

Workbook

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The authors made the following contributions. Preston Lyons: Conceptualization, Writing - Original Draft Preparation, Writing - Working out of problems; Johannes Karl: Review and assistance of problems including R, RStudio, coding, computer and package issues..

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## Abstract

One or two sentences providing a **basic introduction** to the field, comprehensible to a scientist in any discipline.

Two to three sentences of **more detailed background**, comprehensible to scientists in related disciplines.

One sentence clearly stating the **general problem** being addressed by this particular study.

One sentence summarizing the main result (with the words “**here we show**” or their equivalent).

Two or three sentences explaining what the **main result** reveals in direct comparison to what was thought to be the case previously, or how the main result adds to previous knowledge.

One or two sentences to put the results into a more **general context**.

Two or three sentences to provide a **broader perspective**, readily comprehensible to a scientist in any discipline.

*Keywords:* keywords

Word count: X

## Workbook

## Methods

We report how we determined our sample size, all data exclusions (if any), all manipulations, and all measures in the study.

## Participants

## Material

## Procedure

## Data analysis

We used R (Version 4.0.4; R Core Team, 2021) and the R-packages *papaja* (Version 0.1.0.9997; Aust & Barth, 2020), and *tinylabels* (Version 0.2.0; Barth, 2021) for all our analyses.

## Import Data

Question 1 ## Integer

## # A tibble: 4,126 x 6

## HLTH.SleepHours Hours.Internet Hours.Exercise Hours.Work Hours.News

## <dbl> <dbl> <dbl> <dbl> <dbl>

## 1 6 10 14 14 4

## 2 6 5 24 0 4

## 3 6 14 7 35 5

## 4 4 15 10 65 4

## 5 7 2 5 60 1

```

54 ##      6              7              2              6              50              2
55 ##      7              6              4              1              41              0
56 ##      8              4              4              0              42              0
57 ##      9              7              10             1              0              8
58 ##     10              8              14             7              0              7
59 ## # ... with 4,116 more rows, and 1 more variable: HoursCharity <dbl>

60 ## tibble [4,126 x 68] (S3: tbl_df/tbl/data.frame)
61 ## $ Id                : num [1:4126] 1 1 2 2 3 3 4 4 5 5 ...
62 ## $ Wave               : Factor w/ 2 levels "2018","2019": 2 1 2 1 2 1 2 1 2 1 ...
63 ## $ years              : num [1:4126] 10.43 9.47 10.61 9.9 10.17 ...
64 ## $ Age                : num [1:4126] 47 46 47 46 53 52 60 59 84 84 ...
65 ## $ Male               : Factor w/ 2 levels "Male","Not_Male": 1 1 1 1 1 1 2 2 ...
66 ## $ Gender             : num [1:4126] 1 1 1 1 1 1 0 0 0 0 ...
67 ## $ Edu                : num [1:4126] 3 3 7 7 4 4 8 7 7 7 ...
68 ## $ Partner            : num [1:4126] 1 1 1 1 0 0 1 NA 0 0 ...
69 ## $ BornNZ             : num [1:4126] 1 1 1 1 1 1 1 1 1 1 ...
70 ## $ Employed           : num [1:4126] 1 0 1 1 1 1 1 NA 0 0 ...
71 ## $ BigDoms            : Factor w/ 5 levels "Buddhist","Christian",...: 4 4 4 4 ...
72 ## $ TSCORE             : num [1:4126] 3869 3520 3936 3677 3774 ...
73 ## $ GenCohort          : Factor w/ 5 levels "Gen Boomers: born >= 1946 & b.< ...
74 ## $ Religion.Church    : num [1:4126] 0 0 0 0 0 0 2 NA 0 0 ...
75 ## $ Religion.Believe.Cats : num [1:4126] 4 4 1 1 1 1 1 NA 3 1 ...
76 ## $ Relid             : num [1:4126] 0 0 0 0 0 0 7 7 2 2 ...
77 ## $ HLTH.Fatigue       : num [1:4126] 2 2 1 2 2 2 1 2 NA 1 ...
78 ## $ HLTH.SleepHours    : num [1:4126] 6 6 6 4 7 7 6 4 7 8 ...
79 ## $ HLTH.BMI           : num [1:4126] 23.1 23.1 35.1 13.1 34 ...
80 ## $ HLTH.Weight        : num [1:4126] 75 75 120 45 110 110 64 74 54.4 54.4 ...

```

```

81 ## $ HLTH.Height : num [1:4126] 1.8 1.8 1.85 1.85 1.8 1.8 1.58 1.58 1.6
82 ## $ HomeOwner : num [1:4126] NA 1 NA 0 NA 1 NA NA NA 0 ...
83 ## $ Pol.Orient : num [1:4126] 3 3 5 3 4 4 3 NA 4 4 ...
84 ## $ PATRIOT : num [1:4126] 4.5 5 6.5 7 4 4 5.5 4 6.5 6 ...
85 ## $ Env.SatNZEnvironment : num [1:4126] 7 4 7 7 7 7 4 3 7 8 ...
86 ## $ Env.MotorwaySpend : num [1:4126] 5 5 3 5 4 4 4 6 5 6 ...
87 ## $ Env.PubTransSubs : num [1:4126] 5 6 5 5 4 4 7 6 4 6 ...
88 ## $ Env.ClimateChgConcern : num [1:4126] 6 6 7 7 4 4 6 NA 4 2 ...
89 ## $ LIFEMEANING : num [1:4126] 5 6.5 5 4.5 5.5 5.5 7 7 5 6 ...
90 ## $ Hours.Internet : num [1:4126] 10 5 14 15 2 2 4 4 10 14 ...
91 ## $ Issue.GovtSurveillance : num [1:4126] 3 1 3 3 4 4 1 2 4 3 ...
92 ## $ Issue.RegulateAI : num [1:4126] NA 1 NA 4 NA 4 NA 3 NA 4 ...
93 ## $ Issue.IncomeRedistribution : num [1:4126] 3 2 4 4 2 4 7 6 4 3 ...
94 ## $ Hours.Exercise : num [1:4126] 14 24 7 10 5 6 1 0 1 7 ...
95 ## $ Hours.Work : num [1:4126] 14 0 35 65 60 50 41 42 0 0 ...
96 ## $ Hours.News : num [1:4126] 4 4 5 4 1 2 0 0 8 7 ...
97 ## $ CONSCIENTIOUSNESS : num [1:4126] 4.75 5.25 5.5 5.5 5 4.25 4.75 4.75 NA 5.
98 ## $ EXTRAVERSION : num [1:4126] 3.25 2.75 4.75 4 3.75 4.5 5.75 4.25 NA 4
99 ## $ AGREEABLENESS : num [1:4126] 4.5 5 5 6 5.75 5.25 5 5.25 NA 5 ...
100 ## $ OPENNESS : num [1:4126] 6.5 7 4.25 4.25 6 6 5.75 6.25 NA 5 ...
101 ## $ Religious : Factor w/ 2 levels "Not_Religious",...: 1 1 1 1 1 1 2
102 ## $ Spiritual.Identification : num [1:4126] NA 1 NA 5 NA 4 NA NA NA 2 ...
103 ## $ Believe.God : Factor w/ 2 levels "Believe God",...: 2 2 1 1 1 1 1 NA
104 ## $ Believe.Spirit : Factor w/ 2 levels "Believe Spirit",...: 2 2 1 1 1 1 1 NA
105 ## $ HoursCharity : num [1:4126] 2 0 0 2 0 0 0 4 0 0 ...
106 ## $ CharityDonate : num [1:4126] 180 80 300 100 4200 3500 400 350 50 100
107 ## $ Your.Personal.Relationships: num [1:4126] 7 6 2 2 8 8 10 10 9 9 ...

```

```

108 ## $ Your.Future.Security      : num [1:4126] 8 10 8 6 8 7 8 7 9 9 ...
109 ## $ Standard.Living            : num [1:4126] 7 8 8 6 8 8 10 10 9 9 ...
110 ## $ NZ.Economic.Situation       : num [1:4126] 7 4 2 6 5 6 7 5 7 8 ...
111 ## $ NZ.Social.Conditions        : num [1:4126] 7 7 2 6 5 5 2 0 9 7 ...
112 ## $ NZ.Business.Conditions     : num [1:4126] 7 8 2 6 5 5 6 5 9 7 ...
113 ## $ Emp.JobSecure               : num [1:4126] 7 NA 6 6 5 4 6 NA NA NA ...
114 ## $ Issue.Food.GMO              : num [1:4126] 1 2 5 5 4 4 7 7 1 4 ...
115 ## $ Env.SacMade                 : logi [1:4126] NA NA NA NA NA NA ...
116 ## $ KESSLER6sum                 : num [1:4126] 5 3 7 7 3 3 0 4 NA 2 ...
117 ## $ FeelHopeless                : Factor w/ 5 levels "None Of The Time",...: 1 1 2 1 1 1
118 ## $ FeelDepressed               : Factor w/ 5 levels "None Of The Time",...: 1 1 1 1 1 1
119 ## $ FeelRestless                : Factor w/ 5 levels "None Of The Time",...: 3 2 4 4 2 2
120 ## $ EverythingIsEffort          : Factor w/ 5 levels "None Of The Time",...: 2 2 2 3 2 2
121 ## $ FeelWorthless               : Factor w/ 5 levels "None Of The Time",...: 1 1 1 1 1 1
122 ## $ FeelNervous                 : Factor w/ 5 levels "None Of The Time",...: 3 2 3 3 2 2
123 ## $ date                        : Date[1:4126], format: "2020-02-02" "2019-02-18" ...
124 ## $ Hours.Internet_int          : int [1:4126] 10 5 14 15 2 2 4 4 10 14 ...
125 ## $ Hours.Exercise_int          : int [1:4126] 14 24 7 10 5 6 1 0 1 7 ...
126 ## $ Hours.Work_int              : int [1:4126] 14 0 35 65 60 50 41 42 0 0 ...
127 ## $ Hours.News_int              : int [1:4126] 4 4 5 4 1 2 0 0 8 7 ...
128 ## $ HoursCharity_int            : int [1:4126] 2 0 0 2 0 0 0 4 0 0 ...

129      Question 2a ## Scale, Center, Transform

130 ## # A tibble: 6 x 5
131 ##   Pol.Orient   Age Pol.Orient1[,1] Pol.Orient2[,1] Age1[,1]
132 ##   <dbl> <dbl>         <dbl>         <dbl>     <dbl>
133 ## 1         3    47         -0.420         -0.582     -0.357

```

```

134 ## 2          3    46          -0.420          -0.582    -0.457
135 ## 3          5    47           1.02           1.42     -0.357
136 ## 4          3    46          -0.420          -0.582    -0.457
137 ## 5          4    53           0.301           0.418     0.243
138 ## 6          4    52           0.301           0.418     0.143

```

```

139      Question 2b ## Data Wrangle

```

```

140 ##          V1
141 ## Min.      :-0.70917
142 ## 1st Qu.   :-0.46046
143 ## Median    :-0.21175
144 ## Mean      :-0.00897
145 ## 3rd Qu.   : 0.16131
146 ## Max.      : 9.23926
147 ## NA's      :57

```

```

148 ## 2018 2019

```

```

149 ## 2063    0

```

```

150 ## # A tibble: 2,063 x 3

```

```

151 ##      Hours.Exercise Wave Hours.Exercise44[,1]

```

```

152 ##           <dbl> <fct>           <dbl>

```

```

153 ## 1           24   2018           2.28

```

```

154 ## 2           10   2018           0.534

```

```

155 ## 3            6   2018           0.0370

```

```

156 ## 4            0   2018          -0.709

```

```

157 ## 5            7   2018           0.161

```

```

158 ## 6          1  2018          -0.585
159 ## 7          1  2018          -0.585
160 ## 8          3  2018          -0.336
161 ## 9          8  2018           0.286
162 ## 10         5.5 2018         -0.0252
163 ## # ... with 2,053 more rows

```

```

164      Question 3 ## Working with dates

```

```

165 ## # A tibble: 607 x 3
166 ##   day          n Year
167 ##   <date>      <int> <fct>
168 ## 1 2018-06-21   112 2018
169 ## 2 2018-06-22    93 2018
170 ## 3 2018-06-24    80 2018
171 ## 4 2018-06-20    67 2018
172 ## 5 2018-06-23    59 2018
173 ## 6 2018-06-26    58 2018
174 ## 7 2019-12-03    54 2019
175 ## 8 2018-06-25    52 2018
176 ## 9 2019-10-04    47 2019
177 ## 10 2019-12-02    46 2019
178 ## # ... with 597 more rows

```

```

179      Maximum for 2019: 54 Maximum for 2018: 112 based from the above summary and
180      pulling the relevant dates out from it.

```

```

181      Question 4 ## Calculating dates and creating summaries

```



How many days are there between the date with the highest number of responses and the date with the second highest number of responses? Pulling the relevant data from the above summary: the answer is 1 day between these dates.

*Bonus:* Calculate difference between the number of responses on the highest response date and second highest response date? See below:

```
## [1] 19
```

Question 5 ## Working with date intervals

```
## [1] 302.8338
```

Question 6 ## Create an ordered factor from numerical data

```
##
```

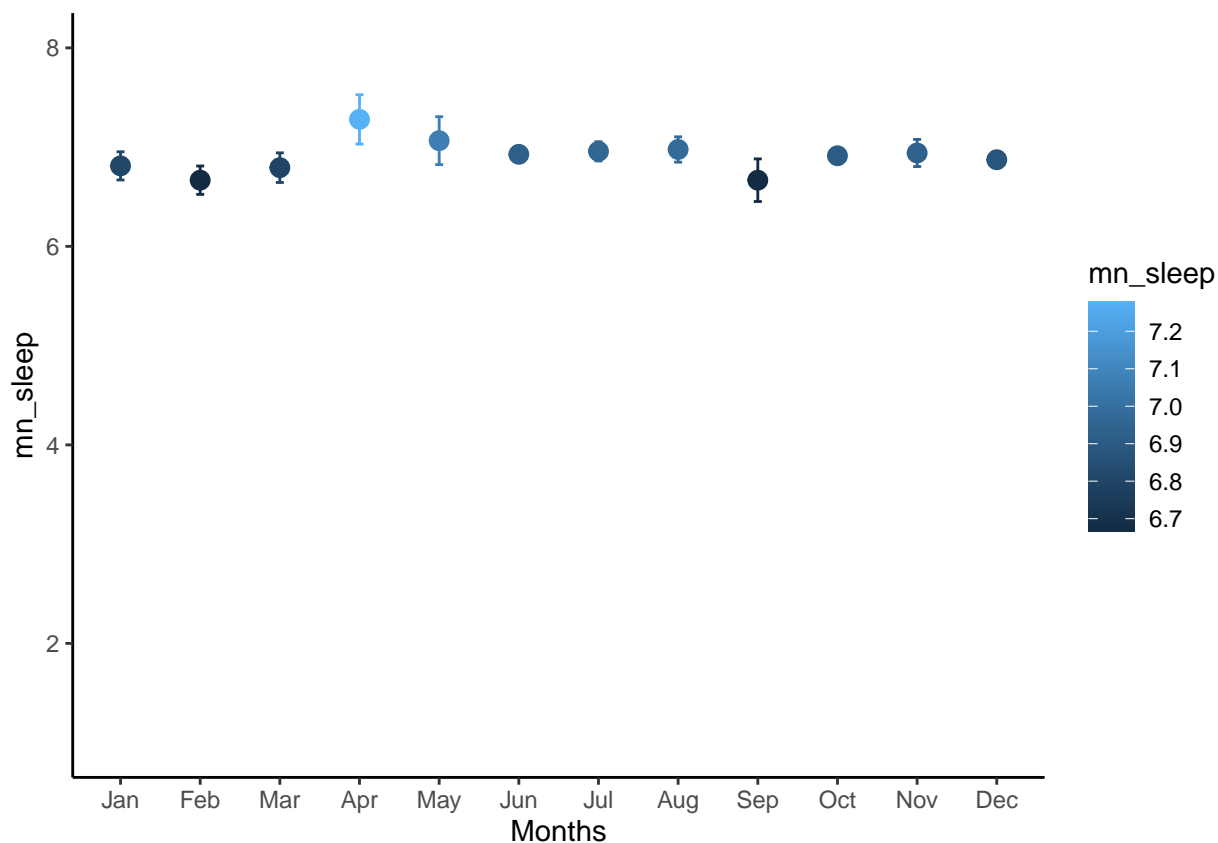
```
##      Non-attendance Moderate attendance Frequent attendance      <NA>
```

```
##      3366              493              158              109
```

\*Make sure to re-level the factor so that the ordinal ranking moves from lowest to highest - because the factors are already leveled correctly, no re-leveling is required - re-leveling could otherwise be done with the re-level function

Question 7a ## Make a summary table

Question 7b ## Make a summary graph



199

200 Comment:

201 Let me have a think!

202 Briefly explain why some intervals are wider than others.

203 Question 8 ## Correlation graph

```

204 ## Parameter          | FeelNervous | FeelWorthless | EverythingIsEffort | FeelRestless
205 ## -----
206 ## FeelHopeless       | -0.29*** | 0.02 | -0.22*** | -0.33***
207 ## FeelDepressed      | -0.26*** | -6.78e-03 | -0.17*** | -0.30***
208 ## FeelRestless       | -0.14*** | -0.29*** | -0.22*** |
209 ## EverythingIsEffort | -0.30*** | -0.21*** | |
210 ## FeelWorthless      | -0.21*** | | |
211 ## # Correlation Matrix (pearson-method)

```

```

212 ##
213 ## Parameter          | FeelNervous | FeelWorthless | EverythingIsEffort | FeelRestless
214 ## -----
215 ## FeelHopeless       |    0.43*** |    0.65*** |    0.52*** |    0.43***
216 ## FeelDepressed      |    0.38*** |    0.67*** |    0.49*** |    0.38***
217 ## FeelRestless       |    0.46*** |    0.39*** |    0.46*** |
218 ## EverythingIsEffort |    0.42*** |    0.47*** |           |
219 ## FeelWorthless      |    0.40*** |           |           |
220 ##
221 ## p-value adjustment method: Holm (1979)

```

222       *What do you find most interesting about this plot?* The strong correlations present  
 223 between feeling worthless, depressed, and hopeless.

224       \*\*Discuss further, note the plot doesn't show me everything that's going on here  
 225 people halp!

226       Can't see the strength of the "FeelWorthless" to "FeelDepressed" correlation

227       Question 9 ## Create a blank papaja report

228       Question 10 ## Patchwork

229       Use the patchwork library to create a figure with two plots on top of each other. Use  
 230 the tag\_levels function to index each of the two plots. The graphs should describe some  
 231 dimension of the truncated nz dataset.

232                                   **Results**

233                                   **Discussion**

## References

- Aust, F., & Barth, M. (2020). *papaja: Prepare reproducible APA journal articles with R Markdown*. Retrieved from <https://github.com/crsh/papaja>
- Barth, M. (2021). *tinylabels: Lightweight variable labels*. Retrieved from <https://github.com/mariusbarth/tinylabels>
- R Core Team. (2021). *R: A language and environment for statistical computing*. Vienna, Austria: R Foundation for Statistical Computing. Retrieved from <https://www.R-project.org/>

Table 1

*Average Number of Hours of Sleep by Month*

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6.810909	6.666667	6.792891	7.279487	7.064935	5.927352	6.957453	6.976087	6.666667	6.912846	6.940741	6.872973