 - "Occasionally (3-4 days)"

2 - "Some of the time (1-2 days)"

3 - "Rarely or never (less than 1 day)"

For all items, responses of "8 - Don't know/No answer", "9 - Refused", or "-8 - Missing", were temporarily reformatted to be 0.

The reformatted variables are named DEP_TBOTR_TRM, DEP_TMIND_TRM, DEP_TFLDP_TRM, DEP_TFFRT_TRM, DEP_THPFL_TRM, DEP_TFRFL_TRM, DEP_TRSTLS_TRM, DEP_THAPP_TRM, DEP_TLONLY_TRM, and DEP_TGTGO_TRM and are not included in the CLSA data.

Derived Variable Specifications:

Value	Condition(s)	Description	Notes
DEP_TBOTR_TRM + DEP_TMIND_TRM + DEP_TFLDP_TRM + DEP_TFFRT_TRM + DEP_THPFL_TRM + DEP_TFRFL_TRM + DEP_TRSTLS_TRM + DEP_THAPP_TRM + DEP_TLONLY_TRM + DEP_TGTGO_TRM	DEP_NBRMIS_TRM = 0 or DEP_NBRMIS_TRM > 1	CESD-10 score ignoring missing items.	(min: 0; max: 30)
DEP_TBOTR_TRM + DEP_TMIND_TRM + DEP_TFLDP_TRM + DEP_TFFRT_TRM + DEP_THPFL_TRM + DEP_TFRFL_TRM + DEP_TRSTLS_TRM + DEP_THAPP_TRM + DEP_TLONLY_TRM + DEP_TGTGO_TRM + (DEP_TBOTR_TRM + DEP_TMIND_TRM + DEP_TFLDP_TRM + DEP_TFFRT_TRM + DEP_THPFL_TRM + DEP_TFRFL_TRM + DEP_TRSTLS_TRM + DEP_THAPP_TRM + DEP_TLONLY_TRM + DEP_TGTGO_TRM)/9	DEP_NBRMIS_TRM = 1	CESD-10 score with one missing response imputed as the mean of the other 9 items.	(min: 0; max: 30)

3) Positive screen for depression

Derived Variable Name: DEP_DPSFD_TRM

Description: This variable is an indicator for a positive screen for depressive symptoms. It is based on the CESD-10 score cut-off of 10 or more, given in Andresen et al. (1). The number of missing items, and their possible values, are also considered when making this classification.

Based on: DEP_TCESD10_TRM, DEP_NBRMIS_TRM

Derived Variable Specifications:

Value	Condition(s)	Description
0	(DEP_NBRMIS_TRM ≤ 1 and DEP_TCESD10_TRM < 10) or (DEP_NBRMIS_TRM > 1 and DEP_TCESD10_TRM + 3*DEP_NBRMIS_TRM < 10)	Negative screen for depression
1	DEP_TCESD10_TRM ≥ 10	Positive screen for depression
9	DEP_NBRMIS_TRM > 1 and DEP_TCESD10_TRM < 10 and (DEP_TCESD10_TRM + 3*DEP_NBRMIS_TRM ≥ 10)	Inconclusive result of depression screening due to missing values

4) Center for Epidemiological Studies Short Depression Scale (CESD-10) score

Derived Variable Name: DEP_CESD10_TRM

Description: This variable is the overall score on the CESD-10, and is obtained by summing the individual response values from the 10 items included in the tool. If there is one missing item, the CLSA imputes the value of the missing item using the mean of the 9 other items (1). If there is more than one missing item, this score is set to missing. However, we distinguish between participants with missing items who have provided sufficient information to obtain a conclusive screening result, and those who have not.

Note: Higher scores indicate higher levels of depressed mood.

Based on: DEP_TCESD10_TRM, DEP_NBRMIS_TRM, DEP_DPSFD_TRM

Derived Variable Specifications:

Value	Condition(s)	Description	Notes
DEP_TCESD10_TRM	DEP_NBRMIS_TRM ≤ 1	CESD-10 score	(min: 0; max: 30)
99	DEP_NBRMIS_TRM >1 and DEP_DPSFD_TRM =9	At least two missing items and inconclusive result of depression screening.	
-88	DEP_NBRMIS_TRM >1 and DEP_DPSFD_TRM ≠9	At least two missing items but conclusive result of depression	



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		screening is available.	
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