

D80+: Documentation of Instruments and Variables

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Old age in Germany
(Study of the very old: D80+)

D80+

Documentation of Instruments and Variables

29. November 2023

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General information on scales and derived values

This documentation describes the procedure for the formation of aggregate scores for multi-item scales and the formation of values derived from the survey data collected. Where possible, test scores, classifications and (sub-)scale scores are formed in accordance with the procedure recommended in the respective scale manual or manual.

The survey was reorganised due to the coronavirus and divided into two modules with different content. Module 1 was surveyed by questionnaire (FB) and in a few cases by telephone (CATI 1), Module 2 by telephone (CATI 2). This means that not all content was collected for people who did not take part in the CATI2 survey. Scales that could only be created for CATI2 participants are labelled as such below.

For the basic preparation of the survey data, the **mean value of all available item values was** calculated for data aggregation. This allowed aggregate scores to be formed even with incomplete data. To test the measurement structure, the composite reliability (**omega**, McDonald 1999; Trizano-Hermosilla & Alvarado 2016) was calculated for all (sub)scales assumed to be homogeneous as part of a model with latent variables (Mplus 8.1), utilising all available information using the full information maximum likelihood (FIML) method. The original items and any items recoded for data aggregation are included in the data set so that the user can apply alternative procedures for scale formation or for the treatment of missing values if necessary. While different reasons for non-response are explicitly and completely coded by qualified missing values for all individual items collected, different reasons for non-response were no

longer differentiated in the aggregate scores and derived values. For a few scales (DemTect and DIA-S4), it is explicitly noted in the scale booklet that the aggregate score may only be formed if all items have been answered, so that in these cases the additional missing code.Q /-11 "Aggregate score not formed (quality assurance)" was assigned.

Derived values are, in the understanding of the D80+ study of the very old

1. Combinations of separately recorded information (e.g. date values for which the day, month and year were recorded separately)
2. Combinations of alternative information collected (especially the age at which an event took place as alternative information if the exact year is not remembered)
3. Basic time intervals (usually between a biographical event and the time of the survey, such as age at the time of the survey)
4. Categorisation of information collected openly or in detail (e.g. occupation coding, education coding, categories of openly collected support needs of respondents)

Literature

McDonald, R. P. (1999). *Test theory: A unified treatment*. Mahwah, NJ [et al]: Erlbaum.

Trizano-Hermosilla, I., & Alvarado, J. M. (2016). Best Alternatives to Cronbach's Alpha Reliability in Realistic Conditions: Congeneric and Asymmetrical Measurements. *Frontiers in Psychology*, 7, 769. doi: <https://doi.org/10.3389/fpsyg.2016.00769>

Interview with target person

1 Education

1.1 Education classification

Education was coded using the International Standard Classification of Education in the version adapted to German education programmes.

For people who last attended school abroad and do not have an educational qualification, a correction or reclassification was made based on the years of school attendance.

In the variable `alt_bildung`, training at a vocational, master craftsman, technical school, administrative and business academy or specialised academy is included in level 2, while it is located in the high level for the variable `iscedDEAS2011`. We recommend using the variable `iscedDEAS2011`.

VARIABLE NAME	isced2011_num1
VARIABLE LABEL	ISCED codes 2011 single-digit, incl. foreign school attendance with consideration of school years School years

VARIABLE NAME	isced2011_num2
VARIABLE LABEL	ISCED codes 2011 two-digit, incl. foreign school attendance with consideration of school years School years

VARIABLE NAME	isced
VARIABLE LABEL	Level of education, ISCED 2011 (3 cat.)

VARIABLE NAME	old_education
VARIABLE LABEL	Level of education (3 cat.) to reproduce previous results

Literature

Bohlinger, S (2012). International Standard Classification in Education. *Berufsbildung in Wissenschaft und Praxis*, 41(4), pp. 16-19. URL: <https://www.bwp-zeitschrift.de/dienst/publikationen/de/6920>

1.2 Social status

VARIABLE NAME	isei08
VARIABLE LABEL	ISEI08: Social status coding according to Ganzeboom & Treiman 1996 and Ganzeboom et al. 1992 (from ISCO08)

VARIABLE NAME	siops08
VARIABLE LABEL	SIOPS08: Social status coding according to Ganzeboom & Treiman 1996 (from ISCO08)

Literature

Ganzeboom, H. B. G., & Treiman, D. J. (1996). Internationally comparable measures of occupational status for the 1988 International Standard Classification of Occupations. *Social Science Research*, 25(3), 201-239. doi: <https://doi.org/10.1006/ssre.1996.001>

Ganzeboom, H. B. G., De Graaf, P. M., & Treiman, D. J. (1992). A standard international socio-economic index of occupational status. *Social Science Research*, 21(1), 1-56. doi: [https://doi.org/10.1016/0049-089X\(92\)90017-B](https://doi.org/10.1016/0049-089X(92)90017-B)

2 Living

2.1 Full inpatient care

As the question about full inpatient care was asked three times in the questionnaire for filtering reasons: **wohnf1**, **if1_wohnf1**, **if2_wohnf1**, there were incomplete and/or contradictory responses in some cases. If there were no contradictions, but only partial information was missing, the answer(s) given were used.

Contradictions arose either through inadmissible double answers to one or more of the three questions and/or through contradictory answers to the three questions.

In the event of contradictions, the response behaviour to the respective subsequent filter was used to form the variable **wohnf1_g**. In this sense, the answers to the questions on **sicher** and **privatsp** became an indicator for the existence of full inpatient care, while the answers to the questions on **hhgroe1**, **pflegnu1**, **pflegnu2** and **pflegnu3** were used as indicators for the absence of full inpatient care. If no decision could be reached on this, the residential situation was used **wohnsit_8_g**.

The variable **wohnf1_c2** was used for respondents who were only interviewed for the first time in the CATI1 interview. **wohnf1_g** can be regarded as the best possible information on the existence of full inpatient care at the time of the first interview. However, the information **wohnf1_c2** from the CATI survey of those participants who took part in both the questionnaire and the CATI survey may deviate from this.

VARIABLE NAME	wohnf1_g
VARIABLE LABEL	Full inpatient care: generated variable

USED ITEMS

VARIABLE NAME	VARIABLE LABEL	RECODING
wohnf1	Are you receiving full inpatient care?	
if1_wohnf1	Informal filter 1: Type of housing: fully residential care	
if2_wohnf1	Informal filter 2: Type of housing: fully residential care	
pflegnu1	Care utilisation: outpatient care service	
pflegnu2	Care utilisation: Day care	
pflegnu3	Care utilisation: private care	
hhgroe1	Household size: single or multi-person household	
safe	Safe and secure	
private sp	Privacy	
wohnsit_8_g	Form of housing	
wohnf1_c2	Module 2: Form of living: fully residential care	

2.2 Form of housing

Potential inconsistencies in the available data arise due to an incorrect or systematically deviating way of keeping residents' registration office addresses, misclassification due to the care home database, relocations that have taken place since the sample call or first contact, difficulties in providing (self-)information or uncertainties in the interviewer's assessment, but above all due to differences in the characteristics surveyed themselves (form of housing, form of care, care arrangement). In order to resolve these, a generated variable **heim_gen** with the values 0 ("private living") and 1 ("home") was defined on the basis of prioritisation of available information. This refers to the current residential status or the current care constellation that was available at the time of the interview. The housing situation **wohnsit_8_g** was used as the variable with the highest priority. All persons who lived in a retirement home, nursing

home, residential care facility and residential care group were labelled as 1 "home". In the case of the classic form of private living, multi-generational homes and outpatient assisted house and flat-sharing communities, private living (coded as 0) was assumed. For other forms of housing and in the case of missing information, the information on the home database comparison **alt_heim** was used as a variable with second priority. If the available information from **alt_heim** was contradictory, the information on fully inpatient care (**wohnf1_g**) was determined. The newly recorded variable **wonf1_c2** was also included for respondents who were only interviewed for the first time in the CATI1 interview.

VARIABLE NAME	home_gen
VARIABLE LABEL	Type of housing: generated variable (6 items)

USED ITEMS

VARIABLE NAME	VARIABLE LABEL	RECODING
wohnsit_8_g	Form of housing	
old_home	Home address yes/no according to feed	
wohnf1_g	Full inpatient care: generated variable	
wohnf1_c2	Module 2: Form of living: fully residential care	
wohnf5_dur	Type of accommodation: Home: since year (for 2018/2019/2020 also month) (duration in years)	

2.3 Barrier-reduced living

The scale value of barrier-reduced living is formed from the mean value of 4 items and has a range of 0-1. The variables **barwohn2** to **barwohn4** have been mirrored. This means that higher values of the variable **barwohn_m** can be interpreted as more accessible living conditions and lower values as less accessible living conditions.

VARIABLE NAME	barwohn_m_c2 (only for CATI)
VARIABLE LABEL	Barrier-reduced living: Total score (mean, 4 items, 3 rec., 0-1)
FILTER FEED	

USED ITEMS

VARIABLE NAME	VARIABLE LABEL	RECODING
barwohn1	Barrier-reduced. Living: Thresholds over 2cm	
barwohn2	Barrier-free. Living: Doors at least 80cm wide	mirrored
barwohn3	Barrier-free. Living: Handrails and stairlift	mirrored
barwohn4	Barrier-free. Living: WC and bathroom doors	mirrored

3 Financial situation

3.1 Income

In the case of multiple answers to the income categories, the variable **nettokat** was set to Missing (-8: multiple answers), as multiple answers were not logically possible here. The average monthly household income cannot be between EUR 3,000 and less than EUR 3,250 and between EUR 3,250 and less than EUR 3,500 at the same time, for example. However, when selecting adjacent categories, it can be assumed that the range should be widened by the multiple choice due to monthly fluctuations or lack of exact knowledge.

As the middle of the category is used for the conversion to **nettometrics**, the middle of the two categories could be used here analogously (there were only double entries next to each other) so that the information provided did not have to be completely discarded. In the above example, the value of **nettometrics** was therefore set to 3,250 euros.

In the case of non-adjacent categories, however, the interpretation that there are monthly fluctuations or that the participant does not know the exact amount seems much less certain, so that an error is also assumed for **nettometr**. The **nettoaegu** and **armrisk_2019** values are calculated from the **nettometr**.

3.1.1 Monthly net household income 7 categories

VARIABLE NAME	nettokat
VARIABLE LABEL	Monthly net household income 7 categories (according to DESTATIS 2018, Current Economic Accounts), 1-person household assumed for full-time inpatients

3.1.2 Metricised monthly net household income

VARIABLE NAME	nettometric
VARIABLE LABEL	Monthly net household income metricised (according to Gesis), assuming 1-person household for full-time inpatients

3.1.3 Monthly net equivalent income

VARIABLE NAME	nettoaegu
VARIABLE LABEL	Net equivalent income per month (1st person weight = 1, further weights = 0.5), assuming 1-person household for full-time inpatients

3.1.4 Poverty risk 2019 (reference: Germany)

VARIABLE NAME	armrisk_2019
VARIABLE LABEL	Poverty risk (monthly equivalised income, threshold for Germany in 2019 €1,176), assuming 1-person household for full-time inpatients

3.2 Assets

3.2.1 Three-tier assets

VARIABLE NAME	vermoe_kat_c2 (only for CATI)
VARIABLE LABEL	Wealth (three-stage, according to DEAS Mahne et al., 2017)

Literature

Gesis (2023) (Ed.). Evaluation examples: Calculation of equivalised income. URL: <https://www.gesis.org/missy/materials/MZ/tools/auswertungsbeispiele>

Mahne, K., Wolff, J. K., Simonson, J., & Tesch-Römer, C. (eds.) (2017). Ageing in transition: two decades of the German Ageing Survey (DEAS). Wiesbaden: Springer VS Verlag. doi: <https://doi.org/10.1007/978-3-658-12502-8>.

Federal Statistical Office (Destatis) (2021). Specialised series 15 Series 1. economic accounts. Income, receipts and expenditure of private households 2021. URL: <https://www.destatis.de/DE/Service/Bibliothek/publikationen-fachserienliste-15.html>

4 Dealing with age

4.1 Experience of ageing

The scale on the subjective experience of ageing is a short form of the Awareness of age-related change (AARC) scale (Brothers, Gabrian, Wahl, & Diehl, 2018; Diehl & Wahl, 2010) developed for the D80+ and captures the dimensions of positive and negative age-related experiences (Kaspar, Gabrian, Brothers, Wahl, & Diehl 2018; Diehl, Wahl, & Kaspar, 2018). The two subscales, each with 5 items on a 5-point response scale (1="not at all" to 5="very much"), capture the experience of age-related changes in the areas of health and physical functioning, cognitive functioning, interpersonal relationships, social-cognitive and social-emotional functioning as well as lifestyle and participation. Higher scale values of **alterl_m1** indicate a more positive experience of one's own ageing, while higher values of **alterl_m2** indicate a more negative experience of one's own ageing.

4.1.1 Experience of ageing: Positive experiences

VARIABLE NAME	alterl_m1
VARIABLE LABEL	Experience of ageing: Positive experiences (mean, 5 items, 1-5)
QUESTION TEXT	In the following, we would like to find out how you experience your own ageing. We are interested in whether and to what extent you notice certain changes that can go hand in hand with ageing. How much do you notice as you get older that ...

USED ITEMS

VARIABLE NAME	VARIABLE LABEL	RECODING
alterl1	Experience of ageing: Valuing relationships and other people more	
alterl2	Experience of ageing: Paying more attention to health	
alterl4	Experience of ageing: more experience to assess things and people	
alterl5	Experience of ageing: a better sense of what is important	
alterl9	The experience of ageing: Freedom to spend days as you wish	

4.1.2 The experience of ageing: Negative experiences

VARIABLE NAME	alterl_m2
VARIABLE LABEL	Experience of ageing: Negative experiences (mean, 5 items, 1-5)
QUESTION TEXT	In the following, we would like to find out how you experience your own ageing. We are interested in whether and to what extent you notice certain changes that can go hand in hand with ageing. How much do you notice as you get older that ...

USED ITEMS

VARIABLE NAME	VARIABLE LABEL	RECODING
alterl3	Experience of ageing: mental performance decreases	

alterl6	Experience of ageing: Restriction of activities	
alterl7	Experience of ageing: less energy	
alterl8	The experience of ageing: Dependence on the help of others	
alterl10	The experience of ageing: Motivation is more difficult	

Literature

- Brothers, A., Gabrian, M., Wahl, H.-W., & Diehl, M. (2018). A New Multidimensional Questionnaire to Assess Awareness of Age-Related Change (AARC). *The Gerontologist*, 59(3), e141-e151. doi: <https://doi.org/10.1093/geront/gny006>
- Diehl, M. K., & Wahl, H.-W. (2010). Awareness of Age-Related Change: Examination of a (Mostly) Unexplored Concept. *Journal of Gerontology*, 65B (3), 340-350. doi: <https://doi.org/10.1093/geronb/gbp110>
- Diehl, M., Wahl, H.-W., & Kaspar, R. (2018). *Awareness of Age-Related Change Questionnaire 10-Item Short Form (AARC-10 SF): Measurement Guide*. Fort Collins, CO: Colorado State University.
- Kaspar, R., Gabrian, M., Brothers, A., Wahl, H.-W., & Diehl, M. (2018). Measuring Awareness of Age-Related Change: Development of a 10-Item Short Form for Use in Large-Scale Surveys. *The Gerontologist*, 59(3), e130-e140. doi: <https://doi.org/10.1093/geront/gnx213>
- Wahl, H.-W., Diehl, M., & Kaspar, R. (2018). *Awareness of Age-Related Change Questionnaire 10-Item Short Form (AARC-10 SF) - Scale booklet*. Heidelberg: University of Heidelberg.

4.2 Appreciation from others

Appreciation by others is made up of the mean value of 4 items with a range of 1 ("Does not apply") to 4 ("Applies exactly") scale points. The item **wersta3** has been mirrored. Higher values of the variable **wertsam** can be interpreted as a higher appreciation by others. The scale was developed in-house based on the CHAPO model (Wagner et al. 2018) (cf. Appendix I. Instrumentation of quality of life results).

VARIABLE NAME	wertsam
VARIABLE LABEL	Appreciation by others: Total score (mean, 4 items, 1 rec., 1-4)
QUESTION TEXT	In the following, we would like to know to what extent you feel valued by society. This is less about recognition and appreciation by your immediate environment and more about your assessment of society's view and attitude towards older people.

USED ITEMS

VARIABLE NAME	VARIABLE LABEL	RECODING
valuea1	Valued by others: being needed	
wertsa2	Appreciation by others: being appreciated for achievements	
valuea3	Appreciation by others: being treated as a burden	mirrored
valuea4	Appreciation by others: being valued more than before	

Literature

- Wagner, M., Rietz, C., Kaspar, R., Janhsen, A., Geithner, L., Neise, M., Kinne-Wall, C., Woopen, C., Zank, S. (2018). Quality of life of the very old. In *Journal of Gerontology and Geriatrics* 51 (2), S193-199. doi: <https://doi.org/10.1007/s00391-017-1217-3>

5 Health

5.1 Cognitive status

To assess cognitive performance, a screening procedure for mild cognitive impairment (MCI) was used in the target person interview with the DemTect (Kalbe, Brand, Kessler, & Calabrese, 2005; Kessler et al., 2014).

The raw scores achieved in the 5 subtests **kog1-kog5** were transformed into age-specific (80 years and older) performance scores **kog1r-kog5r** according to the authors' specifications and aggregated into an overall test score. This total test score **kogsum** is the basis for the formation of the classification variable **demtect**, which distinguishes between age-appropriate cognitive performance (13-18 points), mild cognitive impairment (LKB/MCI 9-12 points) or incipient dementia (less than 9 points).

The overall test score and the classification of test performance can only be formed according to the manual if all subscale scores are available. However, the paper-based task of *converting numbers* could not be surveyed in the corona-related change in survey design, as the demtect was not carried out using face-to-face interviews, but by means of telephone interviews. Using data from the previous NRW80+ study, a new evaluation metric was developed for the four remaining tests, which also enabled classification into the three diagnostic categories mentioned in D80+.

The Global Deterioration Scale (Reisberg et al., 1982) was used in the interviews conducted with deputies. Here, relatives can rate the severity of cognitive deficits in 7 levels. The GDS scale can also be divided into three categories: "people with dementia" (four to seven points), "people with mild cognitive impairment" (three points) and "cognitively unimpaired people" (one to two points) (Reisberg et al., 2011).

The corresponding script can be found in Appendix II.

Literature

- Kalbe, E., Brand, M., Kessler, J., & Calabrese, P. (2005). The DemTect in clinical application. *Journal of Gerontopsychology & Psychiatry*, 18(3), 121-130. doi: <https://doi.org/10.1024/1011-6877.18.3.121>
- Kessler, J., Fengler, S., Kaesberg, S., Müller, K., Calabrese, P., Ellwein, T., & Kalbe, E. (2014). DemTect 40- und DemTect 80+: Neue Auswertungsroutinen für diese Altersgruppen [DemTect 40- and DemTect 80+: New scoring routines for these age groups]. *Advances in Neurology-Psychiatry*, 82(11), 640-645. doi: <https://doi.org/10.1055/s-0034-1385278>
- Reisberg, B., Jamil, I. A., Khan, S., Monteiro, I., Torossian, C., Ferris, S., Sabbagh, M., Gauthier, S., Auer, S., Shulman, M. B., Kluger, A., Franssen, E., & Wegiel, J. (2011). Staging dementia. In M. T. Abou-Saleh, C. Katona & A. Kumar (Eds.), *Principles and practice of geriatric psychiatry* (3rd ed., pp. 162-169). Wiley-Blackwell. doi: <https://doi.org/10.1002/9780470669600.ch31>

5.1.1 Word list (immediate retrieval)

VARIABLE NAME	cog1_c2 (only for CATI)
VARIABLE LABEL	DemTect: Word list (0-20, raw value)
QUESTION TEXT	Many people like to do brain teasers. These are also part of this survey. This is not an intelligence test. I will now slowly read you a list of 10 words. Then please repeat as many of these words as possible. The order is not important.
INTERVIEWER INSTRUCTION	<i>Please ensure that the test is not disturbed. Please make sure that the person being questioned can hear well enough! Read out the list and tick the correct answers</i>
FILTER FEED	Second pass only if the first pass has been completed.

USED ITEMS

VARIABLE NAME	VARIABLE LABEL	RECODING
dt1_1_c2	DemTect: 1st pass: plate	
dt1_2_c2	DemTect: 1st pass: dog	
dt1_3_c2	DemTect: 1st pass: Lamp	
dt1_4_c2	DemTect: 1st pass: Letter	
dt1_5_c2	DemTect: 1st pass: Apple	
dt1_6_c2	DemTect: 1st pass: trousers	
dt1_7_c2	DemTect: 1st pass: table	
dt1_8_c2	DemTect: 1st pass: Meadow	
dt1_9_c2	DemTect: 1st pass: Glass	
dt1_10_c2	DemTect: 1st pass: tree	
QUESTION TEXT	Thank you very much. Now I will tell you the same 10 words a second time. Then you should repeat as many words as possible.	
dt2_1_c2	DemTect: 2nd pass: plate	
dt2_2_c2	DemTect: 2nd pass: dog	
dt2_3_c2	DemTect: 2nd pass: Lamp	
dt2_4_c2	DemTect: 2nd pass: Letter	
dt2_5_c2	DemTect: 2nd pass: Apple	
dt2_6_c2	DemTect: 2nd pass: trousers	
dt2_7_c2	DemTect: 2nd pass: table	
dt2_8_c2	DemTect: 2nd pass: Meadow	
dt2_9_c2	DemTect: 2nd pass: Glass	
dt2_10_c2	DemTect: 2nd pass: Tree	

5.1.2 DemTect: semantic word fluency

The correctly named terms were counted by the interviewers on the "address log" as a tally sheet and the number was transferred to the CATI. The content of the mentions was not recorded.

VARIABLE NAME	cog3_c2 (only for CATI)
VARIABLE LABEL	DemTect: semantic word fluency (0-open, raw score)
QUESTION TEXT	Please tell me as many things as possible that you can buy in the supermarket. You have one minute to do this.
INTERVIEWER INSTRUCTION	<i>Please ensure that the test is not disturbed. Please make sure that the interviewee can hear well enough!</i>
PROGRAMMING NOTE	Stopwatch function 60 seconds

USED ITEMS

VARIABLE NAME	VARIABLE LABEL	RECODING
dt4_c2	DemTect: Number of supermarkets	

5.1.3 DemTect: Number span backwards

If a sequence of digits was not solved on the first attempt, a second task with the same number of digits was given. After two consecutive failed attempts, the test was automatically cancelled. The raw score of the backward digit span subtest can take the values 0, 2, 3, 4, 5 or 6 depending on the highest number of digits in the completed runs.

VARIABLE NAME	cog4_c2 (only for CATI)
VARIABLE LABEL	DemTect: Number range backwards (0-6, raw value)
QUESTION TEXT	I will now tell you a series of numbers, which you should then repeat to me in reverse order. For example, if I say "four-five", please tell me "five-four".
INTERVIEWER INSTRUCTION	<i>Please ensure that the test is not disturbed. Please make sure that the interviewee can hear well enough!</i>

USED ITEMS

VARIABLE NAME	VARIABLE LABEL	RECODING
dt5_1_1_c2	DemTect: Number sequences: 7-2	
dt5_1_2_c2	DemTect: Number sequences: 8-6	
dt5_2_1_c2	DemTect: Number sequences: 4-7-9	
dt5_2_2_c2	DemTect: Number sequences: 3-1-5	
dt5_3_1_c2	DemTect: Number sequences: 5-4-9-6	
dt5_3_2_c2	DemTect: Number sequences: 1-9-7-4	
dt5_4_1_c2	DemTect: Number sequences: 2-7-5-3-6	
dt5_4_2_c2	DemTect: Number sequences: 1-3-5-4-8	
dt5_5_1_c2	DemTect: Number sequences: 8-1-3-5-4-2	
dt5_5_2_c2	DemTect: Number sequences: 4-1-2-7-9-5	

5.1.4 DemTect: Delayed retrieval

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VARIABLE NAME	cog5_c2 (only for CATI)
VARIABLE LABEL	DemTect: Delayed call-off (0-10, raw value)
QUESTION TEXT	At the beginning of this short test, I gave you 10 words. Can you still remember these words?
INTERVIEWER INSTRUCTION	<i>Please ensure that the test is not disturbed. Please make sure that the interviewee can hear well enough!</i>
FILTER FEED	Only if the immediate call-off (dt1) was carried out

USED ITEMS

VARIABLE NAME	VARIABLE LABEL	RECODING
dt6_1_c2	DemTect: 3rd pass: Plate	
dt6_2_c2	DemTect: 3rd pass: dog	
dt6_3_c2	DemTect: 3rd pass: Lamp	
dt6_4_c2	DemTect: 3rd pass: Letter	
dt6_5_c2	DemTect: 3rd pass: Apple	
dt6_6_c2	DemTect: 3rd pass: trousers	
dt6_7_c2	DemTect: 3rd pass: Table	
dt6_8_c2	DemTect: 3rd pass: Meadow	
dt6_9_c2	DemTect: 3rd pass: Glass	
dt6_10_c2	DemTect: 3rd pass: Tree	

5.1.5 Total test score and classification based on transformed subtest scores

VARIABLE NAME	predictiondem_c2 (only for CATI)
VARIABLE LABEL	Global indicator pr for cognition created from the subtests of the DemTect

USED ITEMS

VARIABLE NAME	VARIABLE LABEL	RECODING
cog1_c2	DemTect: Word list (0-20, raw value)	
cog3_c2	DemTect: semantic word fluency (0-open, raw score)	
cog4_c2	DemTect: Number range backwards (0-6, raw value)	
cog5_c2	DemTect: Delayed call-off (0-10, raw value)	

VARIABLE NAME	klassdem_c2 (only for CATI)
VARIABLE LABEL	Diagnostic categories for cognition from target person interview

USED ITEMS

VARIABLE NAME	VARIABLE LABEL	RECODING
forecastdem_c2	Global indicator pr for cognition created from the subtests of the DemTect	

VARIABLE NAME	proxykogklass_c2 (only for CATI)
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VARIABLE LABEL	Diagnostic categories for cognition from proxy interview
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USED ITEMS

VARIABLE NAME	VARIABLE LABEL	RECODING
cogstat_c2	Mental health: cognitive status	

VARIABLE NAME	kogdiag_c2 (only for CATI)
VARIABLE LABEL	Diagnostic categories for cognition from proxy and target person interview

USED ITEMS

VARIABLE NAME	VARIABLE LABEL	RECODING
classdem_c2	Diagnostic categories for cognition from target person interview	
proxykogclass_c2	Diagnostic categories for cognition from proxy interview	

5.2 Multimorbidity

Multimorbidity is based on the multimorbidity index in old age (Diederichs, 2011; Diederichs, Berger, & Bartels, 2011). The scale value is formed from the mean value of 22 items with a range from 0 ("No") to 1 ("Yes"). Here, multmor20 with the values 0 ("No") to 1 ("Yes") stands for the naming of one or more other treated illnesses in the open category **multmor20x**. Missing values were not included when calculating the mean value. Higher values indicate higher multimorbidity.

VARIABLE NAME	multmor_m22
VARIABLE LABEL	Multimorbidity: total score (mean, 22 items, 0-1)
QUESTION TEXT	I will now read out individual areas of illness to you. Can you please tell me which of the following areas of illness you are <u>currently</u> receiving medical treatment for (e.g. with prescribed medication or other forms of therapy)? Are you receiving medical treatment for ...?

USED ITEMS

VARIABLE NAME	VARIABLE LABEL	RECODING
multmor1	Multimorbidity: myocardial infarction	
multmor2	Multimorbidity: heart failure	
multmor3	Multimorbidity: high blood pressure	
multmor4	Multimorbidity: Stroke	
multmor5	Multimorbidity: mental illness	
multmor6	Multimorbidity: cancer	
multmor7	Multimorbidity: Diabetes	
multmor8	Multimorbidity: respiratory or lung disease	
multmor9	Multimorbidity: Back pain	
multmor10	Multimorbidity: stomach or intestinal disease	
multmor11	Multimorbidity: kidney disease	
multmor12	Multimorbidity: liver disease	

multmor13	Multimorbidity: blood disorder	
multmor14	Multimorbidity: joint or bone disease	
multmor15	Multimorbidity: bladder problems	
multmor16	Multimorbidity: sleep disorders	
multmor17	Multimorbidity: eye disease or visual impairment	
multmor18	Multimorbidity: ear disease or hearing loss	
multmor19	Multimorbidity: neurological disease	
multmor21	Multimorbidity: (blood) vascular disease	
multmor22	Multimorbidity: thyroid disease	
multmor20(x)	Multimorbidity: other chronic illnesses	

Literature

Diederichs, C. (2011). *Development of a multimorbidity index for the standardised recording of chronic diseases in the elderly population*. Dissertation. Hanover: Hanover Medical School.

Diederichs, C., Berger, K., & Bartels, D. B. (2011). The Measurement of Multiple Chronic Diseases--A Systematic Review on Existing Multimorbidity Indices. *The Journals of Gerontology: Series A: Biological Sciences and Medical Sciences*, 66A(3), 301-311. doi: <https://doi.org/10.1093/gerona/glq208>

5.3 Functional health

Functional health was measured using the IADL scale (*Instrumental Activities of Daily Living*) (Lawton & Brody, 1969; McDowel, 2006) and the ADL scale (*Activities of Daily Living*) (Katz, Ford, Moskowitz, Jackson, & Jaffe, 1963). The scale values of the ADL and the IADL are calculated from the mean value of the respective 7 items and are to be interpreted on a scale point range from 0 ("Only possible with help") to 2 ("No help"). Higher values of **funkges_m1** (ADL) and **funkges_m2** (IADL) mean better functional health.

5.3.1 Functional health: activities of daily living (ADL)

VARIABLE NAME	funkges_m1_c2 (only for CATI)
VARIABLE LABEL	Functional health: basal ADL: total score (mean, 7 items, 1 rec, 0-2)
QUESTION TEXT	Now I would like to ask you about some activities of daily living. How much help do you need for the following activities?
INTERVIEWER INSTRUCTION	<i>This refers to assistance from other people as well as assistance from aids such as a walking stick or bath lift.</i>

USED ITEMS

VARIABLE NAME	VARIABLE LABEL	RECODING
funkges1_c2	Functional health: Food	
funkges2_c2	Functional health: dressing and undressing	
funkges3_c2	Functional health: personal hygiene	
funkges4_c2	Functional health: walking	
funkges5_c2	Functional health: getting up from bed and lying down	
funkges6_c2	Functional health: bathing or showering	
funkges7_c2	Functional health: reach the toilet in good time	mirrored

5.3.2 Functional health: Instrumental activities of daily living (IADL)

VARIABLE NAME	funkges_m2
VARIABLE LABEL	Functional health: Instrumental ADL: total score (mean, 7 items, 0-2)
QUESTION TEXT	Now I would like to ask you about some activities of daily living. How much help do you need for the following activities?
INTERVIEWER INSTRUCTION	<i>This refers to assistance from other people as well as assistance from aids such as a walking stick or bath lift.</i>

USED ITEMS

VARIABLE NAME	VARIABLE LABEL	RECODING
funkges8	Functional health: using the telephone	
funkges9	Functional health: organise routes outside of walking distance (bus, taxi)	
funkges10	Functional health: buying your own food and clothing	
funkges11	Functional health: preparing your own meals	
funkges12	Functional health: doing housework	
funkges13	Functional health: taking medication	
funkges14	Functional health: regulation of financial matters	

Literature

- Katz, S., Ford, A. B., Moskowitz, R. W., Jackson, B. A., & Jaffe, M. W. (1963). Studies of illness in the Aged. The index of ADL: A standard measure of biological and psychosocial function. *Journal of the American Medical Association*, *185*(12), 914-919. URL: <https://jamanetwork.com/journals/jama/article-abstract/666768>
- Lawton, M. P., & Brody, E. M. (1969). Assessment of older people: Self-maintaining and instrumental activities of daily living. *The Gerontologist*, (9), 179-186. doi: https://doi.org/10.1093/geront/9.3_Part_1.179
- McDowell, I. (2006). *Measuring Health*. 3rd edition. New York: Oxford University Press.

5.4 Use of aids

The scale value for the use of aids is made up of the mean value of 4 items. The item **hilfsm4** has been recoded into a dichotomously coded item and thus adapted to the other items on the scale. The scale can thus be interpreted from 0 ("No") to 1 ("Yes"). Higher values mean greater use of aids.

VARIABLE NAME	hilfsm_m_c2 (only for CATI)
VARIABLE LABEL	Use of aids: total score (mean, 4 items, 1 rec., 0-1)

USED ITEMS

VARIABLE NAME	VARIABLE LABEL	RECODING
helpsm1	Use of aids: Hearing aid	
helpsm2	Use of aids: Wheelchair	
helpsm3	Use of aids: Home emergency call system	
helpsm4	Use of aids: private car	0 → 0 1,2,3 → 1

5.5 Health literacy

Health literacy was formed from the mean value of 2 items. The item *geskom2* is filtered by **geskom1**, so that the second item only contains those cases that stated in **geskom1** that they know what they have to do to stay healthy **geskom1 IN 2,3,4**. With a scale range of 1 ("Never") to 4 ("Often"), higher values of the aggregate value **geskom_m** can be interpreted as higher health literacy.

VARIABLE NAME	geskom_m_c2 (only for CATI)
VARIABLE LABEL	Health literacy: total score (mean, 2 items, 1 filtered, 1-4)
FILTER FEED	geskom1 IN (2,3,4)

USED ITEMS

VARIABLE NAME	VARIABLE LABEL	RECODING
geskom1	Health literacy: Knowledge	
geskom2	Health literacy: compliance	

6 Everyday organisation and lifestyle

6.1 Lifestyle

Lifestyle is divided into the two subscales of the importance of certain lifestyle areas and the frequency with which this expressed preference is realised. Both scales refer to the same five lifestyle areas. The respective aggregate values are made up of the mean value of 5 items each with a scale range from 1 ("Not at all important"/"Never") to 5 ("Extremely important"/"Very often"). Higher values of the scale value **lebst1_m1** are to be interpreted as an increased preference for the realisation of an individual lifestyle in the five areas. Higher values of the scale value **lebst1_m2** mean a higher realisation of the expressed preference.

6.1.1 Lifestyle: Importance

VARIABLE NAME	lebst1_m1_c2 (only for CATI)
VARIABLE LABEL	Lifestyle: Importance: overall score (mean, 5 items, 1-5)
QUESTION TEXT	We are also interested in what interests you have and how you organise your free time. Free time or leisure time refers to the time that you can organise freely according to your own wishes. I will now always ask you first how <u>important</u> something is to you and then how <u>frequently</u> you currently do it.
INTERVIEWER INSTRUCTION	<i>In the event of a question or comment from the interviewee on the level: 'The questions refer to the individual level and are not based on a standard, e.g. of physical activity'.</i>

USED ITEMS

VARIABLE NAME	VARIABLE LABEL	RECODING
live1_1_1_c2	Lifestyle I: Time with other people: Importance	
live1_2_1_c2	Lifestyle I: physical activity: Importance	
live1_3_1_c2	Lifestyle I: Time for yourself: Importance	
live1_4_1_c2	Lifestyle I: Study the topic in more detail: Importance	
live1_5_1_c2	Lifestyle I: Creative activity: Importance	

6.1.2 Lifestyle: Exercise

VARIABLE NAME	live1_m2
VARIABLE LABEL	Lifestyle: current exercise: total score (mean, 5 items, 1-5)
QUESTION TEXT	We are also interested in what interests you have and how you organise your free time. Free time or leisure time refers to the time that you can organise freely according to your own wishes. I will now always ask you first how <u>important</u> something is to you and then how <u>frequently</u> you currently do it.
INTERVIEWER INSTRUCTION CATI	<i>In the event of a question or comment from the interviewee on the level: 'The questions refer to the individual level and are not based on a standard, e.g. of physical activity'.</i>

USED ITEMS

VARIABLE NAME	VARIABLE LABEL	RECODING
live1_1_2	Lifestyle I: Time with other people: Frequency	
live1_2_2	Lifestyle I: physical activity: Frequency	

live1_3_2	Lifestyle I: Time for yourself: Frequency	
live1_4_2	Lifestyle I: Study the topic in more detail: Frequency	
live1_5_2	Lifestyle I: Creative activity: Frequency	

7 Technology utilisation

7.1 Application on the Internet: Utilisation

Application on the Internet was formed from the mean value of 4 items. The values 2 "No, but interesting" and 3 "No, and not interested" were recoded to 0 "No". This means that higher values can be interpreted as higher Internet usage.

VARIABLE NAME	anint_m1_c2 (only for CATI)
VARIABLE LABEL	Use on the Internet: Use: total score (mean, 4 items, 0-1)
FILTER FEED	technu2 IN (1)

USED ITEMS

VARIABLE NAME	VARIABLE LABEL	RECODING
anint1_c2	Application on the Internet: Emails	2,3 → 0 1 → 1
anint2_c2	Application on the Internet: Information on health topics	2,3 → 0 1 → 1
anint3_c2	Application on the Internet: social networks	2,3 → 0 1 → 1
anint4_c2	Application on the Internet: Buying or selling goods or services	2,3 → 0 1 → 1

8 Social integration

8.1 Social network

The size of the social network results from the information on the up to six most important persons and the number of persons who can be named in addition. If at least one of the name interpretators gender, relationship, frequency of contact and connectedness was answered in the questionnaire, one person is counted. Even if all of the answers for a network person had to be coded with -8 due to multiple answers, the person was counted as such. The persons are totalled and, if necessary, the number of additional persons is added. For CATI, the number of times a (further) **person** can be named is totalled and, if necessary, the number of further persons is added.

VARIABLE NAME	soznetz_g
VARIABLE LABEL	Size of the social network

USED ITEMS

FB

VARIABLE NAME	VARIABLE LABEL	RECODING
soznetz3_1	Social network: 1st person: Gender	

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soznetz4_1	Social network: 1st person: Relationship	
soznetz5_1	Social network: 1st person: Frequency of contact	
soznetz6_1	Social network: 1st person: Connectedness	
soznetz3_2	Social network: 2nd person: Gender	
soznetz4_2	Social network: 2nd person: Relationship	
soznetz5_2	Social network: 2nd person: Frequency of contact	
soznetz6_2	Social network: 2nd person: Connectedness	
soznetz3_3	Social network: 3rd person: Gender	
soznetz4_3	Social network: 3rd person: Relationship	
soznetz5_3	Social network: 3rd person: Frequency of contact	
soznetz6_3	Social network: 3rd person: Connectedness	
soznetz3_4	Social network: 4th person: Gender	
soznetz4_4	Social network: 4th person: Relationship	
soznetz5_4	Social network: 4th person: Frequency of contact	
soznetz6_4	Social network: 4th person: Connectedness	
soznetz3_5	Social network: 5th person: Gender	
soznetz4_5	Social network: 5th person: Relationship	
soznetz5_5	Social network: 5th person: Frequency of contact	
soznetz6_5	Social network: 5th person: Connectedness	
soznetz3_6	Social network: 6th person: Gender	
soznetz4_6	Social network: 6th person: Relationship	
soznetz5_6	Social network: 6th person: Frequency of contact	
soznetz6_6	Social network: 6th person: Connectedness	
soznetz7	Social network: Number of additional persons: No further persons	

CATI

VARIABLE NAME	VARIABLE LABEL	RECODING
soznetz1	Social network: 1st person: Name	
soznetz2_2	Social network: 2nd person: Name	
soznetz2_3	Social network: 3rd person: Name	
soznetz2_4	Social network: 4th person: Name	
soznetz2_5	Social network: 5th person: Name	
soznetz2_6	Social network: 6th person: Name	

soznetz7	Social network: number of additional persons	
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8.2 Social support

Social support is divided into 5 subscales. The first two scales on the support given and received are formed from the mean value of 3 items each. Before aggregation, two of the three items were recoded into a dichotomous variable with the values 0 ("No") to 1 ("Yes"), so that higher scale values of **sozunt_m1** and **sozunt_m2** can be interpreted as meaning a higher level of social support given or received. Furthermore, subscales for material **sozunt_d12**, instrumental **sozunt_d34** and emotional **sozunt_d56** reciprocity of social support were formed, which can be interpreted as the ratio of social support given and received. The scale values are formed from the difference between the social support received and the social support given. Values close to zero can be interpreted as a more balanced relationship between given and received social support and thus as a higher reciprocity.

The three areas of social support - material, instrumental and emotional - and the consideration of support received and given are based on the items of the German Ageing Survey.

8.2.1 Social support: Given

VARIABLE NAME	sozunt_m1
VARIABLE LABEL	Social support: Given: Total score (mean, 3 items, 2 rec., 0-1)

USED ITEMS

VARIABLE NAME	VARIABLE LABEL	RECODING
sozunt1	Social support: larger gifts made	
sozunt3	Social support: Support provided	1 → 0 2,3,4,5 → 1
sozunt5	social support: comfort as a gift	1 → 0 2,3,4,5 → 1

8.2.2 Social support: Receive

VARIABLE NAME	sozunt_m2
VARIABLE LABEL	Social support: Received: Total score (mean, 3 items, 2 rec., 0-1)

USED ITEMS

VARIABLE NAME	VARIABLE LABEL	RECODING
sozunt2	social support: receive larger gifts	
sozunt4	Social support: receiving support	1 → 0 2,3,4,5 → 1
sozunt6	social support: receiving comfort	1 → 0 2,3,4,5 → 1

8.2.3 Social support: Finances: Reciprocity

VARIABLE NAME	sozunt_d12
VARIABLE LABEL	Social support: Material: Reciprocity (received-given, -1 to +1)

USED ITEMS

VARIABLE NAME	VARIABLE LABEL	RECODING
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sozunt1	Social support: larger gifts made	
sozunt2	social support: receive larger gifts	

8.2.4 Social support: Instrumental: Reciprocity

VARIABLE NAME	sozunt_d34
VARIABLE LABEL	Social support: Instrumental: Reciprocity (received-given, -4 to +4)

USED ITEMS

VARIABLE NAME	VARIABLE LABEL	RECODING
sozunt3	Social support: Support given	
sozunt4	Social support: receiving support	

8.2.5 Social support: Emotional: Reciprocity

VARIABLE NAME	sozunt_d56
VARIABLE LABEL	Social support: Emotional: Reciprocity (received-given, -4 to +4)

USED ITEMS

VARIABLE NAME	VARIABLE LABEL	RECODING
sozunt5	social support: comfort as a gift	
sozunt6	social support: receiving comfort	

Literature

Wiest, M., Richter, M., Krauel, F., Maurer, S., Henning, G., Lejeune, C., & Engstler, H. (2014). German Ageing Survey (DEAS): Documentation of instruments and variables 1996 - 2011. pp. 300-309.

Engstler, H., Klaus, D., Lejeune, K., Mahne, K., Spuling, S., Wetzels, M., Wolff, J. K., & Tesch-Römer, C. (2015). German Ageing Assessment Survey (DEAS): Instruments of the 2014 DEAS survey. Berlin: German Centre of Gerontology, pp. 160-164.

8.3 Generativity

The aggregate value of generativity **generat_m** is formed from the mean value of 3 items. The values range from 1 ("Not at all important") to 4 ("Very important"). Higher values mean that generativity is more important.

VARIABLE NAME	generat_m
VARIABLE LABEL	Generativity: total score (mean value, 3 items, 1-4)

USED ITEMS

VARIABLE NAME	VARIABLE LABEL	RECODING
generat1	Generativity: passing on experience	
generat2	Generativity: conveying social values	
generat3	Generativity: being a role model	

8.4 Anomie

The anomie scale value is calculated from the mean value of 3 items with a scale width of 1 ("Does not apply") to 4 ("Applies"). Higher values mean increased anomie. The items were developed on the basis of the scale by Gümüs et al.

VARIABLE NAME	anomie_m
VARIABLE LABEL	Anomie: total score (mean value, 3 items, 1-4)

USED ITEMS

VARIABLE NAME	VARIABLE LABEL	RECODING
anomie1	Anomie: social lifestyle	
anomie2	Anomie: Values	
anomie3	Anomie: Orientation	

Literature:

Gümüs, A., Gömleksiz, M., Glöckner-Rist, A., & Balke, D. (2014). Anomie: Compilation of social science items and scales. doi: <https://doi.org/10.6102/zis145>

9 Personality

9.1 Controller life

The control experience is divided into the subscales of the internal **eikontr_m1** and the external control experience **eikontr_m2**. For both scales, the mean value was formed from 2 items in each case. The scale bandwidth of the aggregate values ranges from 1 ("Does not apply at all") to 4 ("Applies exactly"). Higher values of **eikontr_m1** mean a higher level of internal control. Higher values of **eikontr_m2** can be interpreted in terms of a higher external sense of control. The scale corresponds to the IE-4 of Kovaleva et al. (2012).

9.1.1 Controller life: Internal

VARIABLE NAME	eikontr_m1_c2 (only for CATI)
VARIABLE LABEL	Experience of control: Internal: total score (mean, 2 items, 1-4)

USED ITEMS

VARIABLE NAME	VARIABLE LABEL	RECODING
eikontr1_c2	Extern. and intern. Control life: Having life in your own hands	
eikontr2_c2	Extern. and intern. Control experience: Success through effort	

9.1.2 Control life: External

VARIABLE NAME	eikontr_m2_c2 (only for CATI)	
VARIABLE LABEL	Experience of control: External: total score (mean, 2 items, 1-4)	
USED ITEMS		
VARIABLE NAME	VARIABLE LABEL	RECODING
eikontr3_c2	Extern. and intern. Control life: Life is determined by others	
eikontr4_c2	Extern. and intern. Control life: Plans thwarted by fate	

Literature:

Kovaleva, A., Beierlein, C., Kemper, C.J. & Rammstedt, B. (2012). A short scale to measure locus of control: The Internal-External-Control-Conviction-4 (IE-4) scale. Gesis Working Papers 19/2012. Mannheim: Gesis. URL: https://www.gesis.org/fileadmin/migrated/content/uploads/IE4_Workingpaper.pdf [last viewed 09.11.23].

10 Well-being and life satisfaction

10.1 Depressive symptoms

The 4-item short form of the Depressiveness in Old Age Scale (DIA-S4, Heidenblut & Zank, 2010, Heidenblut & Zank, 2014) was used to record depressive symptoms in the past 2 weeks. All four items should be answered dichotomously (0="no"/1="yes"). The cut-off value for the interpretation of a sub-clinically significant depressive mood **dias4cat** is given by the authors as 1.5.

VARIABLE NAME	dias4	
VARIABLE LABEL	Depressiveness sum score (DIA-S4, 4 items, 1 rec., 0-4)	
USED ITEMS		
VARIABLE NAME	VARIABLE LABEL	RECODING
depress1	Depressiveness: depressed	
depress2	Depressiveness: it's hard to pull yourself together	
depress3	Depressiveness: Enjoy life	mirrored
depress4	Depressiveness: a lot of brooding	

VARIABLE NAME	dias4cat	
VARIABLE LABEL	Depressiveness interpretation (DIA-S4, cut-off 1.5)	

USED ITEMS

VARIABLE NAME	VARIABLE LABEL	RECODING
dias4	Depressiveness sum score (DIA-S4, 4 items, 1 rec., 0-4)	Cut-off 1.5 points

VARIABLE NAME	dias4corr	
VARIABLE LABEL	Depressiveness Sum score corrected for incomplete information (DIA-S4, at least 2-4 items, 1 rec., 0-4)	

USED ITEMS

VARIABLE NAME	VARIABLE LABEL	RECODING
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depress1	Depressiveness: depressed	
depress2	Depressiveness: it's hard to pull yourself together	
depress3	Depressiveness: Enjoy life	mirrored
depress4	Depressiveness: a lot of brooding	

VARIABLE NAME	dias4catcorr
VARIABLE LABEL	Depressiveness Sum score corrected for incomplete information (DIA-S4, at least 2-4 items, 1 rec., 0-4)

USED ITEMS

VARIABLE NAME	VARIABLE LABEL	RECODING
dias4corr	Depressiveness Sum score corrected for incomplete information (DIA-S4, at least 2-4 items, 1 rec., 0-4)	Cut-off 1.5 points

Literature

Heidenblut, S., & Zank, S. (2010). Development of a new depression screening instrument for use in geriatrics. Die "Depression-im-Alter-Skala" (DIA-S) [Development of a new screening instrument for geriatric depression. The depression in old age scale (DIA-S)]. *Journal of Gerontology and Geriatrics*, 43(3), 170-176. doi: <https://doi.org/10.1007/s00391-009-0067-z>

Heidenblut, S., & Zank, S. (2014). Screening for depression with the Depression in Old Age Scale (DIA-S) and the Geriatric Depression Scale (GDS15). *GeroPsych*, 27(1), 41-49. doi: <https://doi.org/10.1024/1662-9647/a000101>

10.2 Valuation of Life

The Valuation of Life **vol_m** scale is made up of the mean value of 12 items. The scale score theoretically varies between 0 ("No") and 2 ("Yes"), so that higher values can be interpreted as a more positive evaluation of life. The items are taken from the **Valuation of Life Scale** by Lawton et al. (1999) and the German version was taken from **BEWOHNT**.

VARIABLE NAME	vol_m
VARIABLE LABEL	Valuation of Life (VOL, mean value, 12 items, 0-2)

USED ITEMS

VARIABLE NAME	VARIABLE LABEL	RECODING
valofli1	Valuation of Life: optimistic	
valofli2	Valuation of Life: looking forward to many things every day	
valofli3	Valuation of life: perceiving current life as useful	
valofli5	Valuation of Life: strong will to live	
valofli6	Valuation of Life: Life has a meaning	
valofli7	Valuation of Life: Achieving life goals	
valofli8	Valuation of Life: a hopeful attitude	
valofli9	Valuation of Life: making the most of life	
valofli10	Valuation of Life: finding ideas out of a difficult situation	
valofli11	Valuation of Life: ways to achieve important things	
valofli12	Valuation of Life: a way to solve a problem	
valofli13	Valuation of Life: achieving self-imposed goals	

VARIABLE NAME	vol_opt_m
VARIABLE LABEL	Valuation of Life: Subscore Optimism (VOL, mean, 7 items, 0-2)

USED ITEMS

valofli1	Valuation of Life: optimistic	
valofli2	Valuation of Life: looking forward to many things every day	
valofli3	Valuation of Life: perceiving current life as useful	
valofli5	Valuation of Life: strong will to live	
valofli6	Valuation of Life: Life has a meaning	
valofli8	Valuation of Life: a hopeful attitude	
valofli9	Valuation of Life: making the most of life	

VARIABLE NAME	vol_eng_m
VARIABLE LABEL	Valuation of Life: Subscore Engagement (VOL, mean, 5 items, 0-2)

USED ITEMS

VARIABLE NAME	VARIABLE LABEL	RECODING
valofli7	Valuation of Life: Achieving life goals	
valofli10	Valuation of Life: finding ideas out of a difficult situation	
valofli11	Valuation of Life: ways to achieve important things	
valofli12	Valuation of Life: a way to solve a problem	
valofli13	Valuation of Life: achieving self-imposed goals	

Literature:

Lawton, M. P., Moss, M., Hoffman, C., Grant, R., Have, T. T., & Kleban, M. H. (1999). Health, Valuation of Life, and the Wish to Live. *The Gerontologist*, 39(4), 406-416. doi: <https://doi.org/10.1093/geront/39.4.406>

10.3 Meaning in Life

The aggregate value Meaning in Life **meanli_m** is formed from the mean value of 2 items. The scale ranges from 1 ("Very bad") to 5 ("Very good"). Higher values of the aggregate variable **meanli_m** mean a more positive attitude with regard to the individually perceived importance of one's own life. The two items are taken from the **Meaning in Life Scale** by Krause (2004) from the sub-dimension **Reflection on the past**.

VARIABLE NAME	meanli_m
VARIABLE LABEL	Meaning in Life: Total score (mean, 2 items, 1-5)

USED ITEMS

VARIABLE NAME	VARIABLE LABEL	RECODING
meanli1	Meaning in Life: Satisfaction	
meanli2	Meaning in Life: at peace with the past	

Literature:

Krause, N. (2004). Stressors Arising in Highly Valued Roles, Meaning in Life, and the Physical Health Status of Older Adults. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 59(5), S287-S297. doi: <https://doi.org/10.1093/geronb/59.5.S287>

Krause, N. (2007). Evaluating the stress-buffering function of meaning in life among older people. *Journal of Aging and Health*, 19(5), 792-812. doi: <https://doi.org/10.1177/0898264307304390>

11 Elder Abuse and Emotional Consequences Scale (EACS)

Based on the definition of elder abuse according to the WHO (WHO, 2008), which describes elder abuse in the dimensions of emotional abuse, neglect, financial exploitation, physical abuse and sexual abuse, a model of elder abuse was developed for old age in the dimensions of "intimidation", "blaming and shaming", "paternalism", "neglect", "financial exploitation" and "physically unpleasant/painful contact". These dimensions were confirmed and published under the name **Elder Abuse and Emotional Consequences Scale** (Neise, Brijoux, & Zank, 2023). Data from this scale was collected and published for the first time in the predecessor project NRW 80 + (Brijoux, Neise, & Zank, 2021). The scale value is calculated by adding the assigned items with a weighting corresponding to the factor loading.

11.1 Elder Abuse and Emotional Consequences Scale (EACS) or Interpersonal Abuse & Emotional Consequences: Intimidation

VARIABLE NAME	ipaus_intimidation_c2 (only for CATI)
VARIABLE LABEL	Frequency of intimidation (ipaus items 1 and 2)

USED ITEMS

How often have you experienced that someone ...

ipaus1_c2: ... became louder, so that you were annoyed or unsettled?

ipaus2_c2: ... became abusive towards you, so that you were annoyed or unsettled at that moment?

VARIABLE NAME	VARIABLE LABEL	RECODING
ipaus1_c2	Interpers. Ausei. & emot. Conseq.: become louder	compute ipaus_intimidation_c2 = 0.794 * ipaus1_c2 + 0.840 * ipaus2_c2.
ipaus2_c2	Interpers. Ausei. & emot. Conseq.: become abusive	

11.2 Elder Abuse and Emotional Consequences Scale (EACS) or Interpersonal Conflicts & Emotional Consequences: Accusations

VARIABLE NAME	ipaus_shameblame_c2 (only for CATI)
VARIABLE LABEL	Frequency of accusations (ipaus items 3, 4 and 15)

USED ITEMS

How often have you experienced that someone ...

ipaus3_c2: ... talked about your weaknesses or impairments in front of you or other people in a way that made you uncomfortable?

ipaus4_c2: ...blamed you for an event or circumstance in your life that made you feel bad or angry?

ipaus15_c2: ... ignored your opinion so that you didn't feel you were taken seriously?

VARIABLE NAME	VARIABLE LABEL	RECODING
ipaus3_c2	Interpers. Ausei. & emot. Conseq.: talked about weakness	compute ipaus_shameblame_c2 = 0.741*ipaus3_c2 + 0.715*ipaus4_c2 + 0.391 * ipaus15_c2.
ipaus4_c2	Interpers. Ausei. & emot. Conseq.: Blame given for an event	
ipaus15_c2	Interpers. Ausei. & emot. Consequences: offensive behaviour	

11.3 Elder Abuse and Emotional Consequences Scale (EACS) or Interpersonal Conflicts & Emotional Consequences: Paternalism

VARIABLE NAME	ipaus_paternalism_c2 (only for CATI)
VARIABLE LABEL	Frequency of paternalism (ipaus items 5 and 6)

USED ITEMS

How often have you experienced that someone ...

ipaus5_c2: ... ignored your opinion so that you didn't feel you were taken seriously?

ipaus6_c2: ... made you give up your wish or your right, so that you felt patronised at that moment?

VARIABLE NAME	VARIABLE LABEL	RECODING
ipaus5_c2	Interpers. Ausei. & emot. Conseq.: Opinion ignored	compute ipaus_paternalism_c2 = 0.796 * ipaus5_c2 +
ipaus6_c2	Interpers. Ausei. & emot. Conseq.: renounce wish or right	0.839 * ipaus6_c2.

11.4 Elder Abuse and Emotional Consequences Scale (EACS) or Interpersonal Conflicts & Emotional Consequences: Neglect

VARIABLE NAME	ipaus_neglect_c2 (only for CATI)
VARIABLE LABEL	Frequency of neglect (ipaus items 7 and 8)

USED ITEMS

How often have you experienced that someone ...

ipaus7_c2: ... did not give you any support in a situation where this would have been necessary, so that you felt helpless? (Interviewer's note: "Only give these examples when asked: e.g. going to the toilet, washing, getting dressed")

ipaus8_c2: ... did not devote any time to you, so that you felt unwanted or neglected?

VARIABLE NAME	VARIABLE LABEL	RECODING
ipaus7_c2	Interpers. Ausei. & emot. Conseq.: no support given	compute ipaus_neglect_c2 =
ipaus8_c2	Interpers. Ausei. & emot. Conseq.: no time spent	0.823 * ipaus7_c2 + 0.849*ipaus8_c2.

11.5 Elder Abuse and Emotional Consequences Scale (EACS) or Interpersonal Conflicts & Emotional Consequences: Financial exploitation

VARIABLE NAME	ipaus_financeexploit_c2 (only for CATI)
VARIABLE LABEL	Frequency of financial exploitation (ipaus items 9 and 10)

USED ITEMS

How often have you experienced that someone ...

ipaus9_c2: ... used your assets or property for their own purposes, so that you felt exploited?

ipaus10_c2: ... put up with you (e.g. by not contributing to joint expenses), so that you felt exploited?

VARIABLE NAME	VARIABLE LABEL	RECODING
ipaus9_c2	Interpers. Ausei. & emot. Consequences: Assets or property used for own purposes	compute ipaus_financeexploit_c2 = 0.878 * ipaus9_c2 +
ipaus10_c2	Interpers. Ausei. & emot. Conseq.: endure	0.868 * ipaus10_c2.

11.6 Elder Abuse and Emotional Consequences Scale (EACS) or Interpersonal Conflicts & Emotional Consequences: Physical Violence

VARIABLE NAME	ipaus_physical_c2 (only for CATI)
VARIABLE LABEL	Frequency of physically unpleasant or painful personal contacts (ipaus items 11 and 12)

USED ITEMS

How often have you experienced that someone ...

ipaus11_c2: ... touched you firmly or roughly so that it was unpleasant?

ipaus12_c2: ... was physically rough or inconsiderate with you, so that it was unpleasant?

VARIABLE NAME	VARIABLE LABEL	RECODING
ipaus11_c2	Interpers. Ausei. & emot. Conseq.: firm or rough handling	compute ipaus_physical_c2 =
ipaus12_c2	Interpers. Ausei. & emot. Consequences: physically rude or inconsiderate	0.914 * ipaus11_c2 + 0.909 * ipaus12_c2.

Literature:

- Brijoux, T., Neise, M. & Zank, S. (2021). Elder abuse in the oldest old: prevalence, risk factors and consequences. *Journal of Gerontology and Geriatrics*, 54(Suppl 2), 132-137. doi: <https://doi.org/10.1007/s00391-021-01945-0>
- Neise, M., Brijoux, T., & Zank, S. (2023). Development of the Elder Abuse and Emotional Consequences Scale (EACS). *GeroPsych*.36(3). doi: <https://doi.org/10.1024/1662-9647/a000297>
- World Health Organisation; Université de Genève (Ed.) (2008). A global response to elder abuse and neglect: Building primary health care capacity to deal with the problem worldwide main report. World Health Organisation. URL: <https://www.who.int/publications/i/item/9789241563581> [last viewed 09.11.23]

12 Biography

12.1 Profession

For the professional biography, information on the target person's occupation should be provided if the target person has ever been employed. Only if the target person has never been employed should the information refer to the occupation of the last (spouse) partner. However, there were no separate questions on this in the questionnaire; instead, the answers were to be assigned to the target person or the (spouse) partner based on the information on their own employment and the internal filter question IF3 in the questionnaire. If this was possible, the answers were then split into the variables **brfzp2**, **brfzp2_1** and **brfzp3** for the target person and the variables **brfep2**, **brfep2_1** and **brfep3** for the (spouse) partner using the filter variables. The variables **brf2**, **brf2_1** and **brf3** always contain values if there was usable information on the occupation of the target person or the (spouse) partner (but not in the case of unresolvable multiple responses), regardless of whether it was possible to decide which of the two the information relates to. The variables **brf*** therefore always contain values if the variables **brfzp*** or **brfep*** contain values. However, they also contain additional values if it was not possible to decide whether the information relates to the target person or the (spouse) partner because the filter question could not be answered.

12.1.1 Occupation of the target person

VARIABLE NAME	brfzp2
VARIABLE LABEL	Professional biography of target person: professional position

USED ITEMS

VARIABLE NAME	VARIABLE LABEL	RECODING
brfzp1	Professional biography of the target person: End of full-time employment	
IF3	Professional details for spouses	
brf2	Professional biography of target person or partner:in: professional position	

VARIABLE NAME	brfzp2_1
VARIABLE LABEL	Professional biography of target person: professional position - more precise

USED ITEMS

VARIABLE NAME	VARIABLE LABEL	RECODING
brf1	Professional biography of the target person: End of full-time employment	
IF3	Professional details for spouses	
brf2_1	Professional biography of target person or partner:in: professional position - more detailed	

VARIABLE NAME	brfzp3
VARIABLE LABEL	Professional biography of target person: has special designation

USED ITEMS

VARIABLE NAME	VARIABLE LABEL	RECODING
brf1	Professional biography of the target person: End of full-time employment	

IF3	Professional details for spouses	
brf3	Professional biography of target person or partner: has special designation	

12.1.2 Occupation of (spouse) partner:in

VARIABLE NAME	brfep2
VARIABLE LABEL	Professional biography of target person: professional position

USED ITEMS

VARIABLE NAME	VARIABLE LABEL	RECODING
brfzp1	Professional biography of the target person: End of full-time employment	
IF3	Professional details for spouses	
brf2	Professional biography of target person or partner:in: professional position	

VARIABLE NAME	brfep2_1
VARIABLE LABEL	Professional biography of target person: professional position - more precise

USED ITEMS

VARIABLE NAME	VARIABLE LABEL	RECODING
brf1	Professional biography of the target person: End of full-time employment	
IF3	Professional details for spouses	
brf2_1	Professional biography of target person or partner:in: professional position - more detailed	

VARIABLE NAME	brfep3
VARIABLE LABEL	Professional biography of target person: has special designation

USED ITEMS

VARIABLE NAME	VARIABLE LABEL	RECODING
brf1	Professional biography of the target person: End of full-time employment	
IF3	Professional details for spouses	
brf3	Professional biography of target person or partner: has special designation	

13 Interview with Proxy

13.1 Social integration

13.1.1 Anomie of the respondent

The scale value for the respondent's **anomiep_m** is calculated from the mean value of a total of 3 items with a scale width of 1 ("Does not apply") to 4 ("Applies"). Higher values mean that the respondent is more anomic.

VARIABLE NAME	anomiep_m_c2 (only for CATI)
VARIABLE LABEL	Anomie of the EXECUTIVE PERSON: Total score (mean, 3 items, 1-4)

USED ITEMS

VARIABLE NAME	VARIABLE LABEL	RECODING
anomiep1_c2	Proxy: Anomie: social lifestyle	
anomiep2_c2	Proxy: Anomie: Values	
anomiep3_c2	Proxy: Anomie: Orientation	

13.2 Experience of ageing

13.2.1 Appreciation by the respondent

The aggregate variable for the respondent's appreciation of the target person **wertsap_m** consists of the mean value of 4 items. One item has been mirrored so that higher aggregate values with a scale range of 1 ("Does not apply") to 4 ("Applies exactly") can be interpreted as a higher appreciation of the target person by the respondent.

VARIABLE NAME	wertsap_m_c2 (only for CATI)
VARIABLE LABEL	Appreciation by EXPERT: Total score (mean, 4 items, 1 rec., 1-4)

USED ITEMS

VARIABLE NAME	VARIABLE LABEL	RECODING
wertsap1_c2	Proxy: Appreciation by others: ZP as support in life	
wertsap2_c2	Proxy: Appreciation by others: Appreciate ZP for achievements	
wertsap3_c2	Proxy: Value added by others: ZP as a burden	mirrored
wertsap4_c2	Proxy: Appreciation by others: Appreciate ZP more than before	

14 Other derived values

14.1 Basic time intervals

In the course of the basic preparation, a standardised calculation was made of how much time (in years, continuously) had passed between an event reported by the interviewees and the time of the survey (day of the start of the interview) (see Table 14.1).

The age at the time of the survey was calculated as an integer (e.g. 85 years) and as a continuous variable (e.g. 85.42 years).

The date of moving into the current apartment/house was recorded more precisely (i.e. with an additional month) if the move was recent (i.e. in 2018, 2017 or 2016). In addition, respondents had the option of stating that they had "always" lived in their current home. In the course of the basic preparation, the month and year of birth were used to calculate the duration of residence when the "always" category was specified, which should be taken into account when using the data and interpreting the findings.

Table 14.1 Time intervals generated in the course of data preparation (duration)

age_int	Age at the time of the survey (integer)
age_cont	Age at the time of the survey (continuous)
famst2_dur	Marital status: when divorced/ annulled (duration in years)
famst3_dur	Marital status: when widowed/ partner deceased (duration in years)
famst4_dur	Marital status: when married (duration in years)
famst5_dur	Marital status: when separated (duration in years)
famst8_dur	Marital status: when partnership (duration in years)
herkun2_dur	Origin: in Germany since (duration in years)
kinder4_dur (only for CATI)	Children: when birth of first child (duration in years)
brfzp1_1_major	Professional biography of the target person: End of full-time employment (duration in years)
wohnf4_dur (only for CATI)	Type of housing: Apartment/house: since year (for 2019/2020/2021 also month) (duration in years)
wohnf5_dur (only for CATI)	Type of accommodation: Home: since year (for 2019/2020/2021 also month) (duration in years)

14.2 Open entries

When categorising open responses (e.g. from other information), the information from the survey of the target person and the proxy information were coded together. The resulting coding scheme was fed back to the data set in a second step.

14.2.1 Activities

active1x_1 - active1x_6	Activities: Sport	
	1 Swimming/Aquafit	
	2 Gymnastics	
	3 Cycling	
	5 Hiking	
	7 Equipment training/fitness	
	9 Running/Walking	
	10 Health sports/rehabilitation sports	
	11 Dancing	
	12 Winter sports	
	13 Go for a walk	
	14 Ball sports	
	15 Gardening	
	16 Other	
	aktiv8x_1 - aktiv8x_6	Activities: Hobby
		1 Play games
2 Gardening		
	3 Manual labour	

- 4 Occupation with sport (e.g. sports programmes)
- 5 Artistic activity
- 6 Collect
- 7 Working with EDP
- 8 Read
- 9 Crafting
- 10 Sport
- 11 Craft
- 12 Fishing
- 13 Puzzles
- 14 Other
- 15 Science/Education/Research
- 16 Animals
- 17 Cooking/baking
- 18 Listen to music

aktiv7x_1 - aktiv7x_4 (only for CATI)

- Activities: artist. Activities
- 1 Singing
 - 2 Making music
 - 3 Painting, drawing
 - 4 Manual and manual labour
 - 5 (Creative) writing
 - 6 Photography, filming and editing
 - 7 Miscellaneous

aktiv9x_1 - aktiv9x_4 (only for CATI)

- Activities: Volunteering
- 1 Church commitment
 - 2 Involvement in the sports club
 - 3 Involvement in civic and heritage organisations, representation of interests
 - 4 Support in everyday life and the neighbourhood
 - 5 Commitment to people in old age
 - 6 Commitment to children and young people
 - 7 Commitment to people with a migration background
 - 8 Commitment to people with illnesses and disabilities
 - 9 Commitment to specific occasions and events
 - 10 Miscellaneous

The thematic focus (e.g. languages) is coded for the coding of information on continuing education. Information on the form of continuing education was also used. For example, "Languages learnt at VHS" is coded as 11 'institutional/formal: languages', while "Languages learnt from books" is coded as 21 'non-institutional/formal: languages'. Information on the form without information on the thematic focus is coded as 10 'institutional/formal: no information' or 20 'non-institutional/formal: no information'.

aktiv11x_1 - aktiv11x_4 (only for CATI)

- Activities: Further education
- 1 Languages
 - 2 Technology & Natural Sciences
 - 3 Literature, Art & Culture
 - 4 Psychology & Health
 - 5 History, Religion & Philosophy
 - 6 Society & Politics
 - 7 Miscellaneous
 - 10 institutional/formal: no information
 - 11 institut./formal: Languages
 - 12 institut./formal: Technology & Natural Sciences
 - 13 institut./formal: Literature, Art & Culture
 - 14 institut./formal: Psychology & Health
 - 15 institut./formal: History, Religion & Philosophy
 - 16 institut./formal: Society & Politics
 - 17 institutional/formal: other
 - 20 non-institutional/formal: no information

- 21 non-institutional/formal: Languages
- 22 non-institutional/formal: Technology & Natural Sciences
- 23 non-institutional/formal: Literature, Art & Culture
- 24 non-institutional/formal: Psychology & Health
- 25 non-institutional/formal: History, Religion & Philosophy
- 26 non-institutional/formal: Society & Politics
- 27 non-institutional/formal: other

14.2.2 Club membership

vereinx_1 - vereinx_4 (only for CATI)	Club membership
	1 Church associations
	2 Sports clubs
	3 Nature and heritage organisations
	4 Musical, artistic and literary associations
	5 Miscellaneous
	6 Parties
	7 Trade unions, social organisations and associations for the representation of interests

14.2.3 Request to politicians

The coding of the wishes for the policy was carried out in two steps. Firstly, the content entered by the interviewer was categorised. This coding system was later used to code the transcripts from the audio files.

wunschx_1- wunschx_5	Request to politicians
	904 Better working conditions for carers (904)
	903 Household support (903)
	902 Relief for carers HA (902)
	901 (Financial) relief for family carers (901)
	900 Improving the care situation (outpatient) (900)
	803 Self-determination even at the end of life (803)
	802 Transparency and stability in politics (802)
	801 Bureaucracy (801)
	800 Promotion of self-determination (800)
	707 Social contact and support (707)
	706 Volunteer visitors (706)
	705 Alternative forms of housing (705)
	704 Digitisation (704)
	703 Education (703)
	702 Classical cultural events (702)
	701 Target group-specific offers (701)
	700 Opportunities for social participation and social contact (700)
	602 Nursing emergency call (602)
	601 more nursing staff (601)
	600 Better care (nursing) (600)
	502 Classification of care levels (502)
	501 Medical care (501)
	500 Better care (medical) (500)
	402 Public transport (402)
	401 Shopping facilities (401)
	400 Mobility promotion (400)
	304 Travelling despite restrictions (304)
	303 Infrastructural construction measures (303)
	302 (technical) aids (302)
	301 In the living room (301)
	300 Barrier reduction (300)
	203 Housing situation (203)
	202 Medical services (202)

201	Pension (201)
200	Financial relief (200)
1406	Better political leadership (1406)
1405	Equality and social justice (1405)
1404	Peace and good co-operation (1404)
1403	Environmental protection (1403)
1402	Regulated migration (1402)
1401	Security in public spaces (1401)
1400	Wishes with reference to social and political developments (1400)
1303	End of the coronavirus pandemic (1303)
1302	Participation in social life/leisure activities (under certain safety precautions)/relaxation (1302)
1301	Vaccination (1301)
1300	Corona pandemic-related wishes (1300)
1200	Improvement of individual health (1200)
1104	Acceptance of traditional views/worldviews (1104)
1103	Political commitment to HA (1103)
1102	Proactive approach (1102)
1101	Social esteem (1101)
1100	Appreciation of older people (1100)
104	be left alone (104)
103	Resignation (103)
102	No wishes available (102)
101	don't know (101)
1002	Opportunities for meaningful activities (1002)
1001	Opportunities for social commitment (1001)
1000	Opportunities for engagement and co-responsibility of the very old (1000)
100	No special requests available (100)

wunschx_ue1-
wunschx_ue4

Request to the policy makers: forgiven over-categorisation	
1	No special requests available (over category 100)
2	Financial relief (supercategory 200)
3	Barrier reduction (overcategory 300)
4	Mobility promotion (supercategory 400)
5	Better care (medical) (supercategory 500)
6	Better care (nursing) (supercategory 600)
7	Opportunities for social participation (supercategory 700)
8	Promotion of self-determination (supercategory 800)
9	Improving the care situation (outpatient) (supercategory 900)
10	Opportunities for engagement and co-responsibility of the very old (supercategory 1000)
11	Appreciation of older people (supercategory 1100)
12	Improvement of individual health (supercategory 1200)
13	Corona pandemic-related wishes (1300)
14	Wishes with reference to social and political developments (1400)

14.2.4 Country of birth of the target person, father, mother

herkun_kat	2	Former German eastern territories
herkunelt1_kat	3	Western Europe
herkunelt2_kat	4	Northern Europe
	5	Today's Poland
	6	Former Yugoslavia
	7	Former Czechoslovakia
	8	Former Soviet Union, Romania, Hungary
	9	Italy, Andorra, Spain, Portugal
	10	Greece, Bulgaria, Albania
	11	Ukraine, not precisely attributable
	12	Middle East incl. Turkey
	13	North Africa
	14	Rest of Africa
	15	South/East/Southeast Asia
	16	North America
	17	South and Central America
	18	Australia/New Zealand
	-10	Not assignable

14.2.5 The proxy's request to politicians

The coding of the wishes for the policy was carried out in two steps. Firstly, the content entered by the interviewer was categorised. This coding system was later used to code the transcripts from the audio files.

wunschpx_1- wunschpx_8

Request to politicians

100	No special requests available
101	Don't know
102	No wishes available
103	No own wishes (reference to wunschx of the target person)
200	Financial support
201	Lower care costs/more care allowance
202	Remodelling measures, etc.
300	Relief of the proxy person
301	Help in the household
302	Arranging short-term support/ centralised coordination of assistance options
303	Possibility for holidays/time off
304	Support from other family members
305	Psychological support for family carers, self-help groups
306	Better counselling (e.g. on dementia, support options)
307	Better work-care balance
400	Reducing bureaucracy
401	Simpler and faster application for care level, aids, day care, etc.
402	Better cooperation between institutions (health insurance, care facilities, doctors, etc.)
500	Mobility promotion
501	Public transport
502	Shopping facilities, supply
600	Barrier reduction
601	In the living room
602	Infrastructural construction measures
700	Better medical care for the person in need of care
701	Home visits
702	Better advice from doctors
703	Shorter waiting times
800	Better nursing care for the person in need of care
801	Place in a home, day care, etc
802	More (and more permanent) nursing staff

803	Better geriatric psychiatry training for staff
804	Upgrading the profession of geriatric nursing (recognition, relief)
805	"More human care": more attractive design of care homes, more attention, people at the centre of care
900	Better social care for the person in need of care
901	More care services / volunteers
902	Target group-specific leisure activities
1000	Social esteem
1001	Social appreciation of family carers
1002	Financial reward (e.g. recognition of care time, credit for pension)
1003	Social integration of very old people in need of care
1100	Conflicts with the person in need of care
1101	Lack of consent from the person in need of care for measures that would relieve the proxy person
1200	Corona pandemic-related wishes
1201	Reopening leisure activities
1202	Allow accompanying persons in doctors' surgeries
1203	Making visits possible again
2000	Miscellaneous
2001	Not assignable

wunschpx_ue1-
wunschpx_ue8

Request to the policy makers: forgiven over-categorisation

100	No special requests available
200	Financial support
300	Relief of the proxy person
400	Reducing bureaucracy
500	Mobility promotion
600	Barrier reduction
700	Better medical care for the person in need of care
800	Better nursing care for the person in need of care
900	Better social care for the person in need of care
1000	Social esteem
1100	Conflicts with the person in need of care
1200	Corona pandemic-related wishes
2000	Miscellaneous

ANNEX

I. Instrumentation Quality of life results

NRW study of the very old (NRW80+ waves 1 and 2)

Old age in Germany (D80+)

Quality of life results

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Aim of the working paper:

This working paper deals with data collection areas related to quality of life outcomes. Possibilities and recommendations for the operationalisation of corresponding constructs are presented and the final implementation in the NRW80+ (1st and 2nd wave) and D80+ studies is documented.

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1. introduction

Quality of life is a broad and multidimensional concept that includes both subjective and objective indicators. On the one hand, this concerns personal and environmental life opportunities (individual resources vs. external living conditions) and, on the other hand, subjective and objective outcomes (individuals' assessments of their lives vs. external, normative perspectives on individual life) (Wagner et al., 2018). Various indicators of well-being appear to develop multidirectionally in very old age (Wettstein, Schilling, Reidick & Wahl, 2015).

This holistic understanding of quality of life, which is not limited to a purely subjectivist view, is implemented in the NRW80+ project based on the model of the **Four Qualities of Life** according to Ruut Veenhoven (2000). This paper focuses on operationalisation options for various quality of life outcomes. While quality of life outcomes within the person (in the sense of hedonic and eudaemonic quality of life, see the following chapter) are frequently the subject of research, external assessments of individual life have hardly been investigated to date.

2. operationalisation options for various aspects of quality of life outcomes

2.1 QoL results within the person in question

As measures of the subjective quality of life **Appreciation of Life**, the focus should be on concepts of individual well-being (hedonism) and individual self-development (eudaemonia). Hedonic measures are **satisfaction** and **experienced affect**, which are classically referred to together as "subjective well-being". In contrast, eudaemonic measures such as autonomy, personal growth, self-acceptance, meaning in life, environmental mastery and positive social relationships are referred to as **psychological well-being** (PWB) according to Ryff & Keyes (1995).

2.1.1 Overall measures of subjective quality of life

Based on the WHO definition of quality of life, several instruments have been proposed to measure subjective quality of life (for an overview see Conrad et al., 2009).

WHOQOL-100: measures the following six dimensions in addition to 4 items on global quality of life: Physical QoL (12 items), Mental QoL (20 items), Independence (16 items), Social Relationships (12 items), Environment (32 items) and Religion/Spirituality (4 items). The corresponding 24 subcategories (facets) of the individual dimensions (domains) each consist of 4 items.

WHOQOL-BREF: in addition to 2 items for the global assessment of quality of life, it records the following four domains: physical QoL (7 items), psychological domain (6 items), social relationships (3 items), environment (8 items). Each facet of the WHOQOL-100 is represented by at least one item.

WHOQOL-OLD: Developed in 2005 by Power and colleagues as an additional module to the WHOQOL-BREF for the assessment of quality of life in older people (Zander & Cierpka, 2008; Winkler et al., 2006). It describes 6 new facets with 4 items each: sensory functions, autonomy, activities in the past, present and future; participation; death and dying and intimacy (see Figure 1 below).

Facette <i>Sinnesfunktionen</i> $\alpha = .79$	
Item 1	Beeinträchtigungen der Sinnesfunktionen beeinflussen tägliches Leben
Item 2	Beurteilung der Sinnesfunktionen
Item 3	Nachlassen der Sinnesfunktionen beeinträchtigt Teilnahme an Aktivitäten
Item 4	Probleme mit Sinnesfunktionen beeinflussen Möglichkeiten sich mit Anderen zu unterhalten
Facette <i>Autonomie</i> $\alpha = .63$	
Item 1	Freiraum haben, um eigene Entscheidungen zu treffen
Item 2	Zukunft beeinflussen können
Item 3	in der Lage sein, Dinge zu tun, die Sie gern tun wollen
Item 4	Menschen in Umgebung respektieren Unabhängigkeit
Facette <i>Aktivitäten in Vergangenheit, Gegenwart und Zukunft</i> $\alpha = .73$	
Item 1	glücklich über Dinge, die noch erwartet werden
Item 2	zufrieden mit Möglichkeiten, weiterhin im Leben etwas zu erreichen
Item 3	im Leben die verdiente Anerkennung bekommen
Item 4	zufrieden mit dem, was im Leben erreicht
Facette <i>Partizipation</i> $\alpha = .77$	
Item 1	zufrieden mit Art und Weise, wie Zeit genutzt wird
Item 2	zufrieden mit Maß an Aktivität
Item 3	im Allgemeinen genug zu tun
Item 4	zufrieden mit Möglichkeiten, an öffentlichen Aktivitäten teilnehmen zu können
Facette <i>Tod und Sterben</i> $\alpha = .84$	
Item 1	darüber Sorgen machen, wie zu sterben
Item 2	davor fürchten, keinen Einfluss darauf zu haben, wie zu sterben
Item 3	Angst vor dem Sterben
Item 4	davor fürchten, dass Tod von Schmerzen begleitet sein könnte
Facette <i>Intimität</i> $\alpha = .89$	
Item 1	in Leben Gefühl von Gemeinschaft
Item 2	Liebe im Leben
Item 3	Möglichkeit, anderen Menschen Liebe zu geben
Item 4	Möglichkeit, Liebe anderer Menschen zu erfahren

Figure 1: Facets, items, and reliabilities for the WHOQOL-OLD (Conrad et al., 2009, 141f)

The possibilities of assigning the WHOQOL-OLD facets to the domains of the generic QoL instruments remain somewhat unclear. There are indications that the facets "Participation", "Autonomy", "Activity" and "Intimacy" form an age-specific QoL factor, while the facets "Fears and anxiety about death and dying" and "Sensory functions" are relatively independent of this (Winkler et al., 2006). The WHOQOL-OLD shows closer correlations with the WHOQOL-BREF, particularly in the "non-physical" dimensions (Conrad et al., 2009).

When evaluating the state of research on the WHOQOL-OLD in Germany, it must be borne in mind that until recently, most studies were only published from the development context of the scale, in which only Leipzig citizens were surveyed. Recently, however, as part of the DFG project "Lebensqualität (LQ) im Alter - Normierung des WHOQOL-OLD und Erhebung der LQ in verschiedenen Subgruppen der Altenbevölkerung" (German Research Foundation (DFG), 2014), additional results of a population-representative study with almost 1000 subjects in the age groups 60-69, 70-79, 80+ have been compiled and published (Conrad et al., 2015; Conrad et al., 2014).

The WHOQOL-BREF (The WHOQOL Group, 1998) was only used in the DEAS in the 2nd wave (2002). The scale measures subjective QoL in domains (physical health 7, psychological 6, social relationships 3, environment 8) using 24 items; two further items in the original scale measure global assessments of one's own health and overall quality of life. In the DEAS, the assessment of one's own mobility options was asked instead of the assessment of health¹. Various 4- to 5-point response scales are used. The reference period for all questions is "the last two weeks". To our knowledge, reasons for not using the instrument in subsequent waves are not documented.

To summarise, the WHOQOL-BREF and -OLD are relatively short procedures for recording general QoL. However, there appear to be two fundamental limitations to their usefulness for **NRW80+**. Firstly, the procedures focus exclusively on cognitive (rational) subjective judgements (subjective quality of life). Secondly, questions on the status quo of various life circumstances and questions on satisfaction are mixed throughout. Both aspects could lead to the fact that

¹ Possibly because health is recorded elsewhere in the DEAS (domain-specific life satisfaction).

objective living conditions and individual assessment criteria can no longer be clearly separated from each other, and the possibility of discussion from a descriptive, evaluative and normative perspective is significantly restricted.

2.1.2 Life satisfaction

Satisfaction is the cognitive component of subjective well-being. It is generally assumed that LZ results from a favourable comparison of actual and target states. Approaches such as the **Multiple Discrepancy Theory (MDT)** (Michalos, 1985) differentiate between various comparison criteria, some of which can be "objectively" understood (e.g. a comparison of the current income with the maximum income achieved in one's own professional biography), while others can only be recorded by self-report (e.g. the desired income, or the income perceived as justified, = "aspirations"). It is common to measure satisfaction at different levels of abstraction (i.e. domain-specific or global). Usually, the characteristics and experiences on which the individual satisfaction judgement is based remain unknown in both domain-specific and global assessments. In the same way, it is generally not possible to draw conclusions about the evaluation criteria used by the individual.

However, satisfaction judgements represent a special group of individual evaluations: Thus, it is assumed that the criteria used for evaluation are binding for the individual (i.e. they correspond to individual values and motives and are not arbitrary/meaningless).² If, on the other hand, a person is only asked to assess how good their living conditions are, it cannot necessarily be assumed that a comparison is made with individually binding target expectations, but rather with social standards, for example. In the DEAS, for example, both forms of assessment are located in the area of subjective well-being without being (conceptually) equated. However, this distinction is then no longer taken into account in the discussion of respondents' subjective quality of life.

In addition to individual items (e.g. All in all, how satisfied are you with your life at the moment?), a number of multi-item measures have been proposed for measuring general and area-specific satisfaction. The advantages of a survey using several indicators lie in the assessment of the reliability of a measurement and a generally more detailed definition of the content of the construct in question.

The World Database of Happiness currently contains several hundred item and scale suggestions for measuring life satisfaction (see Table 3).

Table 3: Procedure for recording general life satisfaction

Code	Description	No. of Variants
<u>O-SLu</u>	Overall: Satisfaction with life (unspecified)	146
<u>O-SLC</u>	Overall: Satisfaction with Life-Course	23
<u>O-SLL</u>	Overall: Satisfaction with Life one Leads	42
<u>O-SLS</u>	Overall: Satisfaction with Life-Situation	18
<u>O-SLW</u>	Overall: Satisfaction w Life as a Whole	278
<u>O-SP</u>	Overall: Satisfied Person	4
<u>O-SQL</u>	Overall: Satisfaction with Quality of Life	19
<u>O-SLP</u>	Overall: Satisfaction with Personal Life	16
<u>O-SL?</u>	Overall: Satisfaction With Life: item not reported	64
<u>O-SLV</u>	Overall: Satisfaction with Life: Various	5
Code	Description	No. of Variants
O-Sum	Overall: Summed overall appraisals	65

Source: <http://worlddatabaseofhappiness.eur.nl>, as at 14/10/2015

In the DEAS, **life satisfaction** was measured using the **Satisfaction with Life Scale (SWLS)** by Diener et al., 1985; Pavot & Diener, 1993 and 2009). The German-language translation (see Table 4) was presented by Schumacher (2003) (see

² However, some authors have expressed doubts about the validity of (particularly more complex) satisfaction judgements. Instead of the assumed algorithmic offsetting of individual experiences and objectives, they make alternative processes (e.g. affective inferences, heuristics, personality traits, positivity, etc.) responsible for the formation of satisfaction judgements. Advocates, on the other hand, emphasise the advantages associated with satisfaction judgements of a clear communication of the scientific interest in knowledge and a higher degree of freedom granted in the use of individually relevant information.

also Glaesmer et al., 2011; Janke & Glöckner-Rist, 2014). A total of 5 statements are to be rated on a 5-point response scale (1 = strongly agree to 5 = strongly disagree ← rated the other way round). The original scale provides for a 7-point rating.

Table 4: Items of the SWLS (DEAS 2011 Drop-off)

<i>The following statements are about how you assess your life as a whole. Please read the following sentences carefully and assess the extent to which these statements apply to you.</i>
In most ways, my life is almost ideal.
My living conditions are excellent.
I am happy with my life.
I have largely achieved the most important things I want in life.
If I could live my life over again, I would hardly do anything differently.

An overall assessment is shown without knowledge of the domains (areas of life) or assessment criteria included by the individual. With the exception of one item, all statements relate to the current situation. The scale is in the public domain and can be used free of charge. According to our own calculations in the 2011 wave, the internal consistency is also acceptable for the age groups differentiated in the *NRW80+* (see Table 5).

Table 5: Internal consistencies of the DEAS 2011 scales used in the area of subjective well-being

	Age groups				Necessary items for scale formation
	under 80	80-84	85-89	90 and older ¹	
Total number (N)_{max}	4326	361	142	26	
Life satisfaction (lz_11)	.84	.83	.82	.89	3 out of 5
Positive affect (pa_11)	.86	.84	.83	.51	3 out of 10
Negative affect (na_11)	.86	.82	.83	.51	3 out of 10
Depressiveness (depressive_11)	.87	.82	.83	.86	15 out of 15
Loneliness (lone6_11) ²	.82	.76	.77	.90	3 out of 6
HOPE scale (hope_11)	.81	.81	.74	.57	3 out of 8
Optimism (affval_11)	.85	.81	.81	.58	3 out of 5
Self-worth (swert_11)	.82	.81	.78	.43	7 out of 10
Self-efficacy (swirk_11)	.80	.79	.78	.77	3 out of 5

Note. ¹Values for the group of over 90-year-olds are based on small case numbers. ² These scales are included in the DEAS, but in our opinion do not necessarily represent a QoL outcome in the defined sense.

Since 2002, questions have also been asked about area-specific **satisfaction at work**, and since 2008 about **satisfaction with the division of tasks in the shared household**. **Satisfaction with sex life** (item from WHOQOL-BREF) has been continued as a single item since 2008. In 2011, only one person over the age of 80 provided information on satisfaction at work. Only around half of the women, but almost all of the men surveyed, answered the question on the division of labour in the household. The correlations between the remaining areas of satisfaction with overall life satisfaction are low to moderate and differ significantly between the genders (see Table 6). Obviously, the area-specific satisfaction assessment is not based solely on general trait satisfaction and provides additional information on life evaluation.

Table 6: Correlations between overall LZ and area-specific satisfaction (DEAS 2011, over 80 years)

	LZ	Division of labour Housework	Sexuality
Life satisfaction (lz_11)		.12	-.10
Division of labour housework (gc245b rec.)	.39		-.18
Sexuality (gd31 rec.)	-.22	-.44	

Above diagonal: men; below diagonal: women

In the instrument documentation, the assessments of 9 areas of life (housing, career, retirement, standard of living, health, partnership, social life, network, family, leisure) surveyed in the CAPI are also presented as **area-specific satisfaction levels**. The current situation (e.g. "Overall, how do you rate your current partnership?"), changes over the last 10 years and future expectations are analysed. The assessment is based on 5 levels (1="very good", 5="very bad"). This information undoubtedly represents a subjective assessment of quality. However, it remains unclear whether the person personally accepts the quality criteria used or whether they are also subjectively satisfied with a "good condition". We would argue in favour of interpreting satisfaction in the context of **NRW80+** as a special form of assessment and only speaking of life satisfaction when explicitly asking about satisfaction with (good/bad) living conditions.³

To summarise, general life satisfaction can also be reliably measured with the SWLS in the age group of interest. The additional effort compared to a 1-item measurement appears justifiable. On the other hand, it does **not** seem possible to depict general life satisfaction using several domain satisfactions for a number of reasons: particularly in the group of very old men surveyed, there are only slight correlations and the domain satisfactions (e.g. satisfaction with partnership) cannot be surveyed in the same way for all very old people. One disadvantage of the SWLS is that information on the evaluation criteria would have to be recorded separately. We would advise against having the respective life circumstances explicitly assessed according to several comparison criteria (e.g. social, temporal, optimal: cf. Michalos, 1985), but (only the general) orientation towards various assessment criteria should be asked separately (What was/is particularly important to you in your life assessment?).

2.1.3 Affective well-being

Affective well-being describes the moods and emotions experienced by the individual. There is usually an operational narrowing down to the presence of positive emotional states (positive affect) and the absence of negative emotional states (negative affect). In scientific discourse, the opinion has prevailed that these two qualities of experience - at least when looking at longer periods of time (e.g. last year) - are relatively independent characteristics. Moreover, different determinants have been described as significant for positive and negative affect. Due to the relative independence of both affects, it is proposed to calculate the overall level of affective well-being as a balance score of positive and negative experiences. A shift in the ratio in favour of positive memories/perceptions at an older age has been reported as the so-called **positivity effect** (Scheibe & Carstensen, 2010). The affective valence of emotional states only appears to represent a bipolar continuum (positive-negative) when considering short periods of time (current mood), which is why alternative measures (e.g. time spent in a positive/negative mood) have been proposed for such surveys (Diener et al., 1991).

Unlike life satisfaction, the momentary experience of affect can also be observed externally, at least in part (Ekman et al., 2002, **FACS**). However, the procedures for (videographic) coding of emotional expression remain limited to a smaller number of basic emotions and can sometimes be complicated by changes in age (dentition, wrinkles, symptoms of illness, reduced autonomous emotional response) (Re, 2003). Simpler observation scales derived from the **EMFACS (Apparent Affect/Observed Emotion Rating Scale, Lawton et al, 1999)** share these difficulties. The generalisability of momentarily recorded affect is essentially determined by the representativeness of the observation situation. Since it must be assumed that the interview is a rather atypical situation, the possibilities for a meaningful use of observation instruments in the context of **NRW80+** therefore appear limited.

The World Database of Happiness currently lists several hundred different methods for measuring the affective component of subjective well-being (see Table 7). With a few exceptions, these are all self-report measures.

Table 7: Scales proposed for recording the experience of affect.

Average Affect (computed)		
Code	Description	No. of Variants
A-ARE	Affect: Average Repeated Overall Estimate	20
A-ASA	Affect: Average of Specific Affects	25

³ However, it may well be asked what status satisfaction judgements have in everyday life beyond a (scientific) survey (see Diener et al, 2000): the more global a judgement, the more likely it is to be determined by **positivity**).

A-AOL	Affect: Average Overall Level	72
Affect Balance (computed)		
<i>Code</i>	<i>Description</i>	<i>No. of Variants</i>
A volume	Affect Balance (Derogatis)	4
A-BB	Affect: Balance (Bradburn's 10 item index)	33
A-BBr	Affect: Balance (Brenner's index)	6
A-BC	Affect: Balance (Cohen's index)	2
A-BD1	Affect: Balance (Diener's 8 item index)	4
A-BD2	Affect: Balance (Diener's ABS)	7
A-BD3	Affect Balance (Diener's 24 item index)	4
A-BH	Affect: Balance (Huelsenman)	1
A-BK	Affect: Balance (Kamman's index)	8
A-BL	Affect: Balance (Lyubomirski)	2
A-BMc	Affect: Balance: McGreal 'Depres-Happ'	2
A-BM	Affect Balance (McNear's POMS)	1
A-BMr	Affect: Balance (Mroczek)	2
A-BS	Affect: Balance (Schultz's index)	1
A-BW	Affect: Balance (Watson et al PANAS)	28
A-AB	Affect Affect Balance (various)	127
Affect Time		
<i>Code</i>	<i>Description</i>	<i>No. of Variants</i>
A-TH	Affect: Time Happy	10

In the DEAS, **affect experience** is assessed using the **Positive and Negative Affect Scale** (PANAS, Watson et al., 1988). The scale measures the frequency of 20 affect states using a 5-point scale (1=never, 5=very often). A German translation was published by Krohne and colleagues (Krohne et al, 1996). The DEAS was modelled on the BASE translation (Smith et al., 1996). The time frame of reference is given as "in the last few months", which appears problematic, as very different time periods can be selected and it is not clear whether the characteristic being recorded is a habitual **trait** or momentary **state** well-being. The proportion of missing values for all 20 adjectives is between 1 and 1.7 per cent. However, the relative proportion of missing values increases across the age groups.

The reliabilities for **positive and negative affect** are also satisfactory for the DEAS subsample of over 80-year-olds (see Table 5). The poor reliabilities in the over 90s age group are based on only 14 observations in each case. The observed correlation between positive and negative affect is not increased in the group of 80-84 and 85-89 year olds compared to the younger DEAS participants (-0.24 and -0.29 vs. -0.34). In the BEWOHNT project, satisfactory reliabilities were also achieved in the group of 70 to 90-year-olds (PA: .81, NA: .79). However, the model adjustment of a CFA makes it clear in both the DEAS and **BEWOHNT** datasets that the individual items exhibit substantial residual correlations (cf. also the studies cited in Janke & Glöckner-Rist, 2014, with identical findings). Due to the residual correlations, the value of sufficiently high Cronbach's alpha values can be doubted (Raykov & Marcoulides, 2011). Unfortunately, these problems (and workarounds, e.g. parceling) cannot be circumvented by using a short scale, as several residual correlations are also reported for these.

The scale documentation of the DEAS 2011 also refers to the possible problem that older people generally experience/report less highly activated affect (Larsen & Diener 1992). Kercher (1992) and Mackinnon et al., (1999), on the other hand, provide evidence that the **PANAS (short form)** can also be used without restriction in very old people.

In addition, **PANAS** is designed to be cross-domain. If one assumes that different areas of life contain different qualities of experience, a restriction to certain adjectives could unintentionally also mean a restriction to certain areas of life. A proposal for recording highly and low-activated positive and negative states of experience of older women in 12 areas of life (2x2x12 48 items) was made in the **WOLKE** project (project collaborator Katrin Alert, Fortschrittskolleg). However, detailed psychometric analyses are still pending.

A 10-item short form of the **PANAS** that has already been validated several times in the group of very old people is available (Mackinnon et al., 1999; Kercher, 1992). However, (subsequent) model adaptations of the **2F-CFA** are also necessary here in order to be able to adequately explain the item correlations.

In summary, there are concerns regarding the applicability of the **PANAS** in the **NRW80+** with regard to the time frame ("last months"), the implied degree of activation (with reduced autonomous emotional reactions in old age), as well as the efficiency in mapping the latent constructs **PA** and **NA** (residual correlations). In our opinion, this should at least be countered by a clearer definition of the temporal frame of reference and, if necessary, by including additional items/qualities of experience (e.g. **PANAS-X**, Watson & Clark, 1999).

2.1.4 Depressive symptoms

An alternative or supplement to the assessment of emotional well-being with the PANAS is the assessment of **depressive symptoms**. In contrast to the **PANAS**, **depression** can be considered a broader concept, as it captures not only depressed moods but also listlessness and negative cognitions. Wettstein et al., 2015 assign depression to a third group ("mental distress") of well-being indicators alongside eudaemonic and hedonic aspects, to which they also include fear of death and fear of illness. They thus take up the argument that mental ill-being should also be taken into account alongside mental well-being, and also describe different courses for these groups of well-being indicators in very old age in their analyses.

Unlike experienced affect or life satisfaction, depression also more strongly describes a clinical picture and disease symptoms that can presumably only be inadequately explained with the models of quality of life and subjective well-being discussed to date. This basic problem also arises with regard to the non-cognitive symptoms of dementia, which are often associated with a strong negative affect (anxiety, apathy, etc.). This raises the question of the theoretical "categorisation" of depression as a *predictor* of SWB or as an *indicator* of SWB.

The **Geriatric Depression Scale (GDS)** (Yesavage, 1983) is a specific and comprehensively validated method for the examination of non-clinical populations of very old people (e.g. Marc et al., 2008 vs. Watson et al., 2004). The reference period is "the last week". Short versions are available with 15 items (Sheik & Yesavage, 1986) and 5 items (Hoyl et al., 1999), among others. The items formulated as questions are answered dichotomously (yes/no). The **GDS** has been used in several German-language studies of the very old (e.g. **EnableAge**, **LateLine**, **BEWOHNT**; but **LASA: CES-D**). "Mood deterioration" and "loss of motivation" are recorded. The evaluation is one-dimensional (no reliable depiction of the loss of motivation aspect possible, **BEWOHNT**, N=558, $\alpha=.38$). The reliability of the overall scale is acceptable for the 70-79 and 80-89 age groups (.78 and .75).

In the German Ageing Survey, **depression** was measured (since 2002) using the short version of the **General Depression Scale (ADS-K)** (Hautzinger & Bailer, 1993; German version of the **CES-D Center for Epidemiological Studies Depression Scale**, Radloff, 1977). The self-evaluation instrument uses 15 items to assess emotional, motivational, cognitive, somatic and interactional complaints (e.g. "... I was depressed/depressed", "... everything was stressful for me", "... I had the feeling that people didn't like me"). The reference period is "the last week" and 4 response categories are given: "rarely/not at all; for less than a day" (0), "sometimes; for one to two days" (1), "more often; for three to four days" (2) and "most of the time, all the time; for five to seven days" (3). A total score above 18 points indicates the possibility of a serious depressive disorder (Wolff & Tesch-Römer, 2017). The depressive symptoms were surveyed from 2002 onwards (in the CAPI). The ADS-K can be considered sufficiently reliable for the age range of interest in the **NRW80+** (see Table 5).

The cost of the electronic version of the ADS is 420 euros for test kits and 50 uses plus 50 euros for each additional 50 uses (<http://www.testzentrale.de/programm/allgemeine-depressionsskala.html>). With 1800 tests, a licence fee of 2170 euros must be expected.

Heidenblut and Zank (Heidenblut & Zank, 2010; Heidenblut & Zank, 2014) present the **Depression in Aging Scale (DIA-S)**, a screening instrument developed in German for the assessment of depression. The scale comprises 10 items, each of which can be answered with yes/no. The development and validation work to date has been carried out on samples of geriatric and gerontopsychiatric patients. Compared to the **GDS-15**, a lower proportion of systematically missing values in the individual items, a higher internal consistency and a higher specificity and sensitivity for identifying depression as determined with the **MADRS** in the clinical interview were demonstrated for the **DIA-S** with less effort.

In summary, a method that is as age-specific as possible should be used to determine depression, as analyses of general depression scales such as the **Beck Depression Inventory (BDI)**, Beck et al., 1961) have shown a clear age dependency in item responses (Kim et al., 2002). The **DIA-S** appears to be particularly suitable due to its psychometric parameters and its applicability in groups of multimorbid and hospitalised older people. In our opinion, the close relationship to geriatric clients and the validation exclusively on the touchstone of a clinical depression diagnosis would tend to argue in favour of interpreting this marker less as a **QoL outcome** and more as an individual vulnerability factor for reduced subjective quality of life.

2.1.5 Eudemonic well-being measures

In contrast to the position of hedonism as the "pleasant" life, eudaemonia emphasises the "meaningful" life and the development of individual potential. For a critical overview of the relationship between the two "traditions" (Kashdan et al., 2008). Despite the conceded better theoretical foundation of the eudaemonic perspective on QoL and subjective well-being, the status of the operationalisability of the theoretical constructs is considered to be deficient. "Currently, for example, there is no widely agreed upon operational definition or established measurement of eudaimonic well-being" (Kashdan et al., 2008, 227). Rather, it is currently a collective category that increasingly includes phenomena and constructs that have "classically" been used as predictors of subjective well-being (flow, social relationships, etc.). However, in the discussion about the quality of life of very old and dying people in particular, greater consideration of existential perspectives is being called for (Amann, 2009).

Ryff and colleagues proposed an early and relatively comprehensive operationalisation of "psychological well-being" (Ryff, 1989; Ryff & Keyes, 1995). The authors differentiate between 6 dimensions of psychological well-being:

- 1 Autonomy
- 2 Personal growth,
- 3 Self-acceptance
- 4 Meaning of life
- 5 Environmental control
- 6 Positive social relationships.

As one of the most prominent approaches, it draws on various theoretical models of personal development and attempts to integrate essential goals of individual self-development (Ryff, 1989, see Figure 2).

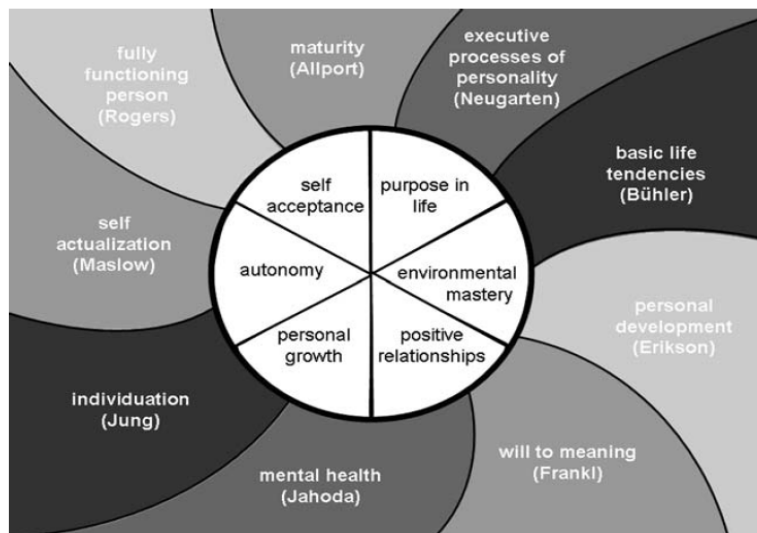


Figure 2: Core dimensions of psychological well-being and their theoretical anchoring.

Source: (Ryff & Singer, 2008), 20.

Scale versions with 84, 54, 39 and 18 items are available for self-assessment. The factor structure of the Ryff scales is controversially discussed (see discussion in **Social Science Research** between Springer & Hauser, 2006 and the authors of the scale), particularly with regard to the consistently reported high correlations between the theoretically assumed dimensions. The original versions of the **Ryff scales can be** obtained free of charge from the author. ⁴

⁴ Institutions or organisations interested in using the Ryff Scales of Psychological Well-Being should send a request and description of how the instrument will be used to Dr. Carol Ryff; University of Wisconsin; Institute on Aging; 2245 Medical Sciences Center; 1300 University Avenue; Madison, WI 53706; Phone: (608) 262-1818; Fax: (608) 263-6211; email: cryff@wisc.edu.

In German-speaking countries, empirical studies with German translations of the **Ryff scales** are only available in the form of a few international publications (Schindler, 2014; Wettstein et al, 2015), individual qualification papers (Harbich, 2013; Bartkowiak, 2008) and the use of subscales in individual research projects (**Environmental Mastery, Enable Age project**, Oswald et al., 2007; 4 subscales in **LateLine**, Wettstein et al., 2015). In particular, a research group at the University of Vienna (Harbich, 2013; Bartkowiak, 2008) used the 18-item short scale, for which predominantly poor scale reliabilities were reported due to only 3 items per sub-dimension (see Table 9). Schindler (2014) reports **reliabilities** between .73 and .89 for a **39-item short version** proposed by van Dierendonck (2004). Wettstein and colleagues (2015) report significantly varying reliabilities with at best acceptable reliability levels for 4 9-item subscales across 7 measurement time points.

Other theories described as essentially eudaemonic include **self-determination theory** (Deci & Ryan, 2000), **flourishing** (Keyes, 2002), **authentic well-being** (Seligman, 2002), **self-actualisation** (Waterman, 1993) and **flow** (Vittersø, 2003). Many of the instruments proposed in this context describe a congruence between individual life circumstances/behaviour and a qualitatively highlighted set of goals or values (cf. Kashdan et al., 2008, 222).

To summarise, a key determinant of eudaemonic concepts also appears to be the determination of different "high-quality/central" motives for living and criteria for their evaluation. We therefore propose that, in addition to indicators of subjective quality of life, "eudaemonic" motives and assessment criteria should also be recorded and discussed in a differentiated way as part of individual and social life chances.

For an in-depth look at various aspects of eudaemonia, we refer to separate documents on predictors and indicators of eudaemonic quality of life (individual values, images of old age, meaning of life, autonomy).

Table 8: German version of the Ryff scales (short scale, from Harbich, 2013)**Ryff Skala**

Bei den folgenden Fragen geht es um ihr Wohlbefinden. Geben Sie bitte für jede Aussage ihre persönliche Zustimmung oder Ablehnung an.

1 = stimme **überhaupt nicht** zu

2 = stimme nicht zu

3 = stimme **eher nicht** zu

4 = stimme **eher** zu

5 = stimme zu

6 = stimme **völlig** zu

1. Ich lasse mich leicht von Menschen, die ihre Meinung selbstbewusst sagen beeinflussen.	6	5	4	3	2	1
2. Ich habe normalerweise das Gefühl, dass ich mit meiner Situation gut zurechtkomme.	6	5	4	3	2	1
3. Ich bin in vielerlei Hinsicht von dem enttäuscht, was ich in meinem Leben erreicht habe.	6	5	4	3	2	1
4. Ich denke es ist wichtig, neue Erfahrungen zu sammeln, die das in Frage stellen, was man über sich selbst und das Leben denkt.	6	5	4	3	2	1
5. Es war für mich immer schwierig und frustrierend enge Beziehungen aufrecht zu erhalten.	6	5	4	3	2	1
6. Ich lebe meine Tage so wie sie kommen und denke nicht wirklich an die Zukunft.	6	5	4	3	2	1
7. Wenn ich mir meine Lebensgeschichte so anschau, dann bin ich zufrieden wie sich die Dinge entwickelt haben.	6	5	4	3	2	1
8. Manchmal habe ich das Gefühl, dass ich alles getan habe, was es im Leben zu tun gibt.	6	5	4	3	2	1

Bitte weiterblättern

9. Ich habe Vertrauen in meine eigene Meinung, sogar wenn sie im Widerspruch zur allgemeinen Meinung steht.	6	5	4	3	2	1
10. Ich habe nicht viele warmherzige, vertrauensvolle Beziehungen mit anderen Menschen erlebt.	6	5	4	3	2	1
11. Die Anforderungen des täglichen Lebens erdrücken mich oft.	6	5	4	3	2	1
12. Das Leben bedeutet für mich einen kontinuierlichen Prozess des Lernens, Veränderns und des Wachsens.	6	5	4	3	2	1
13. Meine Bekannten würden mich als entgegenkommende Person bezeichnen, und meinen, dass ich meine Zeit gerne mit anderen verbringe.	6	5	4	3	2	1
14. Ich habe es schon lange aufgegeben große Verbesserungen oder Veränderungen in meinem Leben zu machen.	6	5	4	3	2	1
15. Manche Menschen leben ziellos dahin, aber ich bin nicht einer von diesen.	6	5	4	3	2	1
16. Ich mag die meisten meiner persönlichen Eigenschaften.	6	5	4	3	2	1
17. Meine persönlichen Beurteilungen richten sich nach dem, was ich für wichtig halte, und nicht nach dem was andere denken.	6	5	4	3	2	1
18. Ich bin ziemlich gut darin, mit den täglichen Anforderungen zurechtzukommen.	6	5	4	3	2	1

Danke fürs Ausfüllen!

2.2 QL results outside the person

Comparatively little research has been conducted into the area of the quality of one's own life for others. In contrast to subjective life assessment, this quality of life quadrant of external assessment of individual life is difficult in many respects: on the one hand, only a certain section or aspect of life can be considered. In addition, an assessment is often limited to the currently observable state. Furthermore, the criteria used for such an assessment are debatable. As the assessment authority is external to the individual, the value judgements of third parties can only be reported to a limited extent by the persons concerned themselves.

It is known that people are concerned with how others think about them and that they want a positive evaluation by others (Finkelstein et al, 2013; Frey et al, 2006; Pinel, 1999; Vorauer et al, 2000; Vorauer, 2001; Vorauer et al, 1998). External evaluations are related to the quality of life within the person. For example, people who feel needed by others experience a greater sense of purpose in life (Cohen et al., 2016) and have a more positive life orientation (Tilvis et al., 2012). On the other hand, the feeling of being a burden to others is associated with increased suicidality (Chu et al., 2017).

External assessments appear all the more relevant in old age in particular, as they appear in the form of age stereotypes, some of which are socially consensual (Neise et al., 2019). Age stereotypes consist of general ideas about older people and manifest themselves in specific attitudes and behaviour towards older people, in expectations of them and ultimately also in assessments of them (Angus & Reeve, 2006; Bai 2014; Deutscher Bundestag, 2010; Levy, 2017).

According to Fürstenberg (2013), against the background of modern norms of youthfulness and productivity, age stereotypes lead to a lack of acceptance of very old people in particular: In contrast to people in the (supposedly) active

and healthy "third age", the very old no longer represent an active or important part of society according to one-sided attributions of a lack of usefulness and unproductivity (Haber, 1983) - or even: an economic burden (Martinson & Halpern, 2011).

In summary, an awareness of the existence of benefit-oriented quality assessments, which also take place in a socially consensual manner and manifest themselves in concrete behaviours or attitudes towards the very old population and the individual, seems necessary.

In order to broaden the perspective on instances of the living environment of very old people, it is also recommended to explicitly include the perspective of persons or groups who are politically or socially active on behalf of very old people. Please refer to the separate rationale on images of old age. This explicit consideration of supra-individual value structures and an external assessment of the lives of very old people allows an investigation of mechanisms of enabling and co-producing quality of life in very old age (Neise et al., 2019).

3. Final implementation in NRW80+ wave 1

3.1. Hedonic quality of life

In the area of hedonic quality of life outcomes, the constructs general life satisfaction and affective well-being were implemented. Depressiveness was also surveyed, although, as recommended in this paper, it is understood as a predictor rather than an indicator of quality of life outcomes.

To measure general **life satisfaction**, the final decision was made in favour of a research-economic one-item solution, as used in other larger survey studies (BASE, SHARE, SOEP):

"All in all, how satisfied are you with your life at the moment?" This question was answered on an 11-point scale (0=not at all satisfied; 10=completely satisfied).

With regard to **affective well-being**, NRW80+ concentrates on the positive dimension of the PANAS and uses the five items with the highest factor loading to depict positive affect. One argument in favour of dispensing with the negative dimension of the PANAS is the additional survey of depression. The frequency of experiencing the feelings described below was surveyed. The time frame of reference was set to the past 12 months in order to understand affective well-being as a **trait** (enduring characteristic) and not as a **state** (momentary condition).

"Please tell me approximately how often you have experienced these feelings in the last 12 months. How often have you felt ... in the last year?"

		1	2	3	4	5
1	... enthusiastic	Never	Rather rare	Sometimes	Frequently	Very common
2	... attentive	Never	Rather rare	Sometimes	Frequently	Very common
3	... joyfully excited, full of expectation	Never	Rather rare	Sometimes	Frequently	Very common
4	... stimulated	Never	Rather rare	Sometimes	Frequently	Very common
5	... determined	Never	Rather rare	Sometimes	Frequently	Very common

Compared to this 5-item variant, a model with only 4 items (without "determined") indicates a better data fit ($\chi^2(Df=2, SCF=2.3018) = 16.859, p=0.0002, RMSEA = 0.064$ (CI90% 0.038-0.094), CFI/TLI = 0.989/ 0.968, SRMR= 0.015). The 5-item solution shows a moderate data fit ($\chi^2(Df=5, SCF=2.4121) = 64.160, p<0.0001, RMSEA = 0.081$ (CI90% 0.064-0.099), CFI/TLI = 0.970/ 0.939, SRMR= 0.028), but a high internal consistency (McDonald's Omega = 0.883).

A short version of the DIA-S scale was used to assess **depression** (as a predictor of quality of life). The short scale shows a rather moderate internal consistency (Cronbach's alpha = 0.69; Heidenblut & Zank, 2020). However, this is higher than in other comparable short scales such as the GDS4 and GDS5. In addition, the authors report that clinically relevant depression can be assumed from a cut-off value of 1.5 points.

As in the original scale, the questionnaire refers to the experience of the following moods in the past 14 days:

1	Do you feel depressed?	No	Yes
2	Do you find it difficult to pull yourself together?	No	Yes
3	Can you enjoy your life, even if you find some things more difficult?	No	Yes
4	Do you have to think a lot?	No	Yes

3.2. Eudaemonic quality of life

For a more detailed discussion of the possibilities for assessing **eudaemonic quality of life** and for a description of the corresponding implementation in the projects, please refer to the separate rationales on the topics of individual values, meaning in life and autonomy.

3.3. External valuations

The appreciation felt by very old people from others or society was surveyed with four items as follows:

"In the following, we would like to know to what extent you feel valued by society. This is less about recognition and appreciation by your immediate environment and more about your assessment of society's view and attitude towards older people."

1	Do you feel that you are needed in today's society?	Does not apply	Rather not applicable	Rather true	Fits exactly
2	Do you feel that today's society values you for what you have done and achieved in your life?	Does not apply	Rather not applicable	Rather true	Fits exactly
3	Do you feel that you are treated as if you are a burden in today's society (e.g. due to physical impairments)?	Does not apply	Rather not applicable	Rather true	Fits exactly
4	Do you feel that you are more appreciated and respected today than in the past?	Does not apply	Rather not applicable	Rather true	Fits exactly

4. Realisation in NRW80+ wave 2

4.1. Hedonic quality of life

General life satisfaction and affective well-being were surveyed again in the second wave as significant outcome parameters and due to incomplete findings on corresponding courses in old age. Depressiveness was also surveyed again.

General **life satisfaction** was surveyed in the same way as in wave 1.

With regard to **affective well-being**, it was discussed whether the chosen 5-item solution should be retained despite only moderate data adjustment. The internal decision was made to follow the approach of other authors rather than use the 4-item variant. For studies and publications, the researcher can consider whether a 4-item variant of the measurement model is preferable for reasons of better data fit.

There were also no changes in the survey of **depression**.

4.2. Eudaemonic quality of life

See separate rationales.

4.3. External valuations

Survey as in NRW80+, wave 1.

5. Conversion to D80+

For **D80+**, the operationalisations were retained as for NRW80+. Due to the pandemic, however, no personal interviews could be conducted, so the survey mode had to be changed (written survey plus subsequent telephone survey on additional content). All of the content described here was integrated into the written survey as prioritised survey areas.

6. Literature

- Amann, A. (2009). Quality of life and life satisfaction. In Federal Ministry of Labour, Social Affairs and Consumer Protection (Ed.), *Hochaltrigkeit in Österreich. Eine Bestandsaufnahme* (2nd ed., pp. 200-216). Vienna: Federal Ministry of Labour, Social Affairs and Consumer Protection. URL: <https://www.yumpu.com/de/document/view/20727962/hochaltrige-in-osterreich-bundesministerium-fur-arbeit-soziales->
- Angus, J. & Reeve, P. (2006). Ageism. A Threat to "Aging Well" in the 21st Century. *Journal of Applied Gerontology*, 25(2), 137-152. doi: [10.1177/0733464805285745](https://doi.org/10.1177/0733464805285745)
- Bai, X. (2014). Images of ageing in society: A literature review. *Journal of Population Ageing*, 7(3), 231-253. doi: <https://doi.org/10.1007/s12062-014-9103-x>
- Bartkowiak, A. (2008). *A comprehensive analysis of the factors influencing psychological well-being and their interrelationships - including religious and spiritual variables* (Diploma thesis), University of Vienna.
- Beck, A. T., Ward, C. H., Mendelsohn, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. *Archives of General Psychiatry*, 4, 53-63
- Chu, C., Buchmann-Schmitt, J.M., Stanley, I.H., Hom, M.A., Tucker, R.P. et al. (2017). The interpersonal theory of suicide: A systematic review and meta-analysis of a decade of cross-national research. *Psychological Bulletin*, 143(12), 1313-1345. doi: <https://doi.org/10.1037/bul0000123>
- Cohen, R., Bavishi, C., Rozanski, A. (2016). Purpose in life and its relationship to all-cause mortality and cardiovascular events. A meta-analysis. *Psychosomatic Medicine*, 78(2), 122-133. <https://doi.org/10.1097/PSY.0000000000000274>
- Conrad, I., Matschinger, H., Kilian, R., & Riedel-Heller, S. (2009). WHOQOL - 100, WHOQOL - BREF and WHOQOL - OLD: Interculturally comparable WHO instruments for the assessment of subjective quality of life. *Clinical Diagnostics and Evaluation*, 2, 133-144
- Conrad, I., Matschinger, H., Riedel-Heller, S., Gottberg, C. von, & Kilian, R. (2014). The psychometric properties of the German version of the WHOQOL-OLD in the German population aged 60 and older. *Health and Quality of Life Outcomes*, 12, 105. doi: <https://doi.org/10.1186/s12955-014-0105-4>
- Conrad, I., Uhle, C., Matschinger, H., Kilian, R., & Riedel-Heller, S. G. (2015). Lebensqualität von älteren Menschen mit leichten kognitiven Störungen [Quality of life of individuals with mild cognitive impairment]. *Psychiatric Practice*, 42(3), 152-157. doi: [10.1055/s-0034-1369831](https://doi.org/10.1055/s-0034-1369831)
- Deci, E. L., & Ryan, R. M. (2000). The "What" and "Why" of Goal Pursuits: Human Needs and the Self-Determination of Behaviour. *Psychological Inquiry*, 11(4), 227-268. doi: [10.1207/S15327965P LI1104_01](https://doi.org/10.1207/S15327965P LI1104_01)
- German Bundestag (2010). *Briefing by the Federal Government. Sixth report on the situation of the older generation in the Federal Republic of Germany - Images of old age in society and statement by the Federal Government*. Berlin: Heenemann
- German Research Foundation (DFG) (2014). Quality of life (QoL) in old age - standardisation of the WHOQOL-OLD and survey of QoL in different subgroups of the elderly population. Bonn: DFG. URL: <https://gepris.dfg.de/gepris/projekt/167288812/ergebnisse?context=projekt&task=showDetail&id=167288812&selectedSubTab=2&> [last viewed 09.11.23]
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction With Life Scale. *Journal of Personality Assessment*, 49(1), 71-75. doi: [10.1207/s15327752jpa4901_13](https://doi.org/10.1207/s15327752jpa4901_13)
- Diener, E., Napa-Scollon, C. K., Oishi, S., Dzokoto, V., & Suh, E. M. (2000). Positivity and the Construction of Life Satisfaction Judgments: Global Happiness is not the Sum of its Parts. *Journal of Happiness Studies*, 1(2), 159-176. doi: [10.1023/A:1010031813405](https://doi.org/10.1023/A:1010031813405)
- Diener, E., Sandvik, E., & Pavot, W. (1991). Happiness is the frequency, not intensity of positive versus negative affect. In F. Strack, M. Argyle, & N. Schwarz (Eds.), *Subjective well-being. An interdisciplinary perspective* (pp. 119-139). Oxford: Pergamon Press
- Ekman, Friesen, & Hager. (2002). *The Facial Action Coding System (FACS): A technique for the measurement of facial action* (2nd edition). Palo Alto, CA: Consulting Psychologists Press
- Finkelstein, L.M., Ryna, K.M. & King, E.B. (2013). What do the young (old) people think of me? Content and accuracy of age-based metastereotypes. *European Journal of Work and Organisational Psychology*, 22(6), 633-657
- Frey, F.E. & Tropp, L.R. (2006). Being seen as individuals versus as group members: Extending research on metaperception to intergroup contexts. *Personality and Social Psychology Review*, 10(3), 265-280
- Fürstenberg, F. (2013). Old age as an acceptance problem. A thesis paper. *Journal of Gerontology and Geriatrics*, 46, 16-20
- Glaesmer, H., Grande, G., Braehler, E., & Roth, M. (2011). The German Version of the Satisfaction With Life Scale (SWLS). *European Journal of Psychological Assessment*, 27(2), 127-132. doi: <https://doi.org/10.1027/1015-5759/a000058>

- Haber, C. (1983). *Beyond Sixty-Five. The Dilemma of old Age in America's Past*. Cambridge, New York, Melbourne: Cambridge University Press
- Harbich, A. (2013). *Existential quality of life in old age. Paradoxes of life satisfaction and their explanation through the existential analytical paradigm* (Diploma thesis), University of Vienna
- Hautzinger, M., & Bailer, M. (1993). *General Depression Scale (ADS). German form of the "Centre for Epidemiological Studies of the Elderly Depression Scale" (CES-D)*. Weinheim: Beltz
- Heidenblut, S. & Zank, S. (2010). Development of a new depression screening for use in geriatrics. *Journal of Gerontology and Geriatrics*, 43, 170-176
- Heidenblut, S. & Zank, S. (2014). Screening for depression with the Depression in old Age-Scale (DIA-S) and the GDS15: A comparison of the diagnostic accuracy of the scales in a geriatric inpatient setting. *GeroPsych*, 27(1), 41-49. doi: <https://doi.org/10.1024/1662-9647/a000101>
- Heidenblut, S. & Zank, S. (2020). Screening for depression in old age with very short instruments: The DIA-S4 compared to the GDS5 and GDS4. *Gerontology & Geriatric Medicine*, 6, 1-9. doi: <https://doi.org/10.1177/23337214209813>
- Hoyl, M. T., Alessi, C. A., Harker, J. O., Josephson, K. R., Pietruszka, F. M., Koelfgen, M., Mervis, J. R., Fitten, L. J., & Rubenstein, L. Z. (1999). Development and testing of a five-item version of the Geriatric Depression Scale. *Journal of the American Geriatrics Society*, 47, 873-878. doi: <https://doi.org/10.1111/j.1532-5415.1999.tb03848.x>
- Janke, S., & Glöckner-Rist, A. (2014). German version of the Satisfaction with Life Scale (SWLS). In D. Danner & A. Glöckner-Rist (Eds.), *Compilation of social science items and scales*. doi: <https://doi.org/10.6102/zis147>
- Kashdan, T. B., Biswas-Diener, R., & King, L. A. (2008). Reconsidering happiness: The costs of distinguishing between hedonics and eudaimonia. *The Journal of Positive Psychology*, 3(4), 219-233. doi: [10.1080/17439760802303044](https://doi.org/10.1080/17439760802303044)
- Kercher, K. (1992). Assessing Subjective Well-Being in the Old-Old: The PANAS as a Measure of Orthogonal Dimensions of Positive and Negative Affect. *Research on Aging*, 14(2), 131-168. doi: [10.1177/0164027592142001](https://doi.org/10.1177/0164027592142001)
- Keyes, C. L. M. (2002). The Mental Health Continuum: From Languishing to Flourishing in Life. *Journal of Health and Social Behaviour*, 43(2), 207. doi: [10.2307/3090197](https://doi.org/10.2307/3090197)
- Kim, Y., Pilkonis, P. A., Frank, E., Thase, M. E., & Reynolds, C. F. (2002). Differential functioning of the Beck Depression inventory in late-life patients: Use of item response theory. *Psychology and Aging*, 17(3), 379-391. doi: [10.1037/0882-7974.17.3.379](https://doi.org/10.1037/0882-7974.17.3.379)
- Krohne, H. W., Egloff, B., Kohlmann, C. W., & Tausch, A. (1996). Studies with a German version of the "Positive and Negative Affect Schedule (PANAS)". *Diagnostica*, 42, 139-156
- Larsen, R. J., & Diener, E. (1992). Promises and problems with the circumplex model of emotion. In M. S. Clark (Ed.), *Emotion* (pp. 25-59). Sage Publications
- Lawton, M. P., van Haitsma, K., & Klapper, J. A. (1999). *Observed Emotion Rating Scale*. Retrieved from www.abramsoncenter.org/PRI
- Levy, B.R. (2017). Age-Stereotype Paradox. Opportunity for Social Change. *The Gerontologist*, 57(S2), 118-126
- Mackinnon, A., Jorm, A. F., Christensen, H., Korten, A. E., Jacomb, P. A., & Rodgers, B. (1999). A short form of the Positive and Negative Affect Schedule: Evaluation of factorial validity and invariance across demographic variables in a community sample. *Personality and Individual Differences*, 27(3), 405-416. doi: <https://doi.org/10.1024/1662-9647/a000101>

- Marc, L. G., Raue, P. J., & Bruce, M. L. (2008). Screening performance of the 15-item geriatric depression scale in a diverse elderly home care population. *The American journal of geriatric psychiatry: official journal of the American Association for Geriatric Psychiatry*, 16(11), 914-921. doi: <https://doi.org/10.1097/JGP.0b013e318186bd67>
- Martinson, M. & Halpern, J. (2011). Ethical implications of the promotion of elder volunteerism: A critical perspective. *Journal of Aging Studies*, 25, 427-435
- Michalos, A. C. (1985). Multiple discrepancies theory (MDT). *Social Indicators Research*, 16, 347-413
- Neise, M., Janhsen, A., Geithner, L., Schmitz, W., & Kaspar, R. (2019). Quality of life in old age. In K. Hank, F. Schulz-Nieswandt, M. Wagner & S. Zank (Eds.), *Aging research: Handbook for science and practice* (1st ed., pp. 581-604). Nomos. doi: <https://doi.org/10.5771/9783845276687>
- Oswald, F., Wahl H.-W., Schilling O., Nygren C., Fänge A., Sixsmith A., Széman, Z., Tomson, S., & Iwarsson, S. (2007). Relationships between housing and healthy aging in very old age. *The Gerontologist*, (47), 96-1007. doi: <https://doi.org/10.1093/geront/47.1.96>
- Pavot, W., & Diener, E. (1993). Review of the Satisfaction with Life Scale. *Psychological Assessment*, 5(2), 164-172. doi: <https://doi.org/10.1037/1040-3590.5.2.164>
- Pavot, W., & Diener, E. (2009). Review of the Satisfaction with Life Scale. In A. C. Michalos & E. Diener (Eds.), *Social Indicators Research Series. Assessing Well-Being* (pp. 101-117). Dordrecht: Springer Netherlands
- Pinel, E.C. (1999). Stigma Consciousness. The Psychological Legacy of Social Stereotypes. *Journal of Personality and Social Psychology*, 76(1), 114-128
- Radloff, L. S. (1977). The CES-D Scale: A self-report depression scale for research in the general population. *Journal of Applied Psychological Measurement*, 1, 385-401
- Raykov, T., & Marcoulides, G. A. (2011). *Introduction to psychometric theory*. New York, NY [et al:] Routledge
- Re, S. (2003). *Experience and expression of emotions in severe dementia*. Access. Dissertation, University of Heidelberg, Heidelberg 2002. *Studies in Gerontology: Vol. 5*. Hamburg: Kovač. URL: <https://www.socialnet.de/rezensionen/993.php> [last viewed on 14.11.23]
- Ryff, C. D. (1989). Happiness in everything, or is it? Explorations on the meaning of psychological well-being. *Journal of personality and social psychology*, 57, 1069-1081
- Ryff, C. D., & Keyes, C. L. M. (1995). The structure of psychological well-being revisited. *Journal of personality and social psychology*, 69(4), 719-727. doi: <https://doi.org/10.1037/0022-3514.69.4.719>
- Ryff, C. D., & Singer, B. H. (2008). Know Thyself and Become What You Are: A Eudaimonic Approach to Psychological Well-Being. *Journal of Happiness Studies*, 9(1), 13-39. doi: <https://doi.org/10.1007/s10902-006-9019-0>
- Scheibe, S., & Carstensen, L. L. (2010). Emotional aging: recent findings and future trends. *The journals of gerontology. Series B, Psychological sciences and social sciences*, 65B(2), 135-144. doi: <https://doi.org/10.1093/geronb/gbp132>
- Schindler, I. (2014). Relations of admiration and adoration with other emotions and well-being. *Psychology of Well-Being*, 4(1), 105. doi: <https://doi.org/10.1186/s13612-014-0014-7>
- Schumacher, J. (2003). SWLS - Satisfaction with Life Scale. In J. Schumacher, A.K laiberg & E. Braehler (Eds.), *Diagnostic procedures for quality of life and well-being* (pp. 305-309). Goettingen: Hogrefe
- Seligman, M. E. P. (2002). *Authentic happiness: Using the new positive psychology to realize your potential for lasting fulfillment*. New York: Free Press
- Sheik, J., & Yesavage, J. A. (1986). Geriatric Depression Scale: Recent evidence and development of a shorter version. In T. L. Birk (Ed.), *Clinical gerontology. A guide to assessment and intervention* (pp. 165-173). New York: Hawthorn Press
- Smith, J., Fleeson, W., Geiselman, B., Settersten, R., & Kunzmann, U. (1996). Well-being in old age: Predictions based on objective living conditions and subjective judgement. In K. U. Mayer & P. B. Baltes (Eds.), *The Berlin Ageing Study. Older age in an interdisciplinary perspective* (pp. 497-523). Berlin: Akademie Verlag
- Springer, K. W., & Hauser, R. M. (2006). An assessment of the construct validity of Ryff's Scales of Psychological Well-Being: Method, mode, and measurement effects. *Social Science Research*, 35(4), 1080-1102. doi: <https://doi.org/10.1016/j.ssresearch.2005.07>
- The WHOQOL Group. (1998). Development of the World Health Organisation WHOQOL-BREF quality of life assessment. *Psychological Medicine*, 28, 551-558
- Tilvis, R.S., Laitala, V., Routasal, o P., Strandberg, T.E. & Pitkala, K.H. (2012). Positive life orientation predicts good survival prognosis in old age. *Archives of Gerontology and Geriatrics*, 55(1), 133-137. doi: <https://doi.org/10.1016/j.archger.2011.06.030>

- van Dierendonck, D. (2004). The construct validity of Ryff's Scales of Psychological Well-being and its extension with spiritual well-being. *Personality and Individual Differences*, 36(3), 629-643. doi: [https://doi.org/10.1016/S0191-8869\(03\)00122-3](https://doi.org/10.1016/S0191-8869(03)00122-3)
- Veenhoven, R. (2000). The Four Qualities of Life: Ordering concepts and measures of the good life. *Journal of Happiness Studies*, 1, 1-39
- Vittersø, J. (2003). Flow versus life satisfaction: A projective use of cartoons to illustrate the difference between the evaluation approach and the intrinsic motivation approach to subjective quality of life. *Journal of Happiness Studies*, 4(2), 141-167. doi: <https://doi.org/10.1023/A:1024413112234>
- Vorauer, J.D., Hunter, A.J., Main, K.J. & Roy, S.A. (2000). Meta-Stereotype Activation: Evidence from Indirect Measures for Specific Evaluative Concerns Experienced by Members of Dominant Groups in Intergroup Interaction. *Journal of Personality and Social Psychology*, 78(4), 690-707
- Vorauer, J.D. & Kumhyr, S.M. (2001). Is This About You or Me? Self- Versus Other-Directed Judgments and Feelings in Response to Intergroup Interaction. *Personality and Social Psychology Bulletin*, 27(6), 706-719
- Vorauer, J.D., Main, K.J. & O'Connell, G.B. (1998). How Do Individuals Expect to Be Viewed by Members of Lower Status Groups? Content and Implications of Meta-Stereotypes. *Journal of Personality and Social Psychology*, 75(4), 917-937
- Wagner, M., Rietz, C., Kaspar, R. et al. (2018). Quality of life of the very old. Survey on quality of life and subjective wellbeing of the very old in North Rhine-Westphalia (NRW80+). *Journal of Gerontology and Geriatrics*, 51, 193-199
- Waterman, A. S. (1993). Two conceptions of happiness: Contrasts of personal expressiveness (eudaimonia) and hedonic enjoyment. *Journal of personality and social psychology*, 64(4), 678-691. doi: <https://doi.org/10.1037/0022-3514.64.4.678>
- Watson, D., & Clark, L. A. (1999). *THE PANAS-X Manual for the Positive and Negative Affect Schedule - Expanded Form*. University of Iowa
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of personality and social psychology*, 54, 1063-1070
- Watson, L. C., Lewis, C. L., Kistler, C. E., Amick, H. R., & Boustani, M. (2004). Can we trust depression screening instruments in healthy 'old-old' adults? *International Journal of Geriatric Psychiatry*, 19(3), 278-285. doi: <https://doi.org/10.1002/gps.10>
- Wettstein, M., Schilling, O. K., Reidick, O., & Wahl, H.-W. (2015). Four-year stability, change, and multidirectionality of well-being in very-old age. *Psychology and Aging*, 30(3), 500-516. doi: <https://doi.org/10.1037/pag0000037>
- Winkler, I., Matschinger, H., & Angermeyer, M. C. (2006). Der WHOQOL-OLD -- Ein Fragebogen zur interkulturellen Erfassung der Lebensqualität im Alter [The WHOQOL-OLD]. *Psychotherapy, Psychosomatics, Medical Psychology*, 56(2), 63-69. URL: <https://www.thieme-connect.de/products/ejournals/abstract/10.1055/s-2005-915334?device=mobile&lang=de> [last viewed on 14/11/2013]
- Wolff, J. K., Tesch-Römer, C. (2017). Happiness into old age: Life satisfaction and depressive symptoms in the second half of life. In: K. Mahne, J. K. Wolff, J. Simonson, & C. Tesch-Römer (2017). *Ageing in transition*. Wiesbaden: Springer VS
- Yesavage, JA, (1983). Development and validation of a geriatric depression screening scale: A preliminary report. *Journal of Psychiatric Research*, 17, 37-49
- Zander, B., & Cierpka, M. (2008). Initial contact and preparation of the initial interview. In M. Cierpka (Ed.), *Handbuch der Familiendiagnostik* (3rd ed., pp. 46-53). Berlin, Heidelberg: Springer

II. script for the formation of vorhersagedem, kogdiag, klassdem and proxykogklass

**Raw value word list 1st and 2nd pass.

missing values

```
dt1_1_c2 dt1_2_c2 dt1_3_c2 dt1_4_c2 dt1_5_c2 dt1_6_c2 dt1_7_c2 dt1_8_c2 dt1_9_c2 dt1_10_c2 dt1_11_c2
dt2_1_c2 dt2_2_c2 dt2_3_c2 dt2_4_c2 dt2_5_c2
dt2_6_c2 dt2_7_c2 dt2_8_c2 dt2_9_c2 dt2_10_c2 dt2_11_c2 dt4_c2 dt5_1_1_c2 dt5_1_2_c2 dt5_2_1_c2
dt5_2_2_c2
dt5_3_1_c2 dt5_3_2_c2 dt5_4_1_c2 dt5_4_2_c2 dt5_5_1_c2 dt5_5_2_c2 dt6_1_c2 dt6_2_c2 dt6_3_c2 dt6_4_c2
dt6_5_c2 dt6_6_c2 dt6_7_c2 dt6_8_c2
dt6_9_c2 dt6_10_c2 dt6_11_c2().
```

execute.

missing values

```
dt1_1_c2 dt1_2_c2 dt1_3_c2 dt1_4_c2 dt1_5_c2 dt1_6_c2 dt1_7_c2 dt1_8_c2 dt1_9_c2 dt1_10_c2
dt2_1_c2 dt2_2_c2 dt2_3_c2 dt2_4_c2 dt2_5_c2 dt2_6_c2 dt2_7_c2 dt2_8_c2 dt2_9_c2 dt2_10_c2 (-12 thru -1).
```

execute.

```
compute cog1 = sum.20(dt1_1_c2, dt1_2_c2, dt1_3_c2, dt1_4_c2, dt1_5_c2, dt1_6_c2, dt1_7_c2, dt1_8_c2,
dt1_9_c2, dt1_10_c2, dt2_1_c2, dt2_2_c2, dt2_3_c2, dt2_4_c2, dt2_5_c2, dt2_6_c2, dt2_7_c2, dt2_8_c2,
dt2_9_c2, dt2_10_c2).
```

execute.

missing values kog1 (-12 thru -1).

Variable labels kog1 'DemTect: Word list (0-20, raw value)'.
execute.

freq cog1.

*Raw value supermarket task.

```
compute cog3 = dt4_c2.
```

execute.

missing values kog3 (-12 thru -1).

Variable labels kog3 'DemTect: semantic word fluency (0-open, raw value)'.
execute.

*Raw value numerical sequences.

```
compute dt5_1= max(dt5_1_1_c2, dt5_1_2_c2).
```

```
compute dt5_2= max(dt5_2_1_c2, dt5_2_2_c2).
```

```
compute dt5_3= max(dt5_3_1_c2, dt5_3_2_c2).
```

```
compute dt5_4= max(dt5_4_1_c2, dt5_4_2_c2).
```

```
compute dt5_5= max(dt5_5_1_c2, dt5_5_2_c2).
```

-execute.

```
recode dt5_1 (1=2).
recode dt5_2 (1=3).
recode dt5_3 (1=4).
recode dt5_4 (1=5).
recode dt5_5 (1=6).
execute.
```

```
compute kog4 = max(dt5_1, dt5_2, dt5_3, dt5_4, dt5_5).
execute.
```

```
delete variables dt5_1 dt5_2 dt5_3 dt5_4 dt5_5.
execute.
```

```
missing values kog4 (-12 thru -1).
Variable labels kog4 'DemTect: Number range backwards (0-6, raw value)'.
execute.
```

*Raw value 3rd pass Word list.

```
missing values dt6_1_c2 dt6_2_c2 dt6_3_c2 dt6_4_c2 dt6_5_c2 dt6_6_c2 dt6_7_c2 dt6_8_c2 dt6_9_c2 dt6_10_c2 (-
  12 thru -1).
compute kog5 = sum.10(dt6_1_c2, dt6_2_c2, dt6_3_c2, dt6_4_c2, dt6_5_c2, dt6_6_c2, dt6_7_c2, dt6_8_c2,
  dt6_9_c2, dt6_10_c2).
execute.
```

```
missing values kog5 (-12 thru -1).
if (dt6_11_c2 eq -1) kog5 = -1.
if (dt6_11_c2 eq -4) kog5 = -4.
Variable labels kog5 'DemTect: Delayed call-off (0-10, raw value)'.
execute.
```

*Missings for cog1-5.

```
if (dt1_c2 eq -1 or dt2_c2 eq -1 or
dt1_1_c2 eq -1 or dt1_2_c2 eq -1 or dt1_3_c2 eq -1 or dt1_4_c2 eq -1 or dt1_5_c2 eq -1 or dt1_6_c2 eq -1 or
  dt1_7_c2 eq -1 or dt1_8_c2 eq -1 or dt1_9_c2 eq -1 or dt1_10_c2 eq -1 or
dt2_1_c2 eq -1 or dt2_2_c2 eq -1 or dt2_3_c2 eq -1 or dt2_4_c2 eq -1 or dt2_5_c2 eq -1 or dt2_6_c2 eq -1 or
  dt2_7_c2 eq -1 or dt2_8_c2 eq -1 or dt2_9_c2 eq -1 or dt2_10_c2 eq -1)
cog1 eq -1.
if (dt1_c2 eq -2 or dt2_c2 eq -2 or
dt1_1_c2 eq -2 or dt1_2_c2 eq -2 or dt1_3_c2 eq -2 or dt1_4_c2 eq -2 or dt1_5_c2 eq -2 or dt1_6_c2 eq -2 or
  dt1_7_c2 eq -2 or dt1_8_c2 eq -2 or dt1_9_c2 eq -2 or dt1_10_c2 eq -2 or
dt2_1_c2 eq -2 or dt2_2_c2 eq -2 or dt2_3_c2 eq -2 or dt2_4_c2 eq -2 or dt2_5_c2 eq -2 or dt2_6_c2 eq -2 or
  dt2_7_c2 eq -2 or dt2_8_c2 eq -2 or dt2_9_c2 eq -2 or dt2_10_c2 eq -2)
cog1 eq -2.
```

```
freq cog1.
```

```
if dt4_intro_c2 eq -1 or dt4_c2 eq -1 cog3 = -1.  
if dt4_intro_c2 eq -2 or dt4_c2 eq -2 cog3 = -2.  
freq cog3.
```

```
if dt5_c2 eq -1 cog4 = -1.  
if dt5_1_1_c2 eq -2 cog4 = -2.  
freq cog4.
```

```
if dt6_c2 eq -1 or  
  dt6_1_c2 eq -1 or dt6_2_c2 eq -1 or dt6_3_c2 eq -1 or dt6_4_c2 eq -1 or dt6_5_c2 eq -1 or dt6_6_c2 eq -1 or  
  dt6_7_c2 eq -1 or dt6_8_c2 eq -1 or dt6_9_c2 eq -1 or dt6_10_c2 eq -1  
cog5 eq -1.  
if dt6_c2 eq -2 or  
  dt6_1_c2 eq -2 or dt6_2_c2 eq -2 or dt6_3_c2 eq -2 or dt6_4_c2 eq -2 or dt6_5_c2 eq -2 or dt6_6_c2 eq -2 or  
  dt6_7_c2 eq -2 or dt6_8_c2 eq -2 or dt6_9_c2 eq -2 or dt6_10_c2 eq -2  
cog5 eq -2.  
freq cog5.
```

```
do if interviewee_c2 eq 2.  
compute cog1 = -3.  
compute cog3 = -3.  
compute cog4 = -3.  
compute cog5 = -3.  
end if.  
execute.
```

```
MISSING VALUES interviewee_c2().
```

```
do if interviewee_c2 eq -4.  
compute cog1 = -4.  
compute cog3 = -4.  
compute cog4 = -4.  
compute cog5 = -4.  
end if.  
execute.
```

```
freq cog1 cog3 cog4 cog5.
```

```
*****
```

```
*Calculate the total value.
```

```
compute predictiondem = 20.133 - cog1*1.035-cog3*0.381-cog4*1.98-cog5*1.346.  
execute.  
compute klassdem eq -99.
```



```
if predictiondem le -9.4765 classdem = 0.
```

```
if predictiondem gt -9.4765 and predictiondem le -2.232 classdem eq 1.
```

```
if predictiondem gt -2.232 classdem = 2.
```

```
execute.
```

```
freq predictiondem.
```

```
freq class dem.
```

```
freq kogstat_c2.
```

```
compute proxykogklass = -99.
```

```
if kogstat_c2 eq 1 proxykogklass = 0.
```

```
if kogstat_c2 eq 2 proxykogklass = 1.
```

```
if kogstat_c2 eq 3 proxykogklass = 1.
```

```
if kogstat_c2 eq 4 proxykogklass = 2.
```

```
if kogstat_c2 eq 5 proxykogklass = 2.
```

```
if kogstat_c2 eq 6 proxykogklass = 2.
```

```
if kogstat_c2 eq 7 proxykogklass = 2.
```

```
execute.
```

```
compute kogdiag = -99.
```

```
compute kogdiag = max (proxykogklass, klassdem).
```

```
missing values kogdiag (-99 thru -1).
```

```
freq kogdiag.
```

```
missing values dt1_c2 dt2_c2 dt4_intro_c2 dt5_c2 dt6_c2 kogstat_c2 interviewee_c2 ().
```

```
do if interviewee_c2 eq 1 and (dt1_c2 eq -2 or dt2_c2 eq -2 or dt4_intro_c2 eq -2 or dt4_c2 eq -2 or dt5_c2 eq -2 or  
    (dt5_c2 eq 1 and dt5_1_1_c2 eq -1 and dt5_1_2_c2 eq -1) or dt6_c2 eq -2).
```

```
compute klassdem = -2.
```

```
compute kogdiag = -2.
```

```
compute proxykogklass = -3.
```

```
else if interviewee_c2 eq 1 and (dt1_c2 eq -1 or dt2_c2 eq -1 or dt4_intro_c2 eq -1 or dt4_c2 eq -1 or dt5_c2 eq -1 or  
    (dt5_c2 eq 1 and dt5_1_1_c2 eq -1 and dt5_1_2_c2 eq -1) or dt6_c2 eq -1).
```

```
compute klassdem = -1.
```

```
compute kogdiag = -1.
```

```
compute proxykogklass = -3.
```

```
else if interviewee_c2 eq 2 and kogstat_c2 eq -1.
```

```
compute proxykogklass = kogstat_c2.
```

```
compute kogdiag = -11.
```

```
compute klassdem = -3.
```

```
else if interviewee_c2 eq 2 and kogstat_c2 eq -2.
```

```
compute proxykogklass = kogstat_c2.
```

```
compute kogdiag = -12.
```

```
compute klassdem = -3.
```

D80+ Documentation of Instruments and Variables

else if interviewee_c2 eq -4.

compute proxykogklass = -4.

compute klassdem = -4.

compute kogdiag = -4.

else if interviewee_c2 eq 1.

compute proxykogklass = -3.

else if interviewee_c2 eq 2.

compute klassdem = -3.

end if.

execute.

value labels kogdiag

-12 'Proxy cannot perform estimation (don't know)'

-11 'Proxy denied'

-4 'Module CATI-2 not carried out'

-2 'ZP does not know in subtask of DemTect'

-1 'ZP refuses partial task of DemTect'

0 'cognitively normal ageing'

1 'Mild cognitive impairment'

2 'Dementia'.

value labels class dem

-4 'Module CATI-2 not carried out'

-3 'does not apply - proxy interview'

-2 'ZP does not know in subtask of DemTect'

-1 'ZP refuses partial task of DemTect'

0 'cognitively normal ageing'

1 'Mild cognitive impairment'

2 'Dementia'.

value labels proxykogklass

-4 'Module CATI-2 not carried out'

-3 'does not apply - ZP interview'

-2 'Proxy does not know in'

-1 'Proxy denied'

0 'cognitively normal ageing'

1 'Mild cognitive impairment'

2 'Dementia'.

missing values kogdiag klassdem proxykogklass kog1 kog3 kog4 kog5 interviewee_c2 (-12 thru -1).

freq kogdiag klassdem proxykogklass .

freq kogstat_c2.

weight off.

alter type kogdiag klassdem proxykogklass kog1 kog3 kog4 kog5 (f8.0).

execute.

variable labels kogdiag 'Diagnostic categories for cognition from proxy and target person interview'.

variable labels proxykogklass 'Diagnostic categories for cognition from proxy interview'.

variable labels classem 'Diagnostic categories for cognition from target person interview'.

variable labels predicting the 'Global indicator pr for cognition created from the subtests of the DemTect'.

execute.