

COVIDCNS Demographic Memory

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All arguments should be in their own row, including the first argument Closing bracket should have its own row Functions with a single argument can have this on the same line One argument can be hashed out per line for debugging errors

Chunk names should be all lower case except: Study name (COVIDCNS) all caps Capitalised first word

Ensure that you have deleted/untracked .DS_Store before your initial commit Ensure that your .gitignore contains "**/.DS_Store" before your initial commit

Configure global options for all chunks

Clear global environment prior to initiation

```
remove(list = ls())
```

Add the add_numeric function - used to convert character variables into numeric variables Add the remove_duplicates function - used to deduplicate and remove NAs from IDs Add the sumscores function - used to generate sumscores Add the package_check function - used to install and load dependencies Add the imp_check function - used to check variables for implausible values

```
source(file = "../functions/add_numeric_1.R")
source(file = "../functions/remove_duplicates.R")
source(file = "../functions/sumscores.R")
source(file = "../functions/package_check.R")
source(file = "../functions/imp_check.R")
```

Use package_check to install and load dependencies Load tidyverse last

```
packages <- c("summarytools", "sjlabelled", "Amelia", "gtsummary", "tidyverse")
package_check(packages)
```

Loading required package: summarytools

Warning: package 'summarytools' was built under R version 4.0.5

```
Registered S3 method overwritten by 'pryr':
  method      from
  print.bytes Rcpp
```

Loading required package: sjlabelled

Attaching package: 'sjlabelled'

The following object is masked from 'package:summarytools':

unlabel

Loading required package: Amelia

Warning: package 'Amelia' was built under R version 4.0.5

Loading required package: Rcpp

Warning: package 'Rcpp' was built under R version 4.0.5

##

Amelia II: Multiple Imputation

(Version 1.8.0, built: 2021-05-26)

Copyright (C) 2005-2022 James Honaker, Gary King and Matthew Blackwell

Refer to <http://gking.harvard.edu/amelia/> for more information

##

Loading required package: gtsummary

Warning: package 'gtsummary' was built under R version 4.0.5

Loading required package: tidyverse

Warning: package 'tidyverse' was built under R version 4.0.5

-- Attaching packages ----- tidyverse 1.3.1 --

v ggplot2 3.3.5	v purrr 0.3.4
v tibble 3.1.6	v dplyr 1.0.7
v tidyr 1.1.4	v stringr 1.4.0
v readr 2.0.2	v forcats 0.5.1

Warning: package 'ggplot2' was built under R version 4.0.5

Warning: package 'tibble' was built under R version 4.0.5

Warning: package 'tidyr' was built under R version 4.0.5

Warning: package 'readr' was built under R version 4.0.5

Warning: package 'purrr' was built under R version 4.0.5

Warning: package 'dplyr' was built under R version 4.0.5

Warning: package 'stringr' was built under R version 4.0.5

Warning: package 'forcats' was built under R version 4.0.5

```
-- Conflicts ----- tidyverse_conflicts() --
x forcats::as_factor() masks sjlabelled::as_factor()
x dplyr::as_label()     masks ggplot2::as_label(), sjlabelled::as_label()
x dplyr::filter()       masks stats::filter()
x dplyr::lag()           masks stats::lag()
x tibble::view()         masks summarytools::view()
```

Read in file with path to ilovedata channel on Teams Ensure that your credentials directory is correctly located

```
source(file = "../credentials/paths.R")
```

Read in the data: COVIDCNS Demographic Memory

Change this heading to the name of your questionnaire/demographic Load COVIDCNS data

Do not change variable names from the NLP names that are produced by the extraction EXCEPT in exceptional circumstances Document ANY changes to variable names in the issues spreadsheet “<https://docs.google.com/spreadsheets/d/1a2gL8c0eH2pZXNTbnPzkDYQGeeVXbLKU8BUpYM0moe8/edit?usp=sharing>”

- For variable names, use ONLY ‘questionnaire.variable_name’
- For dataset, only use snake_case naming
- When using pipe operator ‘%>%’, each function should begin on a new line
- Do not add empty lines at the beginning or end of a chunk
- Use only tidyverse functions wherever possible
- When naming chunks, begin with the name of the dataset (COVIDCNS)

COVIDCNS data

```
covidcns_dat <- read_rds(
  file = paste0(ilovedata, "/data_raw/latest_freeze/covid_cns/baseline/dem_covid_cns.rds")
)

# Check variable names in dataframe
covidcns_dat %>%
  colnames()
```

```
[1] "externalDataReference"
[2] "startDate"
[3] "endDate"
[4] "dem.day"
[5] "dem.month"
[6] "dem.year"
[7] "dem.required_question_eligibility_criteria.txt"
[8] "dem.what_gender_do_you_identify_with"
[9] "dem.what_gender_do_you_identify_with.txt"
[10] "dem.do_you_consider_yourself_to_be_transgender"
[11] "dem.have_you_ever_been_pregnant"
[12] "dem.what_is_your_sexual_orientation"
```

[13] "dem.what_is_your_sexual_orientation.txt"
 [14] "dem.what_is_your_current_maritalrelationship_status"
 [15] "dem.what_is_your_current_maritalrelationship_status.txt"
 [16] "dem.how_would_you_describe_your_vision"
 [17] "dem.how_would_you_describe_your_hearing"
 [18] "dem.which_hand_do_you_usually_write_with"
 [19] "dem.college_or_university_degree"
 [20] "dem.a_levelsas_levels_or_equivalent"
 [21] "dem.o_levelsgcses_or_equivalent"
 [22] "dem.cses_or_equivalent"
 [23] "dem.nvq_or_hnd_or_hnc_or_equivalent"
 [24] "dem.other_professional_qualifications_"
 [25] "dem.other_professional_qualifications_text.txt"
 [26] "dem.none_of_the_above"
 [27] "dem.prefer_not_to_say"
 [28] "dem.british_mixed_british"
 [29] "dem.irish"
 [30] "dem.northern_irish"
 [31] "dem.any_other_white_background"
 [32] "dem.white_and_black_caribbean"
 [33] "dem.white_and_black_africa"
 [34] "dem.white_and_asian"
 [35] "dem.any_other_mixed_background"
 [36] "dem.indian_or_british_indian"
 [37] "dem.pakistani_or_british_pakistani"
 [38] "dem.bangladeshi_or_british_bangladeshi"
 [39] "dem.any_other_asian_background"
 [40] "dem.caribbean"
 [41] "dem.african"
 [42] "dem.any_other_black_background"
 [43] "dem.chinese"
 [44] "dem.any_other_ethnic_group"
 [45] "dem.other"
 [46] "dem.othertext.txt"
 [47] "dem.english"
 [48] "dem.scottish"
 [49] "dem.welsh"
 [50] "dem.cornish"
 [51] "dem.cypriot_"
 [52] "dem.greek"
 [53] "dem.greek_cypriot"
 [54] "dem.italian"
 [55] "dem.irish_traveller"
 [56] "dem.traveller"
 [57] "dem.gypsyromany"
 [58] "dem.polish"
 [59] "dem.republics_made_ussr"
 [60] "dem.kosovan"
 [61] "dem.albanian"
 [62] "dem.bosnian"
 [63] "dem.croatian"
 [64] "dem.serbian"
 [65] "dem.republics_made_yugoslavia"
 [66] "dem.mixed_white"

[67] "dem.other_white_european_european_unspecified_european_mix"
 [68] "dem.black_and_asian"
 [69] "dem.black_and_chinese"
 [70] "dem.black_and_white"
 [71] "dem.chinese_and_white"
 [72] "dem.asian_and_chinese"
 [73] "dem.other_mixed_mixed_unspecified"
 [74] "dem.other_mixed_mixed_unspecifiedtext.txt"
 [75] "dem.mixed_asian"
 [76] "dem.punjabi"
 [77] "dem.kashmiri"
 [78] "dem.east_african_asian"
 [79] "dem.tamil"
 [80] "dem.sinhalese"
 [81] "dem.british_asian"
 [82] "dem.caribbean_asian"
 [83] "dem.other_asian_asian_unspecified"
 [84] "dem.other_asian_asian_unspecifiedtext.txt"
 [85] "dem.somali"
 [86] "dem.mixed_black"
 [87] "dem.nigerian"
 [88] "dem.black_british"
 [89] "dem.other_black_black_unspecified"
 [90] "dem.other_black_black_unspecifiedtext.txt"
 [91] "dem.is_english_your_first_language"
 [92] "dem.what_is_your_first_language"
 [93] "dem.what_is_your_first_language.txt"
 [94] "dem.please_select_your_preferred_units_of_measurement"
 [95] "dem.what_is_your_current_height"
 [96] "dem.what_is_your_current_height.1"
 [97] "dem.what_is_your_current_height.2"
 [98] "dem.pregnant_weigh_weight_provide"
 [99] "dem.pregnant_weigh_weight_provide.1"
 [100] "dem.pregnant_weigh_weight_provide.2"
 [101] "dem.pregnant_weighed_weight_provide"
 [102] "dem.pregnant_weighed_weight_provide.1"
 [103] "dem.pregnant_weighed_weight_provide.2"
 [104] "dem.highest_weight"
 [105] "dem.stopped_growing_adult_height"
 [106] "dem.stopped_growing_adult_height.1"
 [107] "dem.stopped_growing_adult_height.2"
 [108] "dem.body_suffered_injury_involving"
 [109] "dem.middle_wake_night_covid19"
 [110] "dem.middle_wake_night_covid19.1"
 [111] "dem.medical_history_birth_relevant"
 [112] "dem.affects_concerned_live_memory"
 [113] "dem.memory_problem_worse_year"
 [114] "dem.based_confirm_living_question"
 [115] "dem.diagnosed_required_question_covid19"
 [116] "dem.long_ago_diagnosed_required"
 [117] "dem.long_ago_diagnosed_required.1"
 [118] "dem.diagnosed_covid19_experienced_similar"
 [119] "dem.quality_rate_life"
 [120] "dem.energy_everyday_life"

```

[121] "dem.opportunity_leisure_activities"
[122] "dem.money_day"
[123] "dem.middle_wake_night_trouble"
[124] "dem.affects_concerned_live_memory.1"
[125] "dem.affects_concerned_live_memory.2"
[126] "dem.has_your_memory_got_progressively_worse"
[127] "dem.vietnamese"
[128] "dem.filipino"
[129] "dem.malaysian"
[130] "dem.any_other_group"
[131] "dem.any_other_grouptext.txt"
[132] "dem.lowest_weight_adult_height"
[133] "dem.happy_general_health"

```

```

# Inspect dimensions of dataframe
covidcns_dat %>%
  dim()

```

```
[1] 235 133
```

Specify columns to be excluded from add_numeric function Continuous variables should be excluded, as they are already numeric

```

exclude_cols_numeric <- c(
  "ID",
  "sample",
  "startDate",
  "endDate"
)

```

Select & rename relevant columns

```

covidcns_dat_id <- covidcns_dat %>% #new dataset with ID
  drop_na(externalDataReference) %>% # Drop participants with no ID
  distinct(externalDataReference, .keep_all = TRUE) %>% # Changed to distinct due to NA coercion
  add_column(sample = "COVIDCNS",
             .after = "externalDataReference") %>% # Create new sample column
  select(
    ID = externalDataReference, # ID
    sample,
    startDate,
    endDate,
    dem.affects_concerned_live_memory,
    dem.memory_problem_worse_year,
    dem.affects_concerned_live_memory.1,
    dem.affects_concerned_live_memory.2,
    dem.has_your_memory_got_progressively_worse
  ) %>%
  add_numeric_1(exclude = exclude_cols_numeric)

```

New names:

```

* endDate -> endDate...4
* endDate -> endDate...10

```

```
# Inspect colnames
covidcns_dat_id %>%
  colnames()
```

```
[1] "ID"
[2] "sample"
[3] "startDate"
[4] "endDate...4"
[5] "dem.affects_concerned_live_memory"
[6] "dem.memory_problem_worse_year"
[7] "dem.affects_concerned_live_memory.1"
[8] "dem.affects_concerned_live_memory.2"
[9] "dem.has_your_memory_got_progressively_worse"
[10] "endDate...10"
[11] "dem.affects_concerned_live_memory_numeric"
[12] "dem.memory_problem_worse_year_numeric"
[13] "dem.affects_concerned_live_memory.1_numeric"
[14] "dem.affects_concerned_live_memory.2_numeric"
[15] "dem.has_your_memory_got_progressively_worse_numeric"
```

Look at number of people excluded The number of people to be excluded should be negative

```
# Inspect dimensions of new data set
covidcns_dat_id %>%
  dim()
```

```
[1] 228 15
```

```
# Inspect number of rows dropped
covidcns_excluded <- dim(covidcns_dat_id)[1] - dim(covidcns_dat)[1]
covidcns_excluded
```

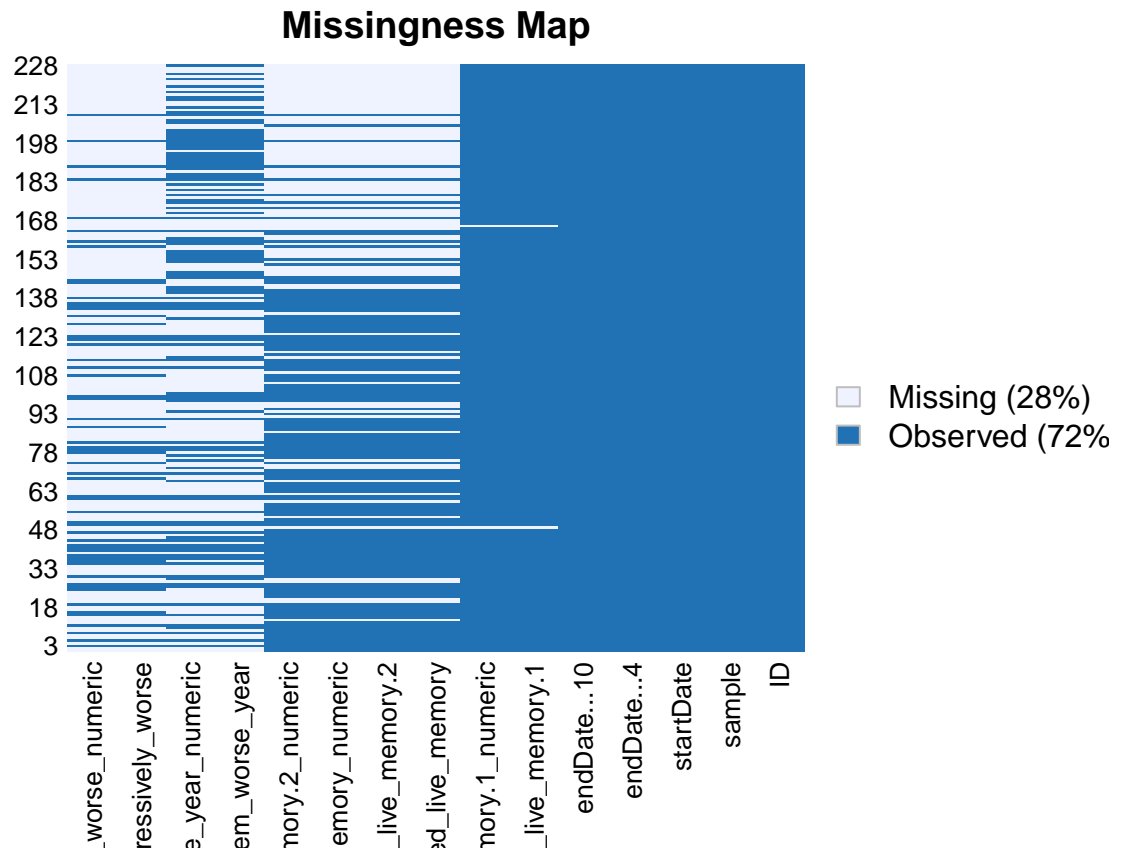
```
[1] -7
```

Check missingness by missmap

```
covidcns_miss_map <- covidcns_dat_id %>%
  missmap()
```

```
Warning: Unknown or uninitialised column: 'arguments'.
Unknown or uninitialised column: 'arguments'.
```

```
Warning: Unknown or uninitialised column: 'imputations'.
```



```
covidcns_miss_map
```

NULL

Create dat as copy of covid_cns_dat_id for brevity This step gives you a 'reset' point: if your variable recoding screws up, re-run this chunk to give you a fresh 'dat' dataframe

```
dat <- covidcns_dat_id
```

```
# Check
```

```
dat %>% glimpse()
```

```

Rows: 228
Columns: 15
$ ID                                     <chr> "\nCNS01004", "CNS~
$ sample                               <chr> "COVIDCNS", "COVID~
$ startDate                             <dtm> 2021-03-25 12:59:~
$ endDate...4                           <dtm> 2021-03-25 14:24:~
$ dem.affects_concerned_live_memory     <fct> NA, NA, NA, NA, NA~
$ dem.memory_problem_worse_year         <fct> Yes, NA, NA, Yes, ~
$ dem.affects_concerned_live_memory.1   <fct> Yes, No, No, Yes, ~
$ dem.affects_concerned_live_memory.2   <fct> NA, NA, NA, NA, NA~
$ dem.has_your_memory_got_progressively_worse <fct> NA, NA, NA, NA, NA~
$ endDate...10                           <dtm> 2021-03-25 14:24:~
$ dem.affects_concerned_live_memory_numeric <dbl> NA, NA, NA, NA, NA~

```



```
$ dem.memory_problem_worse_year_numeric <dbl> 1, NA, NA, 1, NA, ~
$ dem.affects_concerned_live_memory.1_numeric <dbl> 1, 2, 2, 1, 2, 1, ~
$ dem.affects_concerned_live_memory.2_numeric <dbl> NA, NA, NA, NA, NA~
$ dem.has_your_memory_got_progressively_worse_numeric <dbl> NA, NA, NA, NA, NA~
```

Recode Non-answer values to 3 digits -555 'Not applicable' response from participant -777 Seen but not answered -888 Don't know -999 Prefer not to answer/Prefer not to say NA Were not shown the question (genuinely missing value) When we code someone as being 'not applicable' by deduction, we use `NA_real_`

```
dat <- dat %>%
  mutate(across(ends_with("numeric"),
    ~case_when(
      . == -55 ~ -555,
      . == -77 ~ -777,
      . == -88 ~ -888,
      . == -99 ~ -999,
      TRUE ~ .)))
```

Create list of all unique values

```
ulst <- sapply(dat, unique)
```

Inspect variables

```
dat %>%
  tbl_summary(include = c(dem.affects_concerned_live_memory,
    dem.memory_problem_worse_year,
    dem.affects_concerned_live_memory.1,
    dem.affects_concerned_live_memory.2,
    dem.has_your_memory_got_progressively_worse,
    dem.affects_concerned_live_memory_numeric,
    dem.memory_problem_worse_year_numeric,
    dem.affects_concerned_live_memory.1_numeric,
    dem.affects_concerned_live_memory.2_numeric,
    dem.has_your_memory_got_progressively_worse_numeric),
    missing_text = "Missing")
```

Table printed with 'knitr::kable()', not {gt}. Learn why at <https://www.danielsjoberg.com/gtsummary/articles/rmarkdown.html>
To suppress this message, include 'message = FALSE' in code chunk header.

Characteristic	N =
	228
After you had COVID-19, were you concerned about your memory because it affects how you work or the way you live from day to day?	
Prefer not to say	2 (1.5%)
Seen but not answered	6 (4.4%)
No	69 (51%)
Yes	58 (43%)
Missing	93

Characteristic	N = 228
Has your memory problem got worse in the last year?	
Prefer not to say	1 (1.0%)
Don't know	4 (3.9%)
Seen but not answered	0 (0%)
No	8 (7.8%)
Yes	90 (87%)
Missing	125
Are you concerned about your memory, because it affects how you work or the way you live from day to day?	
Prefer not to say	2 (0.9%)
Seen but not answered	2 (0.9%)
Yes	103 (46%)
No	119 (53%)
Missing	2
Before you had COVID-19, were you concerned about your memory because it affects how you work or the way you live from day to day?	
Prefer not to say	1 (0.7%)
Seen but not answered	7 (5.2%)
No	116 (86%)
Yes	11 (8.1%)
Missing	93
Has your memory got progressively worse?	
Prefer not to say	1 (1.7%)
Seen but not answered	1 (1.7%)
No	25 (43%)
Yes	31 (53%)
Missing	170
dem.affects_concerned_live_memory_numeric	
-999	2 (1.5%)
-777	6 (4.4%)
0	69 (51%)
1	58 (43%)
Missing	93
dem.memory_problem_worse_year_numeric	
-999	1 (1.0%)
-888	4 (3.9%)
0	8 (7.8%)
1	90 (87%)
Missing	125
dem.affects_concerned_live_memory.1_numeric	
-999	2 (0.9%)
-777	2 (0.9%)
1	103 (46%)
2	119 (53%)
Missing	2

Characteristic	N =
	228
dem.affects_concerned_live_memory.2_numeric	
-999	1 (0.7%)
-777	7 (5.2%)
0	116
	(86%)
1	11
	(8.1%)
Missing	93
dem.has_your_memory_got_progressively_worse_numeric	
-999	1 (1.7%)
-777	1 (1.7%)
0	25 (43%)
1	31 (53%)
Missing	170

Cleaning Categorical variables

Name your vectors in line with the chunks below Number the vectors or name them intuitively if you have multiple vectors Vectors of potential values should only contain possible values (exclude nonanswer values as appropriate)

Create vector of categorical values for variables

```
values_categorical <- c(
  "Yes",
  "No",
  "Don't know",
  "Prefer not to say",
  "Seen but not answered",
  NA
)
values_categorical
```

```
[1] "Yes"           "No"           "Don't know"
[4] "Prefer not to say" "Seen but not answered" NA
```

Create vector of variable names for categorical variables

```
variables_categorical <-
  c(
    "dem.affects_concerned_live_memory",
    "dem.memory_problem_worse_year",
    "dem.affects_concerned_live_memory.1",
    "dem.affects_concerned_live_memory.2",
    "dem.has_your_memory_got_progressively_worse"
  )
variables_categorical
```

```
[1] "dem.affects_concerned_live_memory"
```

```
[2] "dem.memory_problem_worse_year"
[3] "dem.affects_concerned_live_memory.1"
[4] "dem.affects_concerned_live_memory.2"
[5] "dem.has_your_memory_got_progressively_worse"
```

Use `imp_check` function to find if any implausible values and obtain summary table of variables

```
imp_check(data = dat,
          variables = variables_categorical,
          values = values_categorical)
```

```
[1] "There are no implausible values in the dataset. Can leave these variables as they are."
```

Table printed with '`knitr::kable()`', not '`{gt}`'. Learn why at <https://www.danieldsjoberg.com/gtsummary/articles/rmarkdown.html>
To suppress this message, include '`message = FALSE`' in code chunk header.

Characteristic	N = 228
After you had COVID-19, were you concerned about your memory because it affects how you work or the way you live from day to day?	
Prefer not to say	2 (1.5%)
Seen but not answered	6 (4.4%)
No	69 (51%)
Yes	58 (43%)
Missing	93
Has your memory problem got worse in the last year?	
Prefer not to say	1 (1.0%)
Don't know	4 (3.9%)
Seen but not answered	0 (0%)
No	8 (7.8%)
Yes	90 (87%)
Missing	125
Are you concerned about your memory, because it affects how you work or the way you live from day to day?	
Prefer not to say	2 (0.9%)
Seen but not answered	2 (0.9%)
Yes	103 (46%)
No	119 (53%)
Missing	2
Before you had COVID-19, were you concerned about your memory because it affects how you work or the way you live from day to day?	
Prefer not to say	1 (0.7%)
Seen but not answered	7 (5.2%)
No	116 (86%)
Yes	11 (8.1%)
Missing	93

Characteristic	N =
	228
Has your memory got progressively worse?	
Prefer not to say	1 (1.7%)
Seen but not answered	1 (1.7%)
No	25 (43%)
Yes	31 (53%)
Missing	170

Numeric variables

Name your vectors in line with the chunks below Number the vectors or name them intuitively if you have multiple vectors Vectors of potential values should only contain possible values (exclude nonanswer values as appropriate)

Create vector of numeric values

```
values_numeric <- c(
  0,
  1,
  -777,
  -888,
  -999,
  NA
)
values_numeric
```

```
[1] 0 1 -777 -888 -999 NA
```

Create vector of variable names for numeric variables

```
variables_numeric <-
  c(
    "dem.affects_concerned_live_memory_numeric",
    "dem.memory_problem_worse_year_numeric",
    "dem.affects_concerned_live_memory.1_numeric",
    "dem.affects_concerned_live_memory.2_numeric",
    "dem.has_your_memory_got_progressively_worse_numeric"
  )
variables_numeric
```

```
[1] "dem.affects_concerned_live_memory_numeric"
[2] "dem.memory_problem_worse_year_numeric"
[3] "dem.affects_concerned_live_memory.1_numeric"
[4] "dem.affects_concerned_live_memory.2_numeric"
[5] "dem.has_your_memory_got_progressively_worse_numeric"
```

Use `imp_check` function to find if any implausible values and obtain summary table of variables

```
imp_check(data = dat,
          variables = variables_numeric,
          values = values_numeric)
```

[1] "The number of implausible values in the dataset is 119. Please investigate."

Table printed with 'knitr::kable()', not {gt}. Learn why at <https://www.danielsjoberg.com/gtsummary/articles/rmarkdown.html>
To suppress this message, include 'message = FALSE' in code chunk header.

Characteristic	N = 228
dem.affects_concerned_live_memory_numeric	
-999	2 (1.5%)
-777	6 (4.4%)
0	69 (51%)
1	58 (43%)
Missing	93
dem.memory_problem_worse_year_numeric	
-999	1 (1.0%)
-888	4 (3.9%)
0	8 (7.8%)
1	90 (87%)
Missing	125
dem.affects_concerned_live_memory.1_numeric	
-999	2 (0.9%)
-777	2 (0.9%)
1	103 (46%)
2	119 (53%)
Missing	2
dem.affects_concerned_live_memory.2_numeric	
-999	1 (0.7%)
-777	7 (5.2%)
0	116 (86%)
1	11 (8.1%)
Missing	93
dem.has_your_memory_got_progressively_worse_numeric	
-999	1 (1.7%)
-777	1 (1.7%)
0	25 (43%)
1	31 (53%)
Missing	170

Implausible values due to 2 values in affects concerned live memory 1 View categorical and numeric 1 = Yes, 2 = No

```
dat %>%
  select(
    dem.affects_concerned_live_memory.1,
    dem.affects_concerned_live_memory.1_numeric
  )
```

```
# A tibble: 228 x 2
  dem.affects_concerned_live_memory.1 dem.affects_concerned_live_memory.1_nume~
  <fct>                                <dbl>
1 Yes                                  1
2 No                                   2
3 No                                   2
4 Yes                                  1
5 No                                   2
6 Yes                                  1
7 Seen but not answered               -777
8 No                                   2
9 Yes                                  1
10 No                                  2
# ... with 218 more rows
```

Recode affects concerned live memory 1 variable

```
dat <- dat %>%
  mutate(across(dem.affects_concerned_live_memory.1_numeric,
    ~case_when(
      . == 2 ~ 0,
      TRUE ~ .)))
```

Recheck variable coding

```
imp_check(data = dat,
  variables = "dem.affects_concerned_live_memory.1_numeric",
  values = values_numeric)
```

```
[1] "There are no implausible values in the dataset. Can leave these variables as they are."
```

Table printed with 'knitr::kable()', not {gt}. Learn why at <https://www.danielsjoberg.com/gtsummary/articles/rmarkdown.html>
To suppress this message, include 'message = FALSE' in code chunk header.

Characteristic	N = 228
dem.affects_concerned_live_memory.1_numeric	
-999	2 (0.9%)
-777	2 (0.9%)
0	119 (53%)
1	103 (46%)
Missing	2

Inspect variables after cleaning

```
dat %>%
  tbl_summary(include = c(dem.affects_concerned_live_memory,
    dem.memory_problem_worse_year,
    dem.affects_concerned_live_memory.1,
    dem.affects_concerned_live_memory.2,
```

```

dem.has_your_memory_got_progressively_worse,
dem.affects_concerned_live_memory_numeric,
dem.memory_problem_worse_year_numeric,
dem.affects_concerned_live_memory.1_numeric,
dem.affects_concerned_live_memory.2_numeric,
dem.has_your_memory_got_progressively_worse_numeric),
missing_text = "Missing")

```

Table printed with 'knitr::kable()', not {gt}. Learn why at <https://www.danielsjoberg.com/gtsummary/articles/rmarkdown.html>
To suppress this message, include 'message = FALSE' in code chunk header.

Characteristic	N = 228
After you had COVID-19, were you concerned about your memory because it affects how you work or the way you live from day to day?	
Prefer not to say	2 (1.5%)
Seen but not answered	6 (4.4%)
No	69 (51%)
Yes	58 (43%)
Missing	93
Has your memory problem got worse in the last year?	
Prefer not to say	1 (1.0%)
Don't know	4 (3.9%)
Seen but not answered	0 (0%)
No	8 (7.8%)
Yes	90 (87%)
Missing	125
Are you concerned about your memory, because it affects how you work or the way you live from day to day?	
Prefer not to say	2 (0.9%)
Seen but not answered	2 (0.9%)
Yes	103 (46%)
No	119 (53%)
Missing	2
Before you had COVID-19, were you concerned about your memory because it affects how you work or the way you live from day to day?	
Prefer not to say	1 (0.7%)
Seen but not answered	7 (5.2%)
No	116 (86%)
Yes	11 (8.1%)
Missing	93
Has your memory got progressively worse?	
Prefer not to say	1 (1.7%)
Seen but not answered	1 (1.7%)
No	25 (43%)
Yes	31 (53%)
Missing	170

Characteristic	N =
	228
dem.affects_concerned_live_memory_numeric	
-999	2 (1.5%)
-777	6 (4.4%)
0	69 (51%)
1	58 (43%)
Missing	93
dem.memory_problem_worse_year_numeric	
-999	1 (1.0%)
-888	4 (3.9%)
0	8 (7.8%)
1	90 (87%)
Missing	125
dem.affects_concerned_live_memory.1_numeric	
-999	2 (0.9%)
-777	2 (0.9%)
0	119
	(53%)
1	103
	(46%)
Missing	2
dem.affects_concerned_live_memory.2_numeric	
-999	1 (0.7%)
-777	7 (5.2%)
0	116
	(86%)
1	11
	(8.1%)
Missing	93
dem.has_your_memory_got_progressively_worse_numeric	
-999	1 (1.7%)
-777	1 (1.7%)
0	25 (43%)
1	31 (53%)
Missing	170

Save cleaned data

Check colnames before exporting final dataset

```
colnames(dat)
```

```
[1] "ID"
[2] "sample"
[3] "startDate"
[4] "endDate...4"
[5] "dem.affects_concerned_live_memory"
[6] "dem.memory_problem_worse_year"
[7] "dem.affects_concerned_live_memory.1"
[8] "dem.affects_concerned_live_memory.2"
```

```
[9] "dem.has_your_memory_got_progressively_worse"
[10] "endDate...10"
[11] "dem.affects_concerned_live_memory_numeric"
[12] "dem.memory_problem_worse_year_numeric"
[13] "dem.affects_concerned_live_memory.1_numeric"
[14] "dem.affects_concerned_live_memory.2_numeric"
[15] "dem.has_your_memory_got_progressively_worse_numeric"
```

COVIDCNS

```
dat %>%
  saveRDS(
    file = paste0(ilovedata, "/data/latest_freeze/covidcns/dem_memory_covidcns_clean.rds")
  )
```