COVID-19 outcomes in hospitalized puerperal, pregnant, and neither pregnant nor puerperal women: a population study

Codes and outputs

08/26/2021

Description

This file presents the documentation of the analysis of article "COVID-19 outcomes in hospitalized puerperal, pregnant, and neither pregnant nor puerperal women: a population study" with authors Fabiano Elisei Serra, Rossana Pulcineli Vieira Francisco, Patricia de Rossi, Maria de Lourdes Brizot, and Agatha Sacramento Rodrigues.

R packages used, functions and dataset import

The data are analyzed using the free-software R (https://www.R-project.org) in version 4.0.3. Next, we present and load the libraries used in the data analysis process.

```
#load packages
loadlibrary <- function(x) {
  if (!require(x, character.only = TRUE)) {
    install.packages(x, dependencies = T)
    if (!require(x, character.only = TRUE))
      stop("Package not found")
  }
}

packages <-
  c(
    "readr",
    "magrittr",
    "dplyr",
    "stringr",
    "questionr",
    "knitr",
    "forcats",
    "lubridate",
    "summarytools",
    "modelsummary",
    "kableExtra",
    "epitools",
    "WeightIt",
    "jtools",
```

```
    "survey",
    "nnet"
  )
lapply(packages, loadlibrary)
```

One can see below the functions that will be used in the data analysis.

```
#functions for summary measures
media <- function(x)
  mean(x, na.rm = TRUE)
mediana <- function(x)
  median(x, na.rm = TRUE)
DP <- function(x)
  sd(x, na.rm = TRUE)
minimo <- function(x)
  base::min(x, na.rm = TRUE)
maximo <- function(x)
  base::max(x, na.rm = TRUE)
q25 <- function(x)
  stats::quantile(x, p = 0.25, na.rm = TRUE)
q75 <- function(x)
  stats::quantile(x, p = 0.75, na.rm = TRUE)
IQR <- function(x)
  round(q75(x) - q25(x), 2)
n <- function(x)
  sum(!is.na(x))
```

```
#function to calculate OR - women of reproductive age as reference
odds_function <- function(dat, met = "midp") {
  treatments <- c("no", "preg", "puerp")
  ae_present <- c("no", "yes")
  matriz <- as.matrix(dat)
  matriz[,1] <- dat[,2]
  matriz[,2] <- dat[,1]
  dimnames(matriz) <- list("Groups" = treatments,
                           "Var Present" = ae_present)
  if(sum(matriz==0) > 0){
    matriz <- matriz + 0.5
  }
  or_fit <- oddsratio(matriz, correction=TRUE, method = met, conf.level = 1-round(0.05/3,4))
  return(or_fit)
}

#function to calculate OR - pregnant women as reference
odds_function1 <- function(dat, met = "midp") {
  treatments <- c("preg", "no", "puerp")
  ae_present <- c("no", "yes")
  dat <- as.matrix(dat)
  matriz <- matrix(0, ncol = dim(dat)[2], nrow = dim(dat)[1])
  matriz[1,1] <- dat[2,2]
  matriz[2,1] <- dat[1,2]
  matriz[3,1] <- dat[3,2]
  matriz[1,2] <- dat[2,1]
```

```
  matriz[2,2] <- dat[1,1]
  matriz[3,2] <- dat[3,1]
  if(sum(matriz==0) > 0){
    matriz <- matriz + 0.5
  }
  dimnames(matriz) <- list("Groups" = treatments,
                           "Var Present" = ae_present)

  or_fit <- oddsratio(matriz, correction=TRUE, method = met, conf.level = 1-round(0.05/3,4))
  return(or_fit)
}
```

```
#function to calculate OR for use of invasive ventilatory support -
#women of reproductive age as reference
odds_function_supvent1 <- function(dat, met = "midp") {
  treatments <- c("no", "preg", "puerp")
  ae_present <- c("no", "yes inv")
  dat <- as.matrix(dat)
  matriz <- matrix(0, nrow = 3, ncol = 2)
  matriz[, 1] <- dat[, 3]
  matriz[, 2] <- dat[, 1]
  dimnames(matriz) <- list("Groups" = treatments,
                           "Var Present" = ae_present)
  if (sum(matriz == 0) > 0) {
    matriz <- matriz + 0.5
  }
  or_fit <- oddsratio(matriz, correction = TRUE, method = met, conf.level = 1-round(0.05/3,4))
  return(or_fit)
}

#function to calculate OR for use of invasive ventilatory support -
#pregnant women as reference
odds_function1_supvent1 <- function(dat, met = "midp") {
  treatments <- c("preg", "no", "puerp")
  ae_present <- c("no", "yes inv")
  dat <- as.matrix(dat)
  matriz <- matrix(0, ncol = 2, nrow = 3)
  matriz[1, 1] <- dat[2, 3]
  matriz[2, 1] <- dat[1, 3]
  matriz[3, 1] <- dat[3, 3]
  matriz[1, 2] <- dat[2, 1]
  matriz[2, 2] <- dat[1, 1]
  matriz[3, 2] <- dat[3, 1]
  if (sum(matriz == 0) > 0) {
    matriz <- matriz + 0.5
  }
  dimnames(matriz) <- list("Groups" = treatments,
                           "Var Present" = ae_present)

  or_fit <- oddsratio(matriz, correction = TRUE, method = met, conf.level = 1-round(0.05/3,4))
  return(or_fit)
}
```

```r
#function to calculate OR for use of non-invasive ventilatory
#support - women of reproductive age as reference
odds_function_supvent2 <- function(dat, met = "midp") {
  treatments <- c("no", "preg", "puerp")
  ae_present <- c("no", "yes, non-inv")
  dat <- as.matrix(dat)
  matriz <- matrix(0, nrow = 3, ncol = 2)
  matriz[, 1] <- dat[, 3]
  matriz[, 2] <- dat[, 2]
  dimnames(matriz) <- list("Groups" = treatments,
                           "Var Present" = ae_present)
  if (sum(matriz == 0) > 0) {
    matriz <- matriz + 0.5
  }
  or_fit <- oddsratio(matriz, correction = TRUE, method = met, conf.level = 1 - round(0.05/3,4))
  return(or_fit)
}

#function to calculate OR for use of non-invasive ventilatory
#support - pregnant women as reference
odds_function1_supvent2 <- function(dat, met = "midp") {
  treatments <- c("preg", "no", "puerp")
  ae_present <- c("no", "yes, non-inv")
  dat <- as.matrix(dat)
  matriz <- matrix(0, ncol = 2, nrow = 3)
  matriz[1, 1] <- dat[2, 3]
  matriz[2, 1] <- dat[1, 3]
  matriz[3, 1] <- dat[3, 3]
  matriz[1, 2] <- dat[2, 2]
  matriz[2, 2] <- dat[1, 2]
  matriz[3, 2] <- dat[3, 2]
  if (sum(matriz == 0) > 0) {
    matriz <- matriz + 0.5
  }
  dimnames(matriz) <- list("Groups" = treatments,
                           "Var Present" = ae_present)

  or_fit <- oddsratio(matriz, correction = TRUE, method = met, conf.level = 1 - round(0.05/3,4))
  return(or_fit)
}
```

```r
####Use of invasive ventilatory support##############################
#OR calculation for propensity score matching -
#women of reproductive age as reference
or_rlo_inv_nao <- function(coef, ep){
  out <- matrix(0, ncol = 3, nrow = 2)
  out[1,1] <- exp(coef[1,2])
  out[1,2] <- exp(coef[1,2]-2.39*ep[1,2])
  out[1,3] <- exp(coef[1,2]+2.39*ep[1,2])
  out[2,1] <- exp(coef[1,3])
  out[2,2] <- exp(coef[1,3]-2.39*ep[1,3])
  out[2,3] <- exp(coef[1,3]+2.39*ep[1,3])
  dimnames(out) <- list("Groups" = c("preg", "puerp"),
```

```
                        "Measures" = c("OR", "L 98.33%", "U 98.33%"))
  return(out)
}

#OR calculation for propensity score matching -
#pregnant women as reference
or_rlo_inv_gesta <- function(coef, ep){
  out <- matrix(0, ncol = 3, nrow = 2)
  out[1,1] <- exp(coef[1,2])
  out[1,2] <- exp(coef[1,2]-2.39*ep[1,2])
  out[1,3] <- exp(coef[1,2]+2.39*ep[1,2])
  out[2,1] <- exp(coef[1,3])
  out[2,2] <- exp(coef[1,3]-2.39*ep[1,3])
  out[2,3] <- exp(coef[1,3]+2.39*ep[1,3])
  dimnames(out) <- list("Groups" = c("no", "puerp"),
                        "Measures" = c("OR", "L 98.33%", "U 98.33%"))
  return(out)
}
```

```
####Use of non-invasive ventilatory support#########################
#OR calculation for propensity score matching -
#women of reproductive age as reference
or_rlo_ninv_nao <- function(coef, ep){
  out <- matrix(0, ncol = 3, nrow = 2)
  out[1,1] <- exp(coef[2,2])
  out[1,2] <- exp(coef[2,2]-2.39*ep[2,2])
  out[1,3] <- exp(coef[2,2]+2.39*ep[2,2])
  out[2,1] <- exp(coef[2,3])
  out[2,2] <- exp(coef[2,3]-2.39*ep[2,3])
  out[2,3] <- exp(coef[2,3]+2.39*ep[2,3])
  dimnames(out) <- list("Groups" = c("preg", "puerp"),
                        "Measures" = c("OR", "L 98.33%", "U 98.33%"))
  return(out)
}

#OR calculation for propensity score matching -
#pregnant women as reference
or_rlo_ninv_gesta <- function(coef, ep){
  out <- matrix(0, ncol = 3, nrow = 2)
  out[1,1] <- exp(coef[2,2])
  out[1,2] <- exp(coef[2,2]-2.39*ep[2,2])
  out[1,3] <- exp(coef[2,2]+2.39*ep[2,2])
  out[2,1] <- exp(coef[2,3])
  out[2,2] <- exp(coef[2,3]-2.39*ep[2,3])
  out[2,3] <- exp(coef[2,3]+2.39*ep[2,3])
  dimnames(out) <- list("Groups" = c("no", "puerp"),
                        "Measures" = c("OR", "L 98.33%", "U 98.33%"))
  return(out)
}
```

The Influenza Epidemiological Surveillance Information System, SIVEP-Gripe (Sistema de Informação de Vigilância Epidemiológica da Gripe), is a nationwide surveillance database used to monitor severe acute respiratory infections in Brazil.

Notification is mandatory for Influenza Syndrome (characterized by at least two of the following signs and symptoms: fever, even if referred, chills, sore throat, headache, cough, runny nose, olfactory or taste disorders) and who has dyspnea/respiratory discomfort or persistent pressure in the chest or O2 saturation less than 95% in room air or bluish color of the lips or face. Asymptomatic individuals with laboratory confirmation by molecular biology or immunological examination for COVID-19 infection are also reported.

For notifications in Sivep-Gripe, hospitalized cases in both public and private hospitals and all deaths due to severe acute respiratory infections regardless of hospitalization must be considered.

The analyzed period comprised data from epidemiological weeks 1 to 53 of 2020 (12/29/2019 - 01/02/2021) with the database downloaded on 01/11/2021 on the site https://opendatasus.saude.gov.br/dataset/bd-srag-2020. The data are loaded below:

```
#loading the dataset
data_all <- readr::read_delim(
  "INFLUD-11-01-2021.csv",
  ";",
  escape_double = FALSE,
  locale = locale(encoding = "ISO-8859-2"),
  trim_ws = TRUE
)
```

There are 1136681 cases in the complete dataset. The case selection is presented in the following according to the flowchart presented in the article.

Case selection and data treatment

The first filter consists of selecting the hospitalized cases. For that, the `HOSPITAL` variable is considered, in which 1-Yes, 2-No, and 9-Ignored.

```
#Selecting only hospitalization cases
data1 <- dplyr::filter(data_all, HOSPITAL == 1)
```

When considering only confirmed hospitalized cases, we get 1061254 observations.

The second filtering consists of the cases classified as COVID-19 in the database. The variable indicating the classification is `CLASSI_FIN`, with the following categories: 1-SRAG by influenza, 2-SRAG by another respiratory virus, 3-SRAG by another etiological agent, 4-SRAG not specified, and 5-SRAG by COVID-19.

```
questionr::freq(
  data1$CLASSI_FIN,
  cum = FALSE,
  total = TRUE,
  na.last = FALSE,
  valid = FALSE
) %>%
  knitr::kable(caption = "Frequency table for case classification", digits = 2) %>%
  kable_styling(latex_options = "hold_position")
```

```
#Filtering COVID-19 cases
data2 <- dplyr::filter(data1, CLASSI_FIN == 5)
```

Table 1: Frequency table for case classification

	n	%
1	2507	0.2
2	4137	0.4
3	2929	0.3
4	365992	34.5
5	588711	55.5
NA	96978	9.1
Total	1061254	100.0

There are 588711 selected cases for now.

Only cases of COVID-19 confirmed by RT-PCR are selected. The selection is made as follows:

```
#Selecting COVID-19 confirmed by RT-PCR
data3 <- data2 %>%
  dplyr::filter((PCR_SARS2 == 1) |
                  (
                    stringr::str_detect(DS_PCR_OUT, "SARS|COVID|COV|CORONA|CIVID") &
                      !stringr::str_detect(DS_PCR_OUT, "63|43|229|HK|RINO|SINCI|PARE")
                  ) |
                  (
                    PCR_RESUL == 1 &
                      CRITERIO == 1 &
                      is.na(DS_PCR_OUT) &
                      (PCR_RINO  != 1 |
                         is.na(PCR_RINO)) &
                      (POS_PCRFLU != 1 | is.na(POS_PCRFLU)) &
                      (PCR_OUTRO != 1 | is.na(PCR_OUTRO)) &
                      (POS_PCROUT != 1 | is.na(POS_PCROUT)) &
                      (is.na(PCR_VSR)) &
                      (is.na(PCR_METAP)) &
                      (is.na(PCR_PARA1))
                  )
  )
```

After this selection, 454830 cases are selected.

The next step consists of selecting female cases. The sex variable is `CS_SEXO`, in which F-Female, M-Male and I-Ignored.

```
questionr::freq(
  data3$CS_SEXO,
  cum = FALSE,
  total = TRUE,
  na.last = FALSE,
  valid = FALSE
) %>%
  knitr::kable(caption = "Frequency table for sex", digits = 2) %>%
  kable_styling(latex_options = "hold_position")
```

Table 2: Frequency table for sex

	n	%
F	199931	44
I	74	0
M	254825	56
Total	454830	100

```
#Filtering female cases
data4 <- dplyr::filter(data3, CS_SEXO == "F")
```

Now there are 199931 cases. The next selection is to consider female people over 9 years old and under 50 (not inclusive). The variable that indicates the cases age is `NU_IDADE_N`.

```
#Filtering female people over 9 years old and under 50
data5 <- dplyr::filter(data4, NU_IDADE_N > 9 & NU_IDADE_N < 50)
```

The number of cases results in 50845 cases.

Now we are going to identify pregnant people. For this, we will analyze the variable `CS_GESTANT`. This variable assumes the values: 1-1st gestational trimester; 2-2nd gestational trimester; 3-3rd gestational trimester; 4-Ignored gestational age; 5-No; 6-Does not apply; 9-Ignored.

```
questionr::freq(
  data5$CS_GESTANT,
  cum = FALSE,
  total = TRUE,
  na.last = FALSE,
  valid = FALSE
) %>%
  knitr::kable(caption = "Frequency table for pregnancy variable", digits = 2) %>%
  kable_styling(latex_options = "hold_position")
```

Table 3: Frequency table for pregnancy variable

	n	%
0	1	0.0
1	295	0.6
2	829	1.6
3	2089	4.1
4	159	0.3
5	37268	73.3
6	2056	4.0
9	8148	16.0
Total	50845	100.0

The next step is filtering cases we have information about pregnancy (yes - any gestational age - or not).

```
#Not considering do not apply and ignored
data6 <- dplyr::filter(data5, CS_GESTANT >= 1 & CS_GESTANT <= 5)
```

After the above filtering, we get 40640 observations.

The pregnancy indicator variable (independent of the gestational period) is created below.

```
#Creating pregnancy indicator variable
data6 <- data6 %>%
  dplyr::mutate(gestante_SN = ifelse(CS_GESTANT == 5, "no", "yes"))
```

```
questionr::freq(
  data6$gestante_SN,
  cum = FALSE,
  total = TRUE,
  na.last = FALSE,
  valid = FALSE
) %>%
  knitr::kable(caption = "Frequency table for pregnancy indicator", digits = 2) %>%
  kable_styling(latex_options = "hold_position")
```

Table 4: Frequency table for pregnancy indicator

	n	%
no	37268	91.7
yes	3372	8.3
Total	40640	100.0

The next step is considering the postpartum indicator variable. The `PUERPERA` variable has three categories: 1-yes, 2-no, and 9-Ignored.

```
questionr::freq(
  data6$PUERPERA,
  cum = FALSE,
  total = TRUE,
  na.last = FALSE,
  valid = FALSE
) %>%
  knitr::kable(caption = "Frequency table for postpartum indicator", digits = 2) %>%
  kable_styling(latex_options = "hold_position")
```

Table 5: Frequency table for postpartum indicator

	n	%
1	983	2.4
2	12183	30.0
9	230	0.6
NA	27244	67.0
Total	40640	100.0

Now we can create the group variable with the categories: preg - for pregnant women, puerp - for postpartum, and no - for woman of reprodutive age.

```r
#Creating postpartum indicator
data6 <- data6 %>%
  dplyr::mutate(puerpera = ifelse(is.na(PUERPERA) == TRUE, 0, PUERPERA))

#Creating group varible with three categories:
##preg - for pregnant women,
##puerp - for postpartum and
##no - woman of reprodutive age
data6 <- data6 %>%
  dplyr::mutate(gest_puerp = ifelse(
    gestante_SN == "yes",
    1,
    ifelse(gestante_SN == "no" & puerpera == 1, 2, 0))
    )

data6$gest_puerp <- factor(data6$gest_puerp,
                      levels = c(0,1,2),
                      labels = c("no", "preg", "puerp"))
```

```r
questionr::freq(
  data6$gest_puerp,
  cum = FALSE,
  total = TRUE,
  na.last = FALSE,
  valid = FALSE
) %>%
  knitr::kable(caption = "Frequency table for group variable", digits = 2) %>%
  kable_styling(latex_options = "hold_position")
```

Table 6: Frequency table for group variable

	n	%
no	36474	89.7
preg	3372	8.3
puerp	794	2.0
Total	40640	100.0

Characterization variables and comorbities

The age information is in `NU_IDADE_N`. We create the age group variable (`faixa_et`) with categories: "<20", "20-34" and ">34".

```r
#age group variable
data6 <-
  dplyr::mutate(data6, faixa_et = ifelse(
    NU_IDADE_N <= 19,
    "<20",
    ifelse(NU_IDADE_N >= 20 & NU_IDADE_N <= 34, "20-34", ">34")
  ))
```

```
data6$faixa_et <- factor(data6$faixa_et,
                         levels = c("<20", "20-34", ">34"))
```

```
questionr::freq(
  data6$faixa_et,
  cum = FALSE,
  total = TRUE,
  na.last = FALSE,
  valid = FALSE
) %>%
  knitr::kable(caption = "Frequency table for group age", digits = 2) %>%
  kable_styling(latex_options = "hold_position")
```

Table 7: Frequency table for group age

	n	%
<20	1320	3.2
20-34	12367	30.4
>34	26953	66.3
Total	40640	100.0

For race (`CS_RACA`), the categories are: 1-white; 2-black; 3-yellow; 4-brown; 5-Indigenous; 6-Ignored.

```
questionr::freq(
  data6$CS_RACA,
  cum = FALSE,
  total = TRUE,
  na.last = FALSE,
  valid = FALSE
) %>%
  knitr::kable(caption = "Frequency table for race", digits = 2) %>%
  kable_styling(latex_options = "hold_position")
```

Table 8: Frequency table for race

	n	%
1	16758	41.2
2	1917	4.7
3	396	1.0
4	12706	31.3
5	114	0.3
9	6135	15.1
NA	2614	6.4
Total	40640	100.0

We will now label this variable, creating the variable `raca`, considering only the valid categories.

```
#race variable
data6$raca <- factor(
  data6$CS_RACA,
```

```
  levels = c("1", "2", "3", "4", "5"),
  labels = c("white", "black", "yellow", "brown", "indigenous")
)
```

For education (CS_ESCOL_N), the categories are: 0-no education/illiterate; 1-fundamental 1st cycle; 2-fundamental 2nd cycle; 3-high school; 4-superior; 5-not applicable, 9-ignored.

```
questionr::freq(
  data6$CS_ESCOL_N,
  cum = FALSE,
  total = TRUE,
  na.last = FALSE,
  valid = FALSE
) %>%
  knitr::kable(caption = "Frequency table for school", digits = 2) %>%
  kable_styling(latex_options = "hold_position")
```

Table 9: Frequency table for school

	n	%
0	228	0.6
1	1546	3.8
2	2556	6.3
3	8501	20.9
4	4403	10.8
5	1	0.0
9	11495	28.3
NA	11910	29.3
Total	40640	100.0

We will now label this variable, creating the variable **escol**, considering only the valid categories and considering the following categories: no education/illiterate (CS_ESCOL_N = 0), up to high school (CS_ESCOL_N = 1 or 2), high school (CS_ESCOL_N = 3) and higher education (CS_ESCOL_N = 4).

```
#school variable
data6$escol <- factor(
  data6$CS_ESCOL_N,
  levels = c("0", "1", "2", "3", "4"),
  labels = c(
    "no education",
    "up to high school",
    "up to high school",
    "high school",
    "higher education"
  )
)
```

```
questionr::freq(
  data6$escol,
  cum = FALSE,
  total = TRUE,
```

```
  na.last = FALSE,
  valid = FALSE
) %>%
  knitr::kable(caption = "Frequency table for school (new categories)", digits = 2) %>%
  kable_styling(latex_options = "hold_position")
```

Table 10: Frequency table for school (new categories)

	n	%
no education	228	0.6
up to high school	4102	10.1
high school	8501	20.9
higher education	4403	10.8
NA	23406	57.6
Total	40640	100.0

For comorbidities, the categories are: 1-yes, 2-no and 9-ignored. The comorbidities considered are: cardiopathy, hematology, liver disease, asthma, diabetes, neurological diseases, pneumopathy, immunosuppression, kidney disease, and obesity, and their frequency tables are presented below, respectively:

```
questionr::freq(
  data6$CARDIOPATI,
  cum = FALSE,
  total = TRUE,
  na.last = FALSE,
  valid = FALSE
) %>%
  knitr::kable(caption = "Frequency table for cardiopathy", digits = 2) %>%
  kable_styling(latex_options = "hold_position")
```

Table 11: Frequency table for cardiopathy

	n	%
1	6071	14.9
2	8905	21.9
9	230	0.6
NA	25434	62.6
Total	40640	100.0

```
questionr::freq(
  data6$HEMATOLOGI,
  cum = FALSE,
  total = TRUE,
  na.last = FALSE,
  valid = FALSE
) %>%
  knitr::kable(caption = "Frequency table for hematology", digits = 2) %>%
  kable_styling(latex_options = "hold_position")
```

Table 12: Frequency table for hematology

	n	%
1	383	0.9
2	12518	30.8
9	282	0.7
NA	27457	67.6
Total	40640	100.0

```
questionr::freq(
  data6$HEPATICA,
  cum = FALSE,
  total = TRUE,
  na.last = FALSE,
  valid = FALSE
) %>%
  knitr::kable(caption = "Frequency table for liver disease", digits = 2) %>%
  kable_styling(latex_options = "hold_position")
```

Table 13: Frequency table for liver disease

	n	%
1	201	0.5
2	12568	30.9
9	286	0.7
NA	27585	67.9
Total	40640	100.0

```
questionr::freq(
  data6$ASMA,
  cum = FALSE,
  total = TRUE,
  na.last = FALSE,
  valid = FALSE
) %>%
  knitr::kable(caption = "Frequency table for asthma", digits = 2) %>%
  kable_styling(latex_options = "hold_position")
```

Table 14: Frequency table for asthma

	n	%
1	2055	5.1
2	11371	28.0
9	264	0.6
NA	26950	66.3
Total	40640	100.0

```
questionr::freq(
  data6$DIABETES,
  cum = FALSE,
  total = TRUE,
  na.last = FALSE,
  valid = FALSE
) %>%
  knitr::kable(caption = "Frequency table for diabetes", digits = 2) %>%
  kable_styling(latex_options = "hold_position")
```

Table 15: Frequency table for diabetes

	n	%
1	5127	12.6
2	9448	23.2
9	217	0.5
NA	25848	63.6
Total	40640	100.0

```
questionr::freq(
  data6$NEUROLOGIC,
  cum = FALSE,
  total = TRUE,
  na.last = FALSE,
  valid = FALSE
) %>%
  knitr::kable(caption = "Frequency table for neurological diseases", digits = 2) %>%
  kable_styling(latex_options = "hold_position")
```

Table 16: Frequency table for neurological diseases

	n	%
1	598	1.5
2	12335	30.4
9	273	0.7
NA	27434	67.5
Total	40640	100.0

```
questionr::freq(
  data6$PNEUMOPATI,
  cum = FALSE,
  total = TRUE,
  na.last = FALSE,
  valid = FALSE
) %>%
  knitr::kable(caption = "Frequency table for pneumopathy", digits = 2) %>%
  kable_styling(latex_options = "hold_position")
```

Table 17: Frequency table for pneumopathy

	n	%
1	607	1.5
2	12338	30.4
9	281	0.7
NA	27414	67.5
Total	40640	100.0

```
questionr::freq(
  data6$IMUNODEPRE,
  cum = FALSE,
  total = TRUE,
  na.last = FALSE,
  valid = FALSE
) %>%
  knitr::kable(caption = "Frequency table for immunosuppression", digits = 2) %>%
  kable_styling(latex_options = "hold_position")
```

Table 18: Frequency table for immunosuppression

	n	%
1	1347	3.3
2	11790	29.0
9	281	0.7
NA	27222	67.0
Total	40640	100.0

```
questionr::freq(
  data6$RENAL,
  cum = FALSE,
  total = TRUE,
  na.last = FALSE,
  valid = FALSE
) %>%
  knitr::kable(caption = "Frequency table for kidney disease", digits = 2) %>%
  kable_styling(latex_options = "hold_position")
```

Table 19: Frequency table for kidney disease

	n	%
1	1116	2.7
2	11931	29.4
9	275	0.7
NA	27318	67.2
Total	40640	100.0

```r
questionr::freq(
  data6$OBESIDADE,
  cum = FALSE,
  total = TRUE,
  na.last = FALSE,
  valid = FALSE
) %>%
  knitr::kable(caption = "Frequency table for obesity", digits = 2) %>%
  kable_styling(latex_options = "hold_position")
```

Table 20: Frequency table for obesity

	n	%
1	3937	9.7
2	9776	24.1
9	462	1.1
NA	26465	65.1
Total	40640	100.0

We will label in the following the comorbidities indicators, considering only the valid categories.

```r
#cardiopathy
data6$cardiopati <- factor(data6$CARDIOPATI,
                           levels = c("1", "2"),
                           labels = c("yes", "no"))
```

```r
#hematology
data6$hematologi <- factor(data6$HEMATOLOGI,
                           levels = c("1", "2"),
                           labels = c("yes", "no"))
```

```r
#liver disease
data6$hepatica <- factor(data6$HEPATICA,
                         levels = c("1", "2"),
                         labels = c("yes", "no"))
```

```r
#asthma
data6$asma <- factor(data6$ASMA,
                     levels = c("1", "2"),
                     labels = c("yes", "no"))
```

```r
#diabetes
data6$diabetes <- factor(data6$DIABETES,
                         levels = c("1", "2"),
                         labels = c("yes", "no"))
```

```r
#neurological diseases
data6$neuro <- factor(data6$NEUROLOGIC,
                      levels = c("1", "2"),
                      labels = c("yes", "no"))
```

```r
#pneumopathy
data6$pneumopati <- factor(data6$PNEUMOPATI,
                           levels = c("1", "2"),
                           labels = c("yes", "no"))
```

```r
#immunosuppression
data6$imunodepre <- factor(data6$IMUNODEPRE,
                           levels = c("1", "2"),
                           labels = c("yes", "no"))
```

```r
#kidney disease
data6$renal <- factor(data6$RENAL,
                      levels = c("1", "2"),
                      labels = c("yes", "no"))
```

```r
#obesity
data6$obesidade <- factor(data6$OBESIDADE,
                          levels = c("1", "2"),
                          labels = c("yes", "no"))
```

One variable we want to analyze is the comorbities group (`gr_comorb`) with the categories: "none", "1 or 2", ">2".

```r
comorbidades <-
  c(
    "CARDIOPATI_aux",
    "HEMATOLOGI_aux",
    "HEPATICA_aux",
    "ASMA_aux",
    "DIABETES_aux",
    "NEUROLOGIC_aux",
    "PNEUMOPATI_aux",
    "IMUNODEPRE_aux",
    "RENAL_aux",
    "OBESIDADE_aux"
  )

comorbidades1 <-
  c(
    "CARDIOPATI_aux1",
    "HEMATOLOGI_aux1",
    "HEPATICA_aux1",
    "ASMA_aux1",
    "DIABETES_aux1",
    "NEUROLOGIC_aux1",
    "PNEUMOPATI_aux1",
    "IMUNODEPRE_aux1",
    "RENAL_aux1",
    "OBESIDADE_aux1"
  )

data6 <-
```

```
  mutate(
    data6,
    CARDIOPATI_aux = CARDIOPATI,
    HEMATOLOGI_aux = HEMATOLOGI,
    HEPATICA_aux = HEPATICA,
    ASMA_aux = ASMA,
    DIABETES_aux = DIABETES,
    NEUROLOGIC_aux = NEUROLOGIC,
    PNEUMOPATI_aux = PNEUMOPATI,
    IMUNODEPRE_aux = IMUNODEPRE,
    RENAL_aux = RENAL,
    OBESIDADE_aux = OBESIDADE
  )

data6 <-
  mutate(
    data6,
    CARDIOPATI_aux1 = CARDIOPATI,
    HEMATOLOGI_aux1 = HEMATOLOGI,
    HEPATICA_aux1 = HEPATICA,
    ASMA_aux1 = ASMA,
    DIABETES_aux1 = DIABETES,
    NEUROLOGIC_aux1 = NEUROLOGIC,
    PNEUMOPATI_aux1 = PNEUMOPATI,
    IMUNODEPRE_aux1 = IMUNODEPRE,
    RENAL_aux1 = RENAL,
    OBESIDADE_aux1 = OBESIDADE
  )

data6 <-  data6 %>%
  dplyr::mutate_at(dplyr::all_of(comorbidades), function(x) {
    dplyr::case_when(x == "1" ~ 1, TRUE ~ 0)
  }) %>%
  dplyr::mutate_at(dplyr::all_of(comorbidades1), function(x) {
    dplyr::case_when(x == "1" ~ 1, x == "2" ~ 0, TRUE ~ NA_real_)
  }) %>%
  dplyr::mutate(
    cont_comorb = CARDIOPATI_aux + HEMATOLOGI_aux +  HEPATICA_aux + ASMA_aux +
      DIABETES_aux + NEUROLOGIC_aux + PNEUMOPATI_aux + IMUNODEPRE_aux +
      RENAL_aux + OBESIDADE_aux
  ) %>%
  dplyr::mutate(
    num_comorb = dplyr::case_when(
      is.na(CARDIOPATI_aux1) |
        is.na(HEMATOLOGI_aux1) |
        is.na(HEPATICA_aux1) |
        is.na(ASMA_aux1) |
        is.na(DIABETES_aux1) |
        is.na(NEUROLOGIC_aux1) | is.na(PNEUMOPATI_aux1) |
        is.na(IMUNODEPRE_aux1) |
        is.na(RENAL_aux1) | is.na(OBESIDADE_aux1) ~ NA_real_,
      TRUE ~ cont_comorb
    ),
```

```
    gr_comorb = dplyr::case_when(
      num_comorb == 0 ~ 0,
      num_comorb == 1 ~ 1,
      num_comorb == 2 ~ 1,
      num_comorb >  2 ~ 2,
      TRUE ~ NA_real_
    )
  )

# Comorbities group
data6$gr_comorb <- factor(data6$gr_comorb,
                          levels = c(0, 1, 2),
                          labels = c("none", "1 or 2", ">2"))
```

```
questionr::freq(
  data6$gr_comorb,
  cum = FALSE,
  total = TRUE,
  na.last = FALSE,
  valid = FALSE
) %>%
  knitr::kable(caption = "Frequency table for comorbities group", digits = 2) %>%
  kable_styling(latex_options = "hold_position")
```

Table 21: Frequency table for comorbities group

	n	%
none	2933	7.2
1 or 2	8195	20.2
>2	830	2.0
NA	28682	70.6
Total	40640	100.0

Another variable of interest is metabolic syndrome defined here if one has diabetes, heart disease and obesity. The variable name is `gr_sind_met` with the categories "yes" and "no".

```
sind_met <-  c("CARDIOPATI_aux",
               "DIABETES_aux", "OBESIDADE_aux")

sind_met1 <-  c("CARDIOPATI_aux1",
                "DIABETES_aux1",
                "OBESIDADE_aux1")

data6 <-
  mutate(
    data6,
    CARDIOPATI_aux = CARDIOPATI,
    DIABETES_aux = DIABETES,
    OBESIDADE_aux = OBESIDADE
  )

data6 <-
```

```
  mutate(
    data6,
    CARDIOPATI_aux1 = CARDIOPATI,
    DIABETES_aux1 = DIABETES,
    OBESIDADE_aux1 = OBESIDADE
  )

data6 <-  data6 %>%
  mutate_at(all_of(sind_met), function(x) {
    case_when(x == "1" ~ 1, TRUE ~ 0)
  }) %>%
  mutate_at(all_of(sind_met1), function(x) {
    case_when(x == "1" ~ 1, x == "2" ~ 0, TRUE ~ NA_real_)
  }) %>%
  mutate(cont_sind_met = CARDIOPATI_aux + DIABETES_aux + OBESIDADE_aux) %>%
  mutate(
    num_sind_met = case_when(
      is.na(CARDIOPATI_aux1) |
        is.na(DIABETES_aux1) | is.na(OBESIDADE_aux1) ~ NA_real_,
      TRUE ~ cont_sind_met
    ),
    gr_sind_met = case_when(
      num_sind_met == 0 ~ 0,
      num_sind_met == 1 ~ 0,
      num_sind_met == 2 ~ 0,
      num_sind_met == 3 ~ 1,
      TRUE ~ NA_real_
    )
  )

#metabolic syndrome indicator
data6$gr_sind_met <- factor(data6$gr_sind_met,
                            levels = c(1, 0),
                            labels = c("yes", "no"))
```

```
questionr::freq(
  data6$gr_sind_met,
  cum = FALSE,
  total = TRUE,
  na.last = FALSE,
  valid = FALSE
) %>%
  knitr::kable(caption = "Frequency table for metabolic syndrome", digits = 2) %>%
  kable_styling(latex_options = "hold_position")
```

Symptom variables and indicator of hospital-acquired infection

For the indicator of a case arising from an infection acquired in the hospital (`NOSOCOMIAL`), the categories are 1-yes, 2-no and 9-ignored.

Table 22: Frequency table for metabolic syndrome

	n	%
yes	436	1.1
no	12073	29.7
NA	28131	69.2
Total	40640	100.0

```
questionr::freq(
  data6$NOSOCOMIAL,
  cum = FALSE,
  total = TRUE,
  na.last = FALSE,
  valid = FALSE
) %>%
  knitr::kable(caption = "Frequency table for hospital-acquired infection", digits = 2) %>%
  kable_styling(latex_options = "hold_position")
```

Table 23: Frequency table for hospital-acquired infection

	n	%
1	831	2.0
2	29891	73.6
9	2802	6.9
NA	7116	17.5
Total	40640	100.0

We will now label this variable, creating the variable `inf_inter`, considering only the valid categories.

```
data6$inf_inter <- factor(data6$NOSOCOMIAL,
                          levels = c("1", "2"),
                          labels = c("yes", "no"))
```

The symptoms are fever, cough, sore throat, dyspnoea, vomiting, abdominal pain, fatigue, respiratory distress, saturation, diarrhea, olfactory loss and loss of taste. In the original dataset they are `FEBRE`, `TOSSE`, `GARGANTA`, `DISPNEIA`, `VOMITO`, `DOR_ABD`, `FADIGA`, `DESC_RESP`, `SATURACAO`, `DIARREIA`, `PERD_OLFT`, `PERD_PALA`, respectively. The categories of these variables are 1-yes, 2-no and 9-ignored.

```
questionr::freq(
  data6$FEBRE,
  cum = FALSE,
  total = TRUE,
  na.last = FALSE,
  valid = FALSE
) %>%
  knitr::kable(caption = "Frequency table for fever indicator", digits = 2) %>%
  kable_styling(latex_options = "hold_position")
```

Table 24: Frequency table for fever indicator

	n	%
1	26759	65.8
2	9612	23.7
9	360	0.9
NA	3909	9.6
Total	40640	100.0

```
questionr::freq(
  data6$TOSSE,
  cum = FALSE,
  total = TRUE,
  na.last = FALSE,
  valid = FALSE
) %>%
  knitr::kable(caption = "Frequency table for cough indicator", digits = 2) %>%
  kable_styling(latex_options = "hold_position")
```

Table 25: Frequency table for cough indicator

	n	%
1	30188	74.3
2	6913	17.0
9	296	0.7
NA	3243	8.0
Total	40640	100.0

```
questionr::freq(
  data6$GARGANTA,
  cum = FALSE,
  total = TRUE,
  na.last = FALSE,
  valid = FALSE
) %>%
  knitr::kable(caption = "Frequency table for sore throat indicator", digits = 2) %>%
  kable_styling(latex_options = "hold_position")
```

Table 26: Frequency table for sore throat indicator

	n	%
1	9734	24.0
2	21740	53.5
9	612	1.5
NA	8554	21.0
Total	40640	100.0

```
questionr::freq(
  data6$DISPNEIA,
  cum = FALSE,
  total = TRUE,
  na.last = FALSE,
  valid = FALSE
) %>%
  knitr::kable(caption = "Frequency table for dyspnea indicator", digits = 2) %>%
  kable_styling(latex_options = "hold_position")
```

Table 27: Frequency table for dyspnea indicator

	n	%
1	27276	67.1
2	8996	22.1
9	295	0.7
NA	4073	10.0
Total	40640	100.0

```
questionr::freq(
  data6$VOMITO,
  cum = FALSE,
  total = TRUE,
  na.last = FALSE,
  valid = FALSE
) %>%
  knitr::kable(caption = "Frequency table for vomiting", digits = 2) %>%
  kable_styling(latex_options = "hold_position")
```

Table 28: Frequency table for vomiting

	n	%
1	4535	11.2
2	25807	63.5
9	681	1.7
NA	9617	23.7
Total	40640	100.0

```
questionr::freq(
  data6$DOR_ABD,
  cum = FALSE,
  total = TRUE,
  na.last = FALSE,
  valid = FALSE
) %>%
  knitr::kable(caption = "Frequency table for abdominal pain", digits = 2) %>%
  kable_styling(latex_options = "hold_position")
```

Table 29: Frequency table for abdominal pain

	n	%
1	1484	3.7
2	14291	35.2
9	493	1.2
NA	24372	60.0
Total	40640	100.0

```
questionr::freq(
  data6$FADIGA,
  cum = FALSE,
  total = TRUE,
  na.last = FALSE,
  valid = FALSE
) %>%
  knitr::kable(caption = "Frequency table for fatigue", digits = 2) %>%
  kable_styling(latex_options = "hold_position")
```

Table 30: Frequency table for fatigue

	n	%
1	4693	11.5
2	11523	28.4
9	497	1.2
NA	23927	58.9
Total	40640	100.0

```
questionr::freq(
  data6$DESC_RESP,
  cum = FALSE,
  total = TRUE,
  na.last = FALSE,
  valid = FALSE
) %>%
  knitr::kable(caption = "Frequency table for respiratory discomfort", digits = 2) %>%
  kable_styling(latex_options = "hold_position")
```

Table 31: Frequency table for respiratory discomfort

	n	%
1	21873	53.8
2	12150	29.9
9	423	1.0
NA	6194	15.2
Total	40640	100.0

```
questionr::freq(
  data6$SATURACAO,
  cum = FALSE,
  total = TRUE,
  na.last = FALSE,
  valid = FALSE
) %>%
  knitr::kable(caption = "Frequency table for saturation", digits = 2) %>%
  kable_styling(latex_options = "hold_position")
```

Table 32: Frequency table for saturation

	n	%
1	18260	44.9
2	15222	37.5
9	529	1.3
NA	6629	16.3
Total	40640	100.0

```
questionr::freq(
  data6$DIARREIA,
  cum = FALSE,
  total = TRUE,
  na.last = FALSE,
  valid = FALSE
) %>%
  knitr::kable(caption = "Frequency table for diarrhea", digits = 2) %>%
  kable_styling(latex_options = "hold_position")
```

Table 33: Frequency table for diarrhea

	n	%
1	6787	16.7
2	24120	59.4
9	621	1.5
NA	9112	22.4
Total	40640	100.0

```
questionr::freq(
  data6$PERD_OLFT,
  cum = FALSE,
  total = TRUE,
  na.last = FALSE,
  valid = FALSE
) %>%
  knitr::kable(caption = "Frequency table for olfactory loss", digits = 2) %>%
  kable_styling(latex_options = "hold_position")
```

Table 34: Frequency table for olfactory loss

	n	%
1	3602	8.9
2	12600	31.0
9	542	1.3
NA	23896	58.8
Total	40640	100.0

```
questionr::freq(
  data6$PERD_PALA,
  cum = FALSE,
  total = TRUE,
  na.last = FALSE,
  valid = FALSE
) %>%
  knitr::kable(caption = "Frequency table for loss of taste", digits = 2) %>%
  kable_styling(latex_options = "hold_position")
```

Table 35: Frequency table for loss of taste

	n	%
1	3463	8.5
2	12640	31.1
9	550	1.4
NA	23987	59.0
Total	40640	100.0

We will now label the sympthoms variables by considering only the valid categories and creating the variable `febre`, `tosse`, `garganta`, `dispneia`, `vomito`, `dor_abd`, `fadiga`, `desc_resp`, `saturacao`, `diarreia`, `perd_olft` and `perd_pala` that represent fever, cough, sore throat, dyspnoea, vomiting, abdominal pain, fatigue, respiratory distress, saturation, diarrhea, olfactory loss and loss of taste, respectively.

```
#fever
data6$febre <- factor(data6$FEBRE,
                      levels = c("1", "2"),
                      labels = c("yes", "no"))
```

```
#cough
data6$tosse <- factor(data6$TOSSE,
                      levels = c("1", "2"),
                      labels = c("yes", "no"))
```

```
#sore throat
data6$garganta <- factor(data6$GARGANTA,
                         levels = c("1", "2"),
                         labels = c("yes", "no"))
```

```r
#dyspnoea
data6$dispneia <- factor(data6$DISPNEIA,
                     levels = c("1", "2"),
                     labels = c("yes", "no"))
```

```r
#vomiting
data6$vomito <- factor(data6$VOMITO,
                       levels = c("1", "2"),
                       labels = c("yes", "no"))
```

```r
#abdominal pain
data6$dor_abd <- factor(data6$DOR_ABD,
                        levels = c("1", "2"),
                        labels = c("yes", "no"))
```

```r
#fatigue
data6$fadiga <- factor(data6$FADIGA,
                       levels = c("1", "2"),
                       labels = c("yes", "no"))
```

```r
#respiratory distress
data6$desc_resp <- factor(data6$DESC_RESP,
                          levels = c("1", "2"),
                          labels = c("yes", "no"))
```

```r
#saturation
data6$saturacao <- factor(data6$SATURACAO,
                     levels = c("1", "2"),
                     labels = c("yes", "no"))
```

```r
#diarrhea
data6$diarreia <- factor(data6$DIARREIA,
                     levels = c("1", "2"),
                     labels = c("yes", "no"))
```

```r
#olfactory loss
data6$perd_olft <- factor(data6$PERD_OLFT,
                          levels = c("1", "2"),
                          labels = c("yes", "no"))
```

```r
#loss of taste
data6$perd_pala <- factor(data6$PERD_PALA,
                          levels = c("1", "2"),
                          labels = c("yes", "no"))
```

Besides the indicator variable of each symptom, the variable group of symptoms has three categories: “none”, “1 or 2” and “>2” (`gr_sintomas`) and another indicator variable of at least one symptom (`sintomas_SN`), with categories “yes” or “no”. The symptoms are fever, cough, sore throat, dyspnoea, respiratory distress, saturation, diarrhea, vomiting, abdominal pain, fatigue, olfactory loss and loss of taste.

```r
sintomas <-
  c(
    "FEBRE_aux",
    "TOSSE_aux",
    "GARGANTA_aux",
    "DISPNEIA_aux",
    "DESC_RESP_aux",
    "SATURACAO_aux",
    "DIARREIA_aux",
    "VOMITO_aux",
    "DOR_ABD_aux",
    "FADIGA_aux",
    "PERD_OLFT_aux",
    "PERD_PALA_aux"
  )

sintomas1 <-
  c(
    "FEBRE_aux1",
    "TOSSE_aux1",
    "GARGANTA_aux1",
    "DISPNEIA_aux1",
    "DESC_RESP_aux1",
    "SATURACAO_aux1",
    "DIARREIA_aux1",
    "VOMITO_aux1",
    "DOR_ABD_aux1",
    "FADIGA_aux1",
    "PERD_OLFT_aux1",
    "PERD_PALA_aux1"
  )

data6 <-
  mutate(
    data6,
    FEBRE_aux = FEBRE,
    TOSSE_aux = TOSSE,
    GARGANTA_aux = GARGANTA,
    DISPNEIA_aux = DISPNEIA,
    DESC_RESP_aux = DESC_RESP,
    SATURACAO_aux = SATURACAO,
    DIARREIA_aux = DIARREIA,
    VOMITO_aux = VOMITO,
    DOR_ABD_aux = DOR_ABD,
    FADIGA_aux = FADIGA,
    PERD_OLFT_aux = PERD_OLFT,
    PERD_PALA_aux = PERD_PALA
  )

data6 <-
  mutate(
    data6,
    FEBRE_aux1 = FEBRE,
```

```
    TOSSE_aux1 = TOSSE,
    GARGANTA_aux1 = GARGANTA,
    DISPNEIA_aux1 = DISPNEIA,
    DESC_RESP_aux1 = DESC_RESP,
    SATURACAO_aux1 = SATURACAO,
    DIARREIA_aux1 = DIARREIA,
    VOMITO_aux1 = VOMITO,
    DOR_ABD_aux1 = DOR_ABD,
    FADIGA_aux1 = FADIGA,
    PERD_OLFT_aux1 = PERD_OLFT,
    PERD_PALA_aux1 = PERD_PALA
  )

data6 <-  data6 %>%
  mutate_at(all_of(sintomas), function(x) {
    case_when(x == "1" ~ 1, TRUE ~ 0)
  }) %>%
  mutate_at(all_of(sintomas1), function(x) {
    case_when(x == "1" ~ 1, x == "2" ~ 0, TRUE ~ NA_real_)
  }) %>%
  mutate(
    cont_sintomas = FEBRE_aux + TOSSE_aux +  GARGANTA_aux + DISPNEIA_aux + DESC_RESP_aux +
      SATURACAO_aux + DIARREIA_aux + VOMITO_aux + DOR_ABD_aux + FADIGA_aux +
     PERD_OLFT_aux + PERD_PALA_aux
  ) %>%
  mutate(
    num_sintomas = case_when(
      is.na(FEBRE_aux1) |
        is.na(TOSSE_aux1) |
        is.na(GARGANTA_aux1) |
        is.na(DISPNEIA_aux1) |
        is.na(DESC_RESP_aux1) |
        is.na(SATURACAO_aux1) | is.na(DIARREIA_aux1) |
        is.na(VOMITO_aux1) |
        is.na(DOR_ABD_aux1) |
        is.na(FADIGA_aux1) |
        is.na(PERD_OLFT_aux1) | is.na(PERD_PALA_aux1) ~ NA_real_,
      TRUE ~ cont_sintomas
    ),
    gr_sintomas = case_when(
      num_sintomas == 0 ~ 0,
      num_sintomas == 1 ~ 1,
      num_sintomas == 2 ~ 1,
      num_sintomas >  2 ~ 2,
      TRUE ~ NA_real_
    ),
    sintomas_SN = case_when(
      gr_sintomas == 0 ~ 0,
      gr_sintomas == 1 ~ 1,
      gr_sintomas == 2 ~ 1,
      TRUE ~ NA_real_
    )
  )
```

```r
#Symptom group
data6$gr_sintomas <- factor(
  data6$gr_sintomas,
  levels = c(0, 1, 2),
  labels = c("none", "1 or 2", ">2")
)

#At least one symptom indicator
data6$sintomas_SN <- factor(data6$sintomas_SN,
                            levels = c(1, 0),
                            labels = c("yes", "no"))
```

```r
questionr::freq(
  data6$gr_sintomas,
  cum = FALSE,
  total = TRUE,
  na.last = FALSE,
  valid = FALSE
) %>%
  knitr::kable(caption = "Frequency table for symptom group", digits = 2) %>%
  kable_styling(latex_options = "hold_position")
```

Table 36: Frequency table for symptom group

	n	%
none	338	0.8
1 or 2	2347	5.8
>2	12028	29.6
NA	25927	63.8
Total	40640	100.0

```r
questionr::freq(
  data6$sintomas_SN,
  cum = FALSE,
  total = TRUE,
  na.last = FALSE,
  valid = FALSE
) %>%
  knitr::kable(caption = "Frequency table for at least one symptom indicator", digits = 2) %>%
  kable_styling(latex_options = "hold_position")
```

Table 37: Frequency table for at least one symptom indicator

	n	%
yes	14375	35.4
no	338	0.8
NA	25927	63.8
Total	40640	100.0

An indicator variable of at least one respiratory symptom (`sint_resp`) is created in the following.

```r
resp <-  c("DISPNEIA_aux", "DESC_RESP_aux", "SATURACAO_aux")

resp1 <-  c("DISPNEIA_aux1", "DESC_RESP_aux1", "SATURACAO_aux1")

data6 <-
  mutate(
    data6,
    DISPNEIA_aux = DISPNEIA,
    DESC_RESP_aux = DESC_RESP,
    SATURACAO_aux = SATURACAO
  )

data6 <-
  mutate(
    data6,
    DISPNEIA_aux1 = DISPNEIA,
    DESC_RESP_aux1 = DESC_RESP,
    SATURACAO_aux1 = SATURACAO
  )

data6 <-  data6 %>%
  mutate_at(all_of(resp), function(x) {
    case_when(x == "1" ~ 1, TRUE ~ 0)
  }) %>%
  mutate_at(all_of(resp1), function(x) {
    case_when(x == "1" ~ 1, x == "2" ~ 0, TRUE ~ NA_real_)
  }) %>%
  mutate(cont_resp = DISPNEIA_aux + DESC_RESP_aux + SATURACAO_aux) %>%
  mutate(
    num_resp = case_when(
      (cont_resp == 0) &
        (
          is.na(DISPNEIA_aux1) |
            is.na(DESC_RESP_aux1) | is.na(SATURACAO_aux1)
        ) ~ NA_real_,
      TRUE ~ cont_resp
    ),
    sint_resp = case_when(
      num_resp == 0 ~ 0,
      num_resp == 1 ~ 1,
      num_resp == 2 ~ 1,
      num_resp == 3 ~ 1,
      TRUE ~ NA_real_
    )
  )

# Any respiratory symptom indicator
data6$sint_resp <- factor(data6$sint_resp,
                          levels = c(1, 0),
                          labels = c("yes", "no"))
```

```r
questionr::freq(
  data6$sint_resp,
```

```
  cum = FALSE,
  total = TRUE,
  na.last = FALSE,
  valid = FALSE
) %>%
  knitr::kable(caption = "Frequency table for any respiratory symptom", digits = 2) %>%
  kable_styling(latex_options = "hold_position")
```

Table 38: Frequency table for any respiratory symptom

	n	%
yes	32875	80.9
no	4851	11.9
NA	2914	7.2
Total	40640	100.0

The SARI (severe acute respiratory infection) indicator (`sari`) is "yes" if one has fever and cough or sore throat and respiratory distress or dyspnoea or saturation. The SARI without fever indicator (`sari_sfebre`) is what the name says.

```
data6 <-  data6 %>%
  mutate(
    sari = case_when(
      FEBRE == "1" &
        (TOSSE == "1" | GARGANTA == "1") &
        (DESC_RESP == "1" |
           DISPNEIA == "1" | SATURACAO == "1") ~ 1,
      is.na(FEBRE_aux1) |
        (is.na(TOSSE_aux1)  &
           is.na(GARGANTA_aux1)) |
        (
          is.na(DESC_RESP_aux1) &
            is.na(DISPNEIA_aux1) &  is.na(SATURACAO_aux1)
        ) ~ NA_real_,
      TRUE ~ 0
    ),
    sari_sfebre = case_when(
      (TOSSE == "1" | GARGANTA == "1") &
        (DESC_RESP == "1" | DISPNEIA == "1" | SATURACAO == "1") ~ 1,
      (is.na(TOSSE_aux1)  &
         is.na(GARGANTA_aux1)) |
        (
          is.na(DESC_RESP_aux1) &
            is.na(DISPNEIA_aux1) &  is.na(SATURACAO_aux1)
        ) ~ NA_real_,
      TRUE ~ 0
    )
  )

#SARI
data6$sari <- factor(data6$sari,
                     levels = c(1, 0),
```

```
                        labels = c("yes", "no"))
#SARI without fever
data6$sari_sfebre <- factor(data6$sari_sfebre,
                            levels = c(1, 0),
                            labels = c("yes", "no"))
```

```
questionr::freq(
  data6$sari,
  cum = FALSE,
  total = TRUE,
  na.last = FALSE,
  valid = FALSE
) %>%
  knitr::kable(caption = "Frequency table for SARI", digits = 2) %>%
  kable_styling(latex_options = "hold_position")
```

Table 39: Frequency table for SARI

	n	%
yes	19639	48.3
no	14479	35.6
NA	6522	16.0
Total	40640	100.0

```
questionr::freq(
  data6$sari_sfebre,
  cum = FALSE,
  total = TRUE,
  na.last = FALSE,
  valid = FALSE
) %>%
  knitr::kable(caption = "Frequency table for SARI without fever", digits = 2) %>%
  kable_styling(latex_options = "hold_position")
```

Table 40: Frequency table for SARI without fever

	n	%
yes	26671	65.6
no	9268	22.8
NA	4701	11.6
Total	40640	100.0

Time to event variables

The data set contains the date of notification, the first symptoms, hospitalization, admission and leaving the ICU, and the outcome (death or discharge).

```
### dates
last_day <- as.Date("2021-01-11")

data6 <-  data6 %>%
  mutate(
    dt_notific = as.Date(DT_NOTIFIC, format = "%d/%m/%Y"),
    dt_sint = as.Date(DT_SIN_PRI, format = "%d/%m/%Y"),
    dt_interna = as.Date(DT_INTERNA, format = "%d/%m/%Y"),
    dt_pcr = as.Date(DT_PCR, format = "%d/%m/%Y"),
    dt_entuti  = as.Date(DT_ENTUTI,  format = "%d/%m/%Y"),
    dt_saiduti = as.Date(DT_SAIDUTI, format = "%d/%m/%Y"),
    dt_evoluca = as.Date(DT_EVOLUCA, format = "%d/%m/%Y")
  )

data6 <-  data6 %>%
  mutate(dt_interna = as.Date(
    case_when(
      DT_INTERNA == "16/04/7202" ~ "16/04/2020",
      #typo
      DT_INTERNA == "10/12/2202" ~ "10/12/2020",
      #typo
      TRUE ~ as.character(DT_INTERNA)
    ),
    format = "%d/%m/%Y"
  ))

#dt_notific - Date of filling in the notification form
#dt_sint - Date of first symptoms
#dt_interna - Date of hospitalization
#dt_pcr - Date of Result RT-PCR / other method by Molecular Biology
#dt_entuti - Date of admission to the ICU
#dt_saiduti - Date of leaving the ICU
#dt_evoluca - Date of discharge or death
```

Comparison among pregnant women, women who have recently given birth and women in reprodutive age

Characterization variables and comorbities

Below we present the descriptive measures of age by group.

```
datasummary((gest_puerp) ~ NU_IDADE_N*(n+media+DP+mediana+minimo+maximo+q25+q75+IQR),
            data = data6, output = 'markdown')
```

	n	media	DP	mediana	minimo	maximo	q25	q75	IQR
no	36474.00	38.22	8.25	40.00	10.00	49.00	33.00	45.00	12.00
preg	3372.00	29.64	6.93	30.00	10.00	49.00	24.00	35.00	11.00
puerp	794.00	30.24	7.34	30.00	13.00	49.00	25.00	36.00	11.00

The comparison of groups with respect to age was performed by the Kruskal-Wallis test below.

```r
kruskal.test(NU_IDADE_N ~ gest_puerp,
             data = data6)
```

```
##
##  Kruskal-Wallis rank sum test
##
## data:  NU_IDADE_N by gest_puerp
## Kruskal-Wallis chi-squared = 3720.6, df = 2, p-value < 2.2e-16
```

```r
pairwise.wilcox.test(data6$NU_IDADE_N, data6$gest_puerp)
```

```
##
##  Pairwise comparisons using Wilcoxon rank sum test with continuity correction
##
## data:  data6$NU_IDADE_N and data6$gest_puerp
##
##       no     preg
## preg  <2e-16 -
## puerp <2e-16 0.034
##
## P value adjustment method: holm
```

The distribution of the age range by groups:

```r
ctable(
  data6$faixa_et,
  data6$gest_puerp,
  prop = "c",
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Column Proportions
## faixa_et * gest_puerp
## Data Frame: data6
##
##
## ---------- ------------ ---------------- --------------- -------------- ----------------
##              gest_puerp               no            preg          puerp            Total
##   faixa_et
##        <20                 1009 (  2.8%)    250 (  7.4%)    61 (  7.7%)    1320 (  3.2%)
##      20-34                 9629 ( 26.4%)   2244 ( 66.5%)   494 ( 62.2%)   12367 ( 30.4%)
##        >34                25836 ( 70.8%)    878 ( 26.0%)   239 ( 30.1%)   26953 ( 66.3%)
##      Total                36474 (100.0%)   3372 (100.0%)   794 (100.0%)   40640 (100.0%)
## ---------- ------------ ---------------- --------------- -------------- ----------------
##
## ----------------------------
##  Chi.squared   df   p.value
## ------------- ---- ---------
##    3252.28     4       0
## ----------------------------
```

For race:

```
ctable(
  data6$raca,
  data6$gest_puerp,
  prop = "c",
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Column Proportions
## raca * gest_puerp
## Data Frame: data6
##
##
## ------------ ------------ ---------------- --------------- -------------- ----------------
##                gest_puerp               no            preg          puerp            Total
##         raca
##        white                15418 ( 54.0%)   1102 ( 40.5%)   238 ( 37.2%)   16758 ( 52.5%)
##        black                 1679 (  5.9%)    192 (  7.1%)    46 (  7.2%)    1917 (  6.0%)
##       yellow                  359 (  1.3%)     33 (  1.2%)     4 (  0.6%)     396 (  1.2%)
##        brown                10976 ( 38.5%)   1382 ( 50.8%)   348 ( 54.4%)   12706 ( 39.8%)
##   indigenous                   97 (  0.3%)     13 (  0.5%)     4 (  0.6%)     114 (  0.4%)
##        Total               28529 (100.0%)   2722 (100.0%)   640 (100.0%)   31891 (100.0%)
## ------------ ------------ ---------------- --------------- -------------- ----------------
##
## ----------------------------
##  Chi.squared   df   p.value
## ------------- ---- ---------
##   257.0229     8       0
## ----------------------------
```

For school:

```
ctable(
  data6$escol,
  data6$gest_puerp,
  prop = "c",
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Column Proportions
## escol * gest_puerp
## Data Frame: data6
##
##
## ------------------ ------------ ---------------- --------------- -------------- ----------------
##                       gest_puerp               no            preg          puerp            Total
##              escol
##        no education                  219 (  1.4%)      7 (  0.5%)     2 (  0.6%)     228 (  1.3%)
##   up to high school                 3661 ( 23.7%)    360 ( 25.1%)    81 ( 24.5%)    4102 ( 23.8%)
##         high school                 7532 ( 48.7%)    790 ( 55.1%)   179 ( 54.2%)    8501 ( 49.3%)
```

```
##    higher education                4058 ( 26.2%)    277 ( 19.3%)    68 ( 20.6%)    4403 ( 25.5%)
##               Total               15470 (100.0%)   1434 (100.0%)   330 (100.0%)   17234 (100.0%)
## ------------------- ------------ ---------------- --------------- -------------- ----------------
##
## ----------------------------
##  Chi.squared   df   p.value
## ------------ ---- ---------
##    51.3942     6       0
## ----------------------------
```

For group of comorbidities:

```
ctable(
  data6$gr_comorb,
  data6$gest_puerp,
  prop = "c",
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Column Proportions
## gr_comorb * gest_puerp
## Data Frame: data6
##
##
## ----------- ------------ ---------------- -------------- -------------- ----------------
##               gest_puerp               no           preg          puerp            Total
##   gr_comorb
##        none                 2022 ( 19.3%)   576 ( 57.7%)   335 ( 73.3%)    2933 ( 24.5%)
##      1 or 2                 7681 ( 73.1%)   408 ( 40.8%)   106 ( 23.2%)    8195 ( 68.5%)
##          >2                  799 (  7.6%)    15 (  1.5%)    16 (  3.5%)     830 (  6.9%)
##       Total                10502 (100.0%)   999 (100.0%)   457 (100.0%)   11958 (100.0%)
## ----------- ------------ ---------------- -------------- -------------- ----------------
##
## ----------------------------
##  Chi.squared   df   p.value
## ------------ ---- ---------
##   1347.912     4       0
## ----------------------------
```

For cardiopathy:

```
ctable(
  data6$cardiopati,
  data6$gest_puerp,
  prop = "c",
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Column Proportions
## cardiopati * gest_puerp
## Data Frame: data6
```

```
##
##
## ------------ ------------ ---------------- --------------- -------------- ----------------
##                gest_puerp               no            preg          puerp            Total
##   cardiopati
##          yes                 5780 ( 43.4%)    214 ( 18.8%)    77 ( 15.2%)    6071 ( 40.5%)
##           no                 7550 ( 56.6%)    927 ( 81.2%)   428 ( 84.8%)    8905 ( 59.5%)
##        Total                13330 (100.0%)   1141 (100.0%)   505 (100.0%)   14976 (100.0%)
## ------------ ------------ ---------------- --------------- -------------- ----------------
##
## ----------------------------
##  Chi.squared   df   p.value
## ------------- ---- ---------
##   402.6598     2       0
## ----------------------------
```

For hematology:

```
ctable(
  data6$hematologi,
  data6$gest_puerp,
  prop = "c",
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Column Proportions
## hematologi * gest_puerp
## Data Frame: data6
##
##
## ------------ ------------ ---------------- --------------- -------------- ----------------
##                gest_puerp               no            preg          puerp            Total
##   hematologi
##          yes                  356 (  3.1%)     16 (  1.5%)    11 (  2.3%)     383 (  3.0%)
##           no                10984 ( 96.9%)   1065 ( 98.5%)   469 ( 97.7%)   12518 ( 97.0%)
##        Total                11340 (100.0%)   1081 (100.0%)   480 (100.0%)   12901 (100.0%)
## ------------ ------------ ---------------- --------------- -------------- ----------------
##
## ----------------------------
##  Chi.squared   df   p.value
## ------------- ---- ---------
##    10.2254     2     0.006
## ----------------------------
```

For liver disease:

```
ctable(
  data6$hepatica,
  data6$gest_puerp,
  prop = "c",
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Column Proportions
## hepatica * gest_puerp
## Data Frame: data6
##
##
## ---------- ------------ ---------------- --------------- -------------- ----------------
##              gest_puerp               no            preg          puerp            Total
##   hepatica
##        yes                   189 (  1.7%)      8 (  0.8%)     4 (  0.8%)     201 (  1.6%)
##         no                 11037 ( 98.3%)   1058 ( 99.2%)   473 ( 99.2%)   12568 ( 98.4%)
##      Total                 11226 (100.0%)   1066 (100.0%)   477 (100.0%)   12769 (100.0%)
## ---------- ------------ ---------------- --------------- -------------- ----------------
##
## ----------------------------
##  Chi.squared   df   p.value
## ------------- ---- ---------
##    7.2016      2    0.0273
## ----------------------------
```

For asthma:

```
ctable(
  data6$asma,
  data6$gest_puerp,
  prop = "c",
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Column Proportions
## asma * gest_puerp
## Data Frame: data6
##
##
## ------- ------------ ---------------- --------------- -------------- ----------------
##           gest_puerp               no            preg          puerp            Total
##    asma
##     yes                  1883 ( 15.9%)    139 ( 12.4%)    33 (  6.8%)    2055 ( 15.3%)
##      no                  9938 ( 84.1%)    980 ( 87.6%)   453 ( 93.2%)   11371 ( 84.7%)
##   Total                 11821 (100.0%)   1119 (100.0%)   486 (100.0%)   13426 (100.0%)
## ------- ------------ ---------------- --------------- -------------- ----------------
##
## ----------------------------
##  Chi.squared   df   p.value
## ------------- ---- ---------
##    37.9111     2       0
## ----------------------------
```

For diabetes:

```
ctable(
  data6$diabetes,
  data6$gest_puerp,
```

```
  prop = "c",
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Column Proportions
## diabetes * gest_puerp
## Data Frame: data6
##
##
## ---------- ------------ ---------------- --------------- -------------- ----------------
##              gest_puerp               no            preg          puerp            Total
##   diabetes
##        yes                 4825 ( 37.3%)    241 ( 20.9%)    61 ( 12.4%)    5127 ( 35.2%)
##         no                 8109 ( 62.7%)    910 ( 79.1%)   429 ( 87.6%)    9448 ( 64.8%)
##      Total                12934 (100.0%)   1151 (100.0%)   490 (100.0%)   14575 (100.0%)
## ---------- ------------ ---------------- --------------- -------------- ----------------
##
## ----------------------------
##  Chi.squared   df   p.value
## ------------ ---- ---------
##    239.019     2       0
## ----------------------------
```

For neurological diseases:

```
ctable(
  data6$neuro,
  data6$gest_puerp,
  prop = "c",
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Column Proportions
## neuro * gest_puerp
## Data Frame: data6
##
##
## ------- ------------ ---------------- --------------- -------------- ----------------
##           gest_puerp               no            preg          puerp            Total
##   neuro
##     yes                   568 (  5.0%)     25 (  2.3%)     5 (  1.0%)     598 (  4.6%)
##      no                 10809 ( 95.0%)   1053 ( 97.7%)   473 ( 99.0%)   12335 ( 95.4%)
##   Total                 11377 (100.0%)   1078 (100.0%)   478 (100.0%)   12933 (100.0%)
## ------- ------------ ---------------- --------------- -------------- ----------------
##
## ----------------------------
##  Chi.squared   df   p.value
## ------------ ---- ---------
##    30.3657     2       0
## ----------------------------
```

For pneumopathy:

```
ctable(
  data6$pneumopati,
  data6$gest_puerp,
  prop = "c",
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Column Proportions
## pneumopati * gest_puerp
## Data Frame: data6
##
##
## ------------ ------------ ---------------- --------------- -------------- ----------------
##                gest_puerp               no            preg          puerp            Total
##   pneumopati
##          yes                   579 (  5.1%)     23 (  2.1%)     5 (  1.0%)     607 (  4.7%)
##           no                 10811 ( 94.9%)   1052 ( 97.9%)   475 ( 99.0%)   12338 ( 95.3%)
##        Total                 11390 (100.0%)   1075 (100.0%)   480 (100.0%)   12945 (100.0%)
## ------------ ------------ ---------------- --------------- -------------- ----------------
##
## ----------------------------
##  Chi.squared   df   p.value
## ------------- ---- ---------
##    33.8864     2       0
## ----------------------------
```

For immunosuppression:

```
ctable(
  data6$imunodepre,
  data6$gest_puerp,
  prop = "c",
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Column Proportions
## imunodepre * gest_puerp
## Data Frame: data6
##
##
## ------------ ------------ ---------------- --------------- -------------- ----------------
##                gest_puerp               no            preg          puerp            Total
##   imunodepre
##          yes                  1289 ( 11.1%)     40 (  3.7%)    18 (  3.7%)    1347 ( 10.3%)
##           no                 10289 ( 88.9%)   1038 ( 96.3%)   463 ( 96.3%)   11790 ( 89.7%)
##        Total                 11578 (100.0%)   1078 (100.0%)   481 (100.0%)   13137 (100.0%)
## ------------ ------------ ---------------- --------------- -------------- ----------------
##
## ----------------------------
```

```
##  Chi.squared   df   p.value
## ------------- ---- ---------
##    82.0478     2       0
## ---------------------------
```

For kidney disease:

```
ctable(
  data6$renal,
  data6$gest_puerp,
  prop = "c",
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Column Proportions
## renal * gest_puerp
## Data Frame: data6
##
##
## ------- ------------ ---------------- --------------- -------------- ----------------
##           gest_puerp               no            preg          puerp            Total
##   renal
##     yes                 1080 (  9.4%)     24 (  2.2%)    12 (  2.5%)    1116 (  8.6%)
##      no                10415 ( 90.6%)   1049 ( 97.8%)   467 ( 97.5%)   11931 ( 91.4%)
##   Total                11495 (100.0%)   1073 (100.0%)   479 (100.0%)   13047 (100.0%)
## ------- ------------ ---------------- --------------- -------------- ----------------
##
## ----------------------------
##  Chi.squared   df   p.value
## ------------- ---- ---------
##    87.5534     2       0
## ----------------------------
```

For obesity:

```
ctable(
  data6$obesidade,
  data6$gest_puerp,
  prop = "c",
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Column Proportions
## obesidade * gest_puerp
## Data Frame: data6
##
##
## ----------- ------------ ---------------- --------------- -------------- ----------------
##               gest_puerp               no            preg          puerp            Total
##   obesidade
##         yes                 3741 ( 30.8%)    143 ( 13.0%)    53 ( 11.0%)    3937 ( 28.7%)
```

```
##          no                 8394 ( 69.2%)    954 ( 87.0%)   428 ( 89.0%)    9776 ( 71.3%)
##       Total                12135 (100.0%)   1097 (100.0%)   481 (100.0%)   13713 (100.0%)
## ----------- ------------ ---------------- --------------- -------------- ----------------
##
## ----------------------------
##  Chi.squared   df   p.value
## ------------- ---- ---------
##   231.8377     2       0
## ----------------------------
```

For metabolic syndrome:

```
ctable(
  data6$gr_sind_met,
  data6$gest_puerp,
  prop = "c",
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Column Proportions
## gr_sind_met * gest_puerp
## Data Frame: data6
##
##
## ------------ ------------ ---------------- --------------- -------------- ----------------
##                 gest_puerp               no            preg          puerp            Total
##   gr_sind_met
##           yes                  422 (  3.8%)      7 (  0.7%)     7 (  1.5%)     436 (  3.5%)
##            no                10576 ( 96.2%)   1037 ( 99.3%)   460 ( 98.5%)   12073 ( 96.5%)
##         Total                10998 (100.0%)   1044 (100.0%)   467 (100.0%)   12509 (100.0%)
## ------------ ------------ ---------------- --------------- -------------- ----------------
##
## ----------------------------
##  Chi.squared   df   p.value
## ------------- ---- ---------
##    34.1117     2       0
## ----------------------------
```

For number of comorbities:

```
ctable(
  data6$gr_comorb,
  data6$gest_puerp,
  prop = "c",
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Column Proportions
## gr_comorb * gest_puerp
## Data Frame: data6
##
```

```
##
## ----------- ------------ ---------------- -------------- -------------- ----------------
##               gest_puerp               no           preg          puerp            Total
##   gr_comorb
##        none                  2022 ( 19.3%)   576 ( 57.7%)   335 ( 73.3%)    2933 ( 24.5%)
##      1 or 2                  7681 ( 73.1%)   408 ( 40.8%)   106 ( 23.2%)    8195 ( 68.5%)
##          >2                   799 (  7.6%)    15 (  1.5%)    16 (  3.5%)     830 (  6.9%)
##       Total                 10502 (100.0%)   999 (100.0%)   457 (100.0%)   11958 (100.0%)
## ----------- ------------ ---------------- -------------- -------------- ----------------
##
## ----------------------------
##  Chi.squared   df   p.value
## ------------- ---- ---------
##   1347.912     4       0
## ----------------------------
```

Symptom variables and hospital-acquired infection

For hospital-acquired infection:

```
ctable(
  data6$gest_puerp,
  data6$inf_inter,
  prop = "r",
  OR = TRUE,
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Row Proportions
## gest_puerp * inf_inter
## Data Frame: data6
##
##
## ------------ ----------- ------------ --------------- -----------------
##                inf_inter          yes              no             Total
##   gest_puerp
##           no                760 (2.8%)   26748 (97.2%)   27508 (100.0%)
##         preg                 37 (1.4%)    2580 (98.6%)    2617 (100.0%)
##        puerp                 34 (5.7%)     563 (94.3%)     597 (100.0%)
##        Total                831 (2.7%)   29891 (97.3%)   30722 (100.0%)
## ------------ ----------- ------------ --------------- -----------------
##
## ----------------------------
##  Chi.squared   df   p.value
## ------------- ---- ---------
##    37.2096     2       0
## ----------------------------
```

```
oi <- table(data6$gest_puerp, data6$inf_inter)
odds_function(oi)
```

```
## $data
##        Var Present
## Groups     no yes Total
##   no    26748 760 27508
##   preg   2580  37  2617
##   puerp   563  34   597
##   Total 29891 831 30722
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups   estimate     lower     upper
##   no    1.0000000        NA        NA
##   preg  0.5068696 0.3289241 0.7438173
##   puerp 2.1346848 1.3479802 3.2122530
##
## $p.value
##        two-sided
## Groups    midp.exact fisher.exact   chi.square
##   no              NA           NA           NA
##   preg  9.171204e-06 1.311602e-05 5.226267e-05
##   puerp 1.467928e-04 1.353220e-04 3.279351e-05
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

```
odds_function1(oi)
```

```
## $data
##        Var Present
## Groups     no yes Total
##   preg   2580  37  2617
##   no    26748 760 27508
##   puerp   563  34   597
##   Total 29891 831 30722
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups  estimate    lower    upper
##   preg  1.000000       NA       NA
##   no    1.972929 1.344416 3.040215
##   puerp 4.209959 2.340082 7.540677
##
## $p.value
##        two-sided
## Groups    midp.exact fisher.exact   chi.square
##   preg            NA           NA           NA
##   no    9.171204e-06 1.311602e-05 5.226267e-05
##   puerp 1.493613e-08 1.217359e-08 3.658162e-10
##
## $correction
## [1] TRUE
```

```
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

The symptoms are fever, cough, sore throat, dyspnoea, respiratory distress, saturation, diarrhea, vomiting, abdominal pain, fatigue, olfactory loss and loss of taste, and their association with group is presented in the following.

For fever:

```
ctable(
  data6$gest_puerp,
  data6$febre,
  prop = "r",
  OR = TRUE,
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Row Proportions
## gest_puerp * febre
## Data Frame: data6
##
##
## ------------ ------- --------------- -------------- -----------------
##                febre             yes             no             Total
##   gest_puerp
##           no           24297 (74.3%)   8405 (25.7%)   32702 (100.0%)
##         preg            2038 (68.3%)    945 (31.7%)    2983 (100.0%)
##        puerp             424 (61.8%)    262 (38.2%)     686 (100.0%)
##        Total           26759 (73.6%)   9612 (26.4%)   36371 (100.0%)
## ------------ ------- --------------- -------------- -----------------
##
## ----------------------------
##  Chi.squared   df   p.value
## ------------- ---- ---------
##   100.0112     2       0
## ----------------------------
```

```
oi <- table(data6$gest_puerp, data6$febre)
odds_function(oi)
```

```
## $data
##        Var Present
## Groups    no   yes Total
##   no    8405 24297 32702
##   preg   945  2038  2983
##   puerp  262   424   686
##   Total 9612 26759 36371
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups   estimate     lower     upper
```

```
##   no    1.0000000        NA        NA
##   preg  0.7459848 0.6760335 0.8239582
##   puerp 0.5597023 0.4631431 0.6782101
##
## $p.value
##        two-sided
## Groups    midp.exact fisher.exact   chi.square
##   no              NA           NA           NA
##   preg  2.978728e-12 3.181407e-12 1.382377e-12
##   puerp 1.313394e-12 1.342997e-12 2.117116e-13
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

```
odds_function1(oi)
```

```
## $data
##        Var Present
## Groups    no   yes Total
##   preg   945  2038  2983
##   no    8405 24297 32702
##   puerp  262   424   686
##   Total 9612 26759 36371
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups   estimate     lower     upper
##   preg  1.0000000        NA        NA
##   no    1.3405323 1.2136538 1.4792166
##   puerp 0.7503283 0.6084965 0.9270789
##
## $p.value
##        two-sided
## Groups    midp.exact fisher.exact   chi.square
##   preg            NA           NA           NA
##   no    2.978728e-12 3.181407e-12 1.382377e-12
##   puerp 1.183359e-03 1.174552e-03 1.243791e-03
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

For cough:

```
ctable(
  data6$gest_puerp,
  data6$tosse,
  prop = "r",
```

```
  OR = TRUE,
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Row Proportions
## gest_puerp * tosse
## Data Frame: data6
##
##
## ------------ ------- --------------- -------------- -----------------
##                tosse             yes             no             Total
##   gest_puerp
##           no           27305 (81.9%)   6019 (18.1%)   33324 (100.0%)
##         preg            2408 (78.1%)    677 (21.9%)    3085 (100.0%)
##        puerp             475 (68.6%)    217 (31.4%)     692 (100.0%)
##        Total           30188 (81.4%)   6913 (18.6%)   37101 (100.0%)
## ------------ ------- --------------- -------------- -----------------
##
## ----------------------------
##  Chi.squared   df   p.value
## ------------- ---- ---------
##   103.3967     2       0
## ----------------------------
```

```
oi <- table(data6$gest_puerp, data6$tosse)
odds_function(oi)
```

```
## $data
##        Var Present
## Groups    no   yes Total
##   no    6019 27305 33324
##   preg   677  2408  3085
##   puerp  217   475   692
##   Total 6913 30188 37101
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups   estimate     lower     upper
##   no    1.0000000        NA        NA
##   preg  0.7839481 0.7032306 0.8755235
##   puerp 0.4823503 0.3961084 0.5900711
##
## $p.value
##        two-sided
## Groups    midp.exact fisher.exact   chi.square
##   no              NA           NA           NA
##   preg  1.809875e-07 1.732217e-07 1.148948e-07
##   puerp 0.000000e+00 7.313006e-17 5.709851e-19
##
## $correction
## [1] TRUE
##
```

```
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

```
odds_function1(oi)
```

```
## $data
##        Var Present
## Groups    no   yes Total
##   preg   677  2408  3085
##   no    6019 27305 33324
##   puerp  217   475   692
##   Total 6913 30188 37101
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups   estimate     lower     upper
##   preg  1.0000000        NA        NA
##   no    1.2756027 1.1421738 1.4220086
##   puerp 0.6153249 0.4935274 0.7697286
##
## $p.value
##        two-sided
## Groups    midp.exact fisher.exact   chi.square
##   preg            NA           NA           NA
##   no    1.809875e-07 1.732217e-07 1.148948e-07
##   puerp 2.811094e-07 3.161235e-07 1.831190e-07
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

For sore throat:

```
ctable(
  data6$gest_puerp,
  data6$garganta,
  prop = "r",
  OR = TRUE,
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Row Proportions
## gest_puerp * garganta
## Data Frame: data6
##
##
## ------------ ---------- -------------- --------------- -----------------
##                garganta            yes              no             Total
##   gest_puerp
##           no              8854 (31.4%)   19388 (68.6%)   28242 (100.0%)
```

```
##         preg               724 (27.5%)    1905 (72.5%)    2629 (100.0%)
##        puerp               156 (25.9%)     447 (74.1%)     603 (100.0%)
##        Total              9734 (30.9%)   21740 (69.1%)   31474 (100.0%)
## ------------ ---------- -------------- --------------- ----------------
##
## ----------------------------
##  Chi.squared   df   p.value
## ------------- ---- ---------
##    23.7141     2       0
## ----------------------------
```

```
oi <- table(data6$gest_puerp, data6$garganta)
odds_function(oi)
```

```
## $data
##        Var Present
## Groups     no  yes Total
##   no    19388 8854 28242
##   preg   1905  724  2629
##   puerp   447  156   603
##   Total 21740 9734 31474
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups   estimate     lower     upper
##   no    1.0000000        NA        NA
##   preg  0.8323240 0.7458505 0.9274401
##   puerp 0.7647178 0.6082612 0.9539245
##
## $p.value
##        two-sided
## Groups    midp.exact fisher.exact   chi.square
##   no              NA           NA           NA
##   preg  4.544556e-05 4.966627e-05 5.853018e-05
##   puerp 3.576082e-03 3.873539e-03 4.675786e-03
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

```
odds_function1(oi)
```

```
## $data
##        Var Present
## Groups     no  yes Total
##   preg   1905  724  2629
##   no    19388 8854 28242
##   puerp   447  156   603
##   Total 21740 9734 31474
##
## $measure
```

```
##        odds ratio with 98.33% C.I.
## Groups   estimate     lower    upper
##   preg  1.0000000        NA       NA
##   no    1.2014233 1.0782368 1.340751
##   puerp 0.9187992 0.7160316 1.171625
##
## $p.value
##        two-sided
## Groups    midp.exact fisher.exact   chi.square
##   preg            NA           NA           NA
##   no    4.544556e-05 4.966627e-05 5.853018e-05
##   puerp 4.079664e-01 4.175071e-01 4.357726e-01
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

For dyspnoea:

```
ctable(
  data6$gest_puerp,
  data6$dispneia,
  prop = "r",
  OR = TRUE,
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Row Proportions
## gest_puerp * dispneia
## Data Frame: data6
##
##
## ------------ ---------- --------------- -------------- ----------------
##                dispneia             yes             no            Total
##   gest_puerp
##           no              25134 (76.9%)   7530 (23.1%)   32664 (100.0%)
##         preg               1761 (59.9%)   1179 (40.1%)    2940 (100.0%)
##        puerp                381 (57.0%)    287 (43.0%)     668 (100.0%)
##        Total              27276 (75.2%)   8996 (24.8%)   36272 (100.0%)
## ------------ ---------- --------------- -------------- ----------------
##
## ----------------------------
##  Chi.squared   df   p.value
## ------------- ---- ---------
##   540.7434     2       0
## ----------------------------
```

```
oi <- table(data6$gest_puerp, data6$dispneia)
odds_function(oi)
```

```
## $data
##        Var Present
## Groups    no   yes Total
##   no    7530 25134 32664
##   preg  1179  1761  2940
##   puerp  287   381   668
##   Total 8996 27276 36272
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups   estimate     lower     upper
##   no    1.0000000        NA        NA
##   preg  0.4474963 0.4068606 0.4923962
##   puerp 0.3976542 0.3291688 0.4812222
##
## $p.value
##        two-sided
## Groups  midp.exact fisher.exact   chi.square
##   no            NA           NA           NA
##   preg           0 1.581702e-85 4.473424e-94
##   puerp          0 2.486421e-29 4.666116e-33
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

```
odds_function1(oi)
```

```
## $data
##        Var Present
## Groups    no   yes Total
##   preg  1179  1761  2940
##   no    7530 25134 32664
##   puerp  287   381   668
##   Total 8996 27276 36272
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups  estimate     lower    upper
##   preg  1.000000        NA       NA
##   no    2.234710 2.0308848 2.457844
##   puerp 0.888722 0.7224186 1.094657
##
## $p.value
##        two-sided
## Groups  midp.exact fisher.exact   chi.square
##   preg          NA           NA           NA
##   no     0.0000000 1.581702e-85 4.473424e-94
##   puerp  0.1748077 1.763850e-01 1.882050e-01
##
## $correction
## [1] TRUE
```

```
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

For respiratory distress:

```
ctable(
  data6$gest_puerp,
  data6$desc_resp,
  prop = "r",
  OR = TRUE,
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Row Proportions
## gest_puerp * desc_resp
## Data Frame: data6
##
##
## ------------ ----------- --------------- --------------- ----------------
##                desc_resp             yes              no            Total
##   gest_puerp
##           no               20158 (65.9%)   10442 (34.1%)   30600 (100.0%)
##         preg                1374 (49.6%)    1397 (50.4%)    2771 (100.0%)
##        puerp                 341 (52.3%)     311 (47.7%)     652 (100.0%)
##        Total               21873 (64.3%)   12150 (35.7%)   34023 (100.0%)
## ------------ ----------- --------------- --------------- ----------------
##
## ----------------------------
##  Chi.squared   df   p.value
## ------------- ---- ---------
##   335.3339     2       0
## ----------------------------
```

```
oi <- table(data6$gest_puerp, data6$desc_resp)
odds_function(oi)
```

```
## $data
##        Var Present
## Groups     no   yes Total
##   no    10442 20158 30600
##   preg   1397  1374  2771
##   puerp   311   341   652
##   Total 12150 21873 34023
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups   estimate     lower     upper
##   no    1.0000000        NA        NA
##   preg  0.5094807 0.4631227 0.5604899
##   puerp 0.5679633 0.4697898 0.6870209
##
```

```
## $p.value
##        two-sided
## Groups    midp.exact fisher.exact   chi.square
##   no              NA           NA           NA
##   preg  0.000000e+00 2.380011e-63 7.112034e-66
##   puerp 1.713296e-12 1.873822e-12 7.054843e-13
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

```
odds_function1(oi)
```

```
## $data
##        Var Present
## Groups     no   yes Total
##   preg   1397  1374  2771
##   no    10442 20158 30600
##   puerp   311   341   652
##   Total 12150 21873 34023
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups  estimate     lower    upper
##   preg  1.000000        NA       NA
##   no    1.962752 1.7841533 2.159255
##   puerp 1.114741 0.9049559 1.373770
##
## $p.value
##        two-sided
## Groups  midp.exact fisher.exact   chi.square
##   preg          NA           NA           NA
##   no     0.0000000 2.380011e-63 7.112034e-66
##   puerp  0.2125178 2.229630e-01 2.284903e-01
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

For saturation:

```
ctable(
  data6$gest_puerp,
  data6$saturacao,
  prop = "r",
  OR = TRUE,
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Row Proportions
## gest_puerp * saturacao
## Data Frame: data6
##
##
## ------------ ----------- --------------- --------------- -----------------
##                saturacao             yes              no             Total
##   gest_puerp
##           no               17109 (56.8%)   13028 (43.2%)   30137 (100.0%)
##         preg                 860 (31.8%)    1848 (68.2%)    2708 (100.0%)
##        puerp                 291 (45.7%)     346 (54.3%)     637 (100.0%)
##        Total               18260 (54.5%)   15222 (45.5%)   33482 (100.0%)
## ------------ ----------- --------------- --------------- -----------------
##
## ----------------------------
##  Chi.squared   df   p.value
## ------------- ---- ---------
##    647.521     2       0
## ----------------------------
```

```
oi <- table(data6$gest_puerp, data6$saturacao)
odds_function(oi)
```

```
## $data
##        Var Present
## Groups     no   yes Total
##   no    13028 17109 30137
##   preg   1848   860  2708
##   puerp   346   291   637
##   Total 15222 18260 33482
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups   estimate     lower     upper
##   no    1.0000000        NA        NA
##   preg  0.3543934 0.3196741 0.3925108
##   puerp 0.6405118 0.5280396 0.7761308
##
## $p.value
##        two-sided
## Groups   midp.exact  fisher.exact    chi.square
##   no             NA            NA            NA
##   preg  0.00000e+00 3.759120e-139 3.058062e-138
##   puerp 2.81191e-08  2.843669e-08  2.917803e-08
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

```
odds_function1(oi)
```

```
## $data
```

```
##        Var Present
## Groups     no   yes Total
##   preg   1848   860  2708
##   no    13028 17109 30137
##   puerp   346   291   637
##   Total 15222 18260 33482
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups  estimate   lower    upper
##   preg  1.000000      NA       NA
##   no    2.821597 2.54770 3.128186
##   puerp 1.807014 1.45749 2.239040
##
## $p.value
##        two-sided
## Groups    midp.exact  fisher.exact    chi.square
##   preg            NA            NA            NA
##   no    0.000000e+00 3.759120e-139 3.058062e-138
##   puerp 5.704948e-11  5.505541e-11  3.843357e-11
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

For diarrhea:

```
ctable(
  data6$gest_puerp,
  data6$diarreia,
  prop = "r",
  OR = TRUE,
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Row Proportions
## gest_puerp * diarreia
## Data Frame: data6
##
##
## ------------ ---------- -------------- --------------- ----------------
##                diarreia            yes              no            Total
##   gest_puerp
##           no              6387 (23.0%)   21371 (77.0%)   27758 (100.0%)
##         preg               335 (13.0%)    2239 (87.0%)    2574 (100.0%)
##        puerp                65 (11.3%)     510 (88.7%)     575 (100.0%)
##        Total              6787 (22.0%)   24120 (78.0%)   30907 (100.0%)
## ------------ ---------- -------------- --------------- ----------------
##
## ----------------------------
```

```
##  Chi.squared   df   p.value
## ------------- ---- ---------
##   176.1253     2       0
## ----------------------------
```

```
oi <- table(data6$gest_puerp, data6$diarreia)
odds_function(oi)
```

```
## $data
##        Var Present
## Groups     no  yes Total
##   no    21371 6387 27758
##   preg   2239  335  2574
##   puerp   510   65   575
##   Total 24120 6787 30907
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups   estimate     lower     upper
##   no    1.0000000        NA        NA
##   preg  0.5008351 0.4325204 0.5773126
##   puerp 0.4274042 0.3070067 0.5799934
##
## $p.value
##        two-sided
## Groups    midp.exact fisher.exact   chi.square
##   no              NA           NA           NA
##   preg  0.000000e+00 6.639619e-35 2.169935e-31
##   puerp 1.056932e-12 1.295162e-12 4.879091e-11
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

```
odds_function1(oi)
```

```
## $data
##        Var Present
## Groups     no  yes Total
##   preg   2239  335  2574
##   no    21371 6387 27758
##   puerp   510   65   575
##   Total 24120 6787 30907
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups   estimate    lower    upper
##   preg  1.0000000       NA       NA
##   no    1.9966340 1.732164 2.312030
##   puerp 0.8533977 0.597522 1.193837
##
```

```
## $p.value
##        two-sided
## Groups  midp.exact fisher.exact   chi.square
##   preg          NA           NA           NA
##   no     0.0000000 6.639619e-35 2.169935e-31
##   puerp  0.2653812 2.987077e-01 2.963518e-01
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

For vomiting:

```
ctable(
  data6$gest_puerp,
  data6$vomito,
  prop = "r",
  OR = TRUE,
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Row Proportions
## gest_puerp * vomito
## Data Frame: data6
##
##
## ------------ -------- -------------- --------------- -----------------
##                vomito            yes              no             Total
##   gest_puerp
##           no            4148 (15.2%)   23058 (84.8%)   27206 (100.0%)
##         preg             342 (13.3%)    2224 (86.7%)    2566 (100.0%)
##        puerp              45 ( 7.9%)     525 (92.1%)     570 (100.0%)
##        Total            4535 (14.9%)   25807 (85.1%)   30342 (100.0%)
## ------------ -------- -------------- --------------- -----------------
##
## ----------------------------
##  Chi.squared   df   p.value
## ------------- ---- ---------
##    29.5114     2       0
## ----------------------------
```

```
oi <- table(data6$gest_puerp, data6$vomito)
odds_function(oi)
```

```
## $data
##        Var Present
## Groups     no  yes Total
##   no    23058 4148 27206
##   preg   2224  342  2566
##   puerp   525   45   570
```

```
##   Total 25807 4535 30342
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups   estimate     lower     upper
##   no    1.0000000        NA        NA
##   preg  0.8551473 0.7382674 0.9862845
##   puerp 0.4780706 0.3221089 0.6826229
##
## $p.value
##        two-sided
## Groups    midp.exact fisher.exact   chi.square
##   no              NA           NA           NA
##   preg  8.572079e-03 9.383532e-03 1.025519e-02
##   puerp 1.716419e-07 2.273929e-07 1.641973e-06
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

```
odds_function1(oi)
```

```
## $data
##        Var Present
## Groups     no  yes Total
##   preg   2224  342  2566
##   no    23058 4148 27206
##   puerp   525   45   570
##   Total 25807 4535 30342
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups   estimate     lower     upper
##   preg  1.0000000        NA        NA
##   no    1.1693621 1.0139062 1.3545228
##   puerp 0.5591067 0.3689602 0.8190338
##
## $p.value
##        two-sided
## Groups    midp.exact fisher.exact   chi.square
##   preg            NA           NA           NA
##   no    0.0085720789 0.0093835320 0.0102551859
##   puerp 0.0002003345 0.0002402308 0.0004700619
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

For abdominal pain:

```r
ctable(
  data6$gest_puerp,
  data6$dor_abd,
  prop = "r",
  OR = TRUE,
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Row Proportions
## gest_puerp * dor_abd
## Data Frame: data6
##
##
## ------------ --------- -------------- --------------- -----------------
##                dor_abd            yes              no             Total
##   gest_puerp
##           no             1347 ( 9.4%)   13013 (90.6%)   14360 (100.0%)
##         preg              117 (10.0%)    1058 (90.0%)    1175 (100.0%)
##        puerp               20 ( 8.3%)     220 (91.7%)     240 (100.0%)
##        Total             1484 ( 9.4%)   14291 (90.6%)   15775 (100.0%)
## ------------ --------- -------------- --------------- -----------------
##
## ----------------------------
##  Chi.squared   df   p.value
## ------------- ---- ---------
##    0.7545      2    0.6858
## ----------------------------
```

```r
oi <- table(data6$gest_puerp, data6$dor_abd)
odds_function(oi)
```

```
## $data
##        Var Present
## Groups     no  yes Total
##   no    13013 1347 14360
##   preg   1058  117  1175
##   puerp   220   20   240
##   Total 14291 1484 15775
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups   estimate     lower    upper
##   no    1.0000000        NA       NA
##   preg  1.0695713 0.8329037 1.355328
##   puerp 0.8847588 0.4796453 1.495784
##
## $p.value
##        two-sided
## Groups  midp.exact fisher.exact chi.square
##   no            NA           NA         NA
##   preg   0.5111282    0.4999003  0.5490433
##   puerp  0.5973445    0.6555006  0.6596301
```

```
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

```
odds_function1(oi)
```

```
## $data
##        Var Present
## Groups     no  yes Total
##   preg   1058  117  1175
##   no    13013 1347 14360
##   puerp   220   20   240
##   Total 14291 1484 15775
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups   estimate     lower    upper
##   preg  1.0000000        NA       NA
##   no    0.9349780 0.7378286 1.200619
##   puerp 0.8272912 0.4323733 1.470513
##
## $p.value
##        two-sided
## Groups  midp.exact fisher.exact chi.square
##   preg          NA           NA         NA
##   no     0.5111282    0.4999003  0.5490433
##   puerp  0.4465488    0.4748504  0.5121005
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

For fatigue:

```
ctable(
  data6$gest_puerp,
  data6$fadiga,
  prop = "r",
  OR = TRUE,
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Row Proportions
## gest_puerp * fadiga
## Data Frame: data6
##
##
```

```
## ------------ -------- -------------- --------------- ----------------
##                fadiga            yes              no             Total
##   gest_puerp
##           no            4383 (29.7%)   10397 (70.3%)   14780 (100.0%)
##         preg             263 (22.1%)     928 (77.9%)    1191 (100.0%)
##        puerp              47 (19.2%)     198 (80.8%)     245 (100.0%)
##        Total            4693 (28.9%)   11523 (71.1%)   16216 (100.0%)
## ------------ -------- -------------- --------------- ----------------
##
## ----------------------------
##  Chi.squared   df   p.value
## ------------- ---- ---------
##    42.2494     2       0
## ----------------------------
```

```
oi <- table(data6$gest_puerp, data6$fadiga)
odds_function(oi)
```

```
## $data
##        Var Present
## Groups     no  yes Total
##   no    10397 4383 14780
##   preg    928  263  1191
##   puerp   198   47   245
##   Total 11523 4693 16216
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups   estimate     lower     upper
##   no    1.0000000        NA        NA
##   preg  0.6725727 0.5644585 0.7974847
##   puerp 0.5645994 0.3754503 0.8232061
##
## $p.value
##        two-sided
## Groups    midp.exact fisher.exact   chi.square
##   no              NA           NA           NA
##   preg  1.444562e-08 1.614179e-08 3.750065e-08
##   puerp 2.219362e-04 2.946942e-04 4.749744e-04
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

```
odds_function1(oi)
```

```
## $data
##        Var Present
## Groups     no  yes Total
##   preg    928  263  1191
##   no    10397 4383 14780
```

```
##   puerp   198   47   245
##   Total 11523 4693 16216
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups   estimate     lower    upper
##   preg  1.0000000        NA       NA
##   no    1.4868320 1.2539425 1.771609
##   puerp 0.8395185 0.5420284 1.267401
##
## $p.value
##        two-sided
## Groups    midp.exact fisher.exact   chi.square
##   preg            NA           NA           NA
##   no    1.444562e-08 1.614179e-08 3.750065e-08
##   puerp 3.169172e-01 3.486003e-01 3.580804e-01
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

For olfactory loss:

```
ctable(
  data6$gest_puerp,
  data6$perd_olft,
  prop = "r",
  OR = TRUE,
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Row Proportions
## gest_puerp * perd_olft
## Data Frame: data6
##
##
## ------------ ----------- -------------- --------------- ----------------
##                perd_olft            yes              no            Total
##   gest_puerp
##           no               3216 (21.9%)   11502 (78.1%)   14718 (100.0%)
##         preg                335 (27.4%)     889 (72.6%)    1224 (100.0%)
##        puerp                 51 (19.6%)     209 (80.4%)     260 (100.0%)
##        Total               3602 (22.2%)   12600 (77.8%)   16202 (100.0%)
## ------------ ----------- -------------- --------------- ----------------
##
## ----------------------------
##  Chi.squared   df   p.value
## ------------- ---- ---------
##    20.9507     2       0
## ----------------------------
```

```r
oi <- table(data6$gest_puerp, data6$perd_olft)
odds_function(oi)
```

```
## $data
##        Var Present
## Groups     no  yes Total
##   no    11502 3216 14718
##   preg    889  335  1224
##   puerp   209   51   260
##   Total 12600 3602 16202
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups   estimate     lower    upper
##   no    1.0000000        NA       NA
##   preg  1.3480737 1.1460000 1.580738
##   puerp 0.8748272 0.5908688 1.259456
##
## $p.value
##        two-sided
## Groups    midp.exact fisher.exact   chi.square
##   no              NA           NA           NA
##   preg  1.292458e-05 1.263087e-05 9.750131e-06
##   puerp 3.901737e-01 4.058088e-01 4.298392e-01
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

```r
odds_function1(oi)
```

```
## $data
##        Var Present
## Groups     no  yes Total
##   preg    889  335  1224
##   no    11502 3216 14718
##   puerp   209   51   260
##   Total 12600 3602 16202
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups   estimate     lower     upper
##   preg  1.0000000        NA        NA
##   no    0.7418009 0.6326158 0.8726003
##   puerp 0.6490753 0.4274389 0.9622543
##
## $p.value
##        two-sided
## Groups    midp.exact fisher.exact   chi.square
##   preg            NA           NA           NA
##   no    1.292458e-05 1.263087e-05 9.750131e-06
```

```
##   puerp 8.446845e-03 1.009391e-02 1.205607e-02
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

For loss of taste:

```
ctable(
  data6$gest_puerp,
  data6$perd_pala,
  prop = "r",
  OR = TRUE,
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Row Proportions
## gest_puerp * perd_pala
## Data Frame: data6
##
##
## ------------ ----------- -------------- --------------- ----------------
##                perd_pala            yes              no            Total
##   gest_puerp
##           no               3121 (21.3%)   11513 (78.7%)   14634 (100.0%)
##         preg                297 (24.5%)     915 (75.5%)    1212 (100.0%)
##        puerp                 45 (17.5%)     212 (82.5%)     257 (100.0%)
##        Total               3463 (21.5%)   12640 (78.5%)   16103 (100.0%)
## ------------ ----------- -------------- --------------- ----------------
##
## ----------------------------
##  Chi.squared   df   p.value
## ------------- ---- ---------
##    9.1664      2    0.0102
## ----------------------------
```

```
oi <- table(data6$gest_puerp, data6$perd_pala)
odds_function(oi)
```

```
## $data
##        Var Present
## Groups     no  yes Total
##   no    11513 3121 14634
##   preg    915  297  1212
##   puerp   212   45   257
##   Total 12640 3463 16103
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups   estimate     lower    upper
```

```
##   no    1.0000000        NA       NA
##   preg  1.1977717 1.0114618 1.412801
##   puerp 0.7852696 0.5189079 1.149495
##
## $p.value
##        two-sided
## Groups  midp.exact fisher.exact chi.square
##   no            NA           NA         NA
##   preg  0.01069826   0.01093763 0.01081617
##   puerp 0.13436206   0.14445589 0.15977857
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

```
odds_function1(oi)
```

```
## $data
##        Var Present
## Groups     no  yes Total
##   preg    915  297  1212
##   no    11513 3121 14634
##   puerp   212   45   257
##   Total 12640 3463 16103
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups   estimate     lower     upper
##   preg  1.0000000        NA        NA
##   no    0.8348837 0.7078137 0.9886681
##   puerp 0.6557166 0.4221675 0.9898870
##
## $p.value
##        two-sided
## Groups  midp.exact fisher.exact chi.square
##   preg          NA           NA         NA
##   no    0.01069826   0.01093763 0.01081617
##   puerp 0.01412334   0.01490951 0.01986092
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

For any respiratory symptom indicator:

```
ctable(
  data6$gest_puerp,
  data6$sint_resp,
  prop = "r",
```

```
  OR = TRUE,
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Row Proportions
## gest_puerp * sint_resp
## Data Frame: data6
##
##
## ------------ ----------- --------------- -------------- -----------------
##                sint_resp             yes             no             Total
##   gest_puerp
##           no               30208 (88.8%)   3794 (11.2%)   34002 (100.0%)
##         preg                2177 (72.1%)    844 (27.9%)    3021 (100.0%)
##        puerp                 490 (69.7%)    213 (30.3%)     703 (100.0%)
##        Total               32875 (87.1%)   4851 (12.9%)   37726 (100.0%)
## ------------ ----------- --------------- -------------- -----------------
##
## ----------------------------
##  Chi.squared   df   p.value
## ------------- ---- ---------
##   891.6103     2       0
## ----------------------------
```

```
oi <- table(data6$gest_puerp, data6$sint_resp)
odds_function(oi)
```

```
## $data
##        Var Present
## Groups    no   yes Total
##   no    3794 30208 34002
##   preg   844  2177  3021
##   puerp  213   490   703
##   Total 4851 32875 37726
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups   estimate     lower     upper
##   no    1.0000000        NA        NA
##   preg  0.3239424 0.2916571 0.3601742
##   puerp 0.2888243 0.2368404 0.3539543
##
## $p.value
##        two-sided
## Groups  midp.exact  fisher.exact    chi.square
##   no             NA            NA            NA
##   preg            0 5.839819e-126 1.018701e-156
##   puerp           0  1.077796e-41  2.881712e-55
##
## $correction
## [1] TRUE
##
```

```
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

```
odds_function1(oi)
```

```
## $data
##        Var Present
## Groups    no   yes Total
##   preg   844  2177  3021
##   no    3794 30208 34002
##   puerp  213   490   703
##   Total 4851 32875 37726
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups   estimate     lower    upper
##   preg  1.0000000        NA       NA
##   no    3.0869690 2.7764342 3.428684
##   puerp 0.8916008 0.7173912 1.112343
##
## $p.value
##        two-sided
## Groups  midp.exact  fisher.exact    chi.square
##   preg          NA            NA            NA
##   no     0.0000000 5.839819e-126 1.018701e-156
##   puerp  0.2124008  2.102772e-01  2.285525e-01
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

For SARI:

```
ctable(
  data6$gest_puerp,
  data6$sari,
  prop = "r",
  OR = TRUE,
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Row Proportions
## gest_puerp * sari
## Data Frame: data6
##
##
## ------------ ------ --------------- --------------- -----------------
##                sari             yes              no             Total
##   gest_puerp
##           no          18089 (58.9%)   12600 (41.1%)   30689 (100.0%)
```

```
##         preg           1308 (46.8%)    1487 (53.2%)    2795 (100.0%)
##        puerp            242 (38.2%)     392 (61.8%)     634 (100.0%)
##        Total          19639 (57.6%)   14479 (42.4%)   34118 (100.0%)
## ------------ ------ --------------- --------------- ----------------
##
## ----------------------------
##  Chi.squared   df   p.value
## ------------- ---- ---------
##   254.1243     2       0
## ----------------------------
```

```
oi <- table(data6$gest_puerp, data6$sari)
odds_function(oi)
```

```
## $data
##        Var Present
## Groups     no   yes Total
##   no    12600 18089 30689
##   preg   1487  1308  2795
##   puerp   392   242   634
##   Total 14479 19639 34118
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups   estimate     lower     upper
##   no    1.0000000        NA        NA
##   preg  0.6127546 0.5572077 0.6736732
##   puerp 0.4301417 0.3524319 0.5234660
##
## $p.value
##        two-sided
## Groups  midp.exact fisher.exact   chi.square
##   no            NA           NA           NA
##   preg           0 4.585011e-35 1.760990e-35
##   puerp          0 2.405282e-25 1.218719e-25
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

```
odds_function1(oi)
```

```
## $data
##        Var Present
## Groups     no   yes Total
##   preg   1487  1308  2795
##   no    12600 18089 30689
##   puerp   392   242   634
##   Total 14479 19639 34118
##
## $measure
```

```
##        odds ratio with 98.33% C.I.
## Groups   estimate     lower     upper
##   preg  1.0000000        NA        NA
##   no    1.6320541 1.4843993 1.7946630
##   puerp 0.7020528 0.5650694 0.8701229
##
## $p.value
##        two-sided
## Groups    midp.exact fisher.exact   chi.square
##   preg            NA           NA           NA
##   no    0.000000e+00 4.585011e-35 1.760990e-35
##   puerp 7.648572e-05 8.248357e-05 9.758298e-05
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

For SARI without fever:

```r
ctable(
  data6$gest_puerp,
  data6$sari_sfebre,
  prop = "r",
  OR = TRUE,
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Row Proportions
## gest_puerp * sari_sfebre
## Data Frame: data6
##
##
## ------------ ------------- --------------- -------------- -----------------
##                sari_sfebre             yes             no             Total
##   gest_puerp
##           no                 24504 (75.7%)   7849 (24.3%)   32353 (100.0%)
##         preg                  1816 (62.1%)   1109 (37.9%)    2925 (100.0%)
##        puerp                   351 (53.1%)    310 (46.9%)     661 (100.0%)
##        Total                 26671 (74.2%)   9268 (25.8%)   35939 (100.0%)
## ------------ ------------- --------------- -------------- -----------------
##
## ----------------------------
##  Chi.squared   df   p.value
## ------------- ---- ---------
##   418.1228     2       0
## ----------------------------
```

```r
oi <- table(data6$gest_puerp, data6$sari_sfebre)
odds_function(oi)
```

```
## $data
##        Var Present
## Groups    no   yes Total
##   no    7849 24504 32353
##   preg  1109  1816  2925
##   puerp  310   351   661
##   Total 9268 26671 35939
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups   estimate     lower     upper
##   no    1.0000000        NA        NA
##   preg  0.5245035 0.4764618 0.5777320
##   puerp 0.3626821 0.3002351 0.4384056
##
## $p.value
##        two-sided
## Groups  midp.exact fisher.exact   chi.square
##   no            NA           NA           NA
##   preg           0 5.069495e-55 3.343822e-59
##   puerp          0 1.064903e-35 1.974747e-40
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

```
odds_function1(oi)
```

```
## $data
##        Var Present
## Groups    no   yes Total
##   preg  1109  1816  2925
##   no    7849 24504 32353
##   puerp  310   351   661
##   Total 9268 26671 35939
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups  estimate     lower     upper
##   preg  1.000000        NA        NA
##   no    1.906539 1.7309062 2.0988043
##   puerp 0.691497 0.5618435 0.8514004
##
## $p.value
##        two-sided
## Groups    midp.exact fisher.exact   chi.square
##   preg            NA           NA           NA
##   no    0.000000e+00 5.069495e-55 3.343822e-59
##   puerp 2.279056e-05 2.321628e-05 2.421579e-05
##
## $correction
## [1] TRUE
```

```
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

For any symptom indicator:

```
ctable(
  data6$gest_puerp,
  data6$sintomas_SN,
  prop = "r",
  OR = TRUE,
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Row Proportions
## gest_puerp * sintomas_SN
## Data Frame: data6
##
##
## ------------ ------------- --------------- ------------- ----------------
##                sintomas_SN             yes            no             Total
##   gest_puerp
##           no                 13157 (98.1%)   250 ( 1.9%)   13407 (100.0%)
##         preg                  1016 (94.0%)    65 ( 6.0%)    1081 (100.0%)
##        puerp                   202 (89.8%)    23 (10.2%)     225 (100.0%)
##        Total                 14375 (97.7%)   338 ( 2.3%)   14713 (100.0%)
## ------------ ------------- --------------- ------------- ----------------
##
## ----------------------------
##  Chi.squared   df   p.value
## ------------- ---- ---------
##   140.6292     2       0
## ----------------------------
```

```
oi <- table(data6$gest_puerp, data6$sintomas_SN)
odds_function(oi)
```

```
## $data
##        Var Present
## Groups   no   yes Total
##   no    250 13157 13407
##   preg   65  1016  1081
##   puerp  23   202   225
##   Total 338 14375 14713
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups   estimate      lower     upper
##   no    1.0000000         NA        NA
##   preg  0.2965311 0.21252051 0.4223434
##   puerp 0.1659851 0.09876268 0.2986794
##
```

```
## $p.value
##        two-sided
## Groups    midp.exact fisher.exact   chi.square
##   no              NA           NA           NA
##   preg  3.863576e-14 2.993950e-14 6.229572e-19
##   puerp 1.633674e-10 1.410182e-10 5.892368e-18
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

```
odds_function1(oi)
```

```
## $data
##        Var Present
## Groups   no   yes Total
##   preg   65  1016  1081
##   no    250 13157 13407
##   puerp  23   202   225
##   Total 338 14375 14713
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups   estimate     lower    upper
##   preg  1.0000000        NA       NA
##   no    3.3725059 2.3677415 4.705428
##   puerp 0.5598495 0.3101321 1.061774
##
## $p.value
##        two-sided
## Groups    midp.exact fisher.exact   chi.square
##   preg            NA           NA           NA
##   no    3.863576e-14 2.993950e-14 6.229572e-19
##   puerp 2.931920e-02 2.782955e-02 3.192627e-02
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

Propensity score matching

We considered as control variables: age + race + cardiopathy + asthma + diabetes + immunodepre + obesity.

```
w.out <-
  weightit(
    gest_puerp ~ NU_IDADE_N + raca + cardiopati + asma + diabetes + imunodepre + obesidade,
    use.mlogit = FALSE,
    data = data6,
```

```
    focal = "puerp",
    method = "ps",
    estimand = "ATT"
  )
```

Hospital-acquired infection

```
data6$inf_inter1 <- ifelse(data6$inf_inter == "no", 0, 1)

aj <-
  summ(
    glm(
      inf_inter1 ~ relevel(gest_puerp, "no"),
      family = binomial(link = 'logit'),
      data = data6,
      weights = w.out$weights
    ),
    robust = "HC1"
  )

aj1 <-
  summ(
    glm(
      inf_inter1 ~ relevel(gest_puerp, "preg"),
      family = binomial(link = 'logit'),
      data = data6,
      weights = w.out$weights
    ),
    robust = "HC1"
  )
```

Odds ratio and probability of success:

```
#odds ratio - women of reproductive age as reference
or_rl(aj$coeftable)
```

```
##        Measures
## Groups         OR  L 98.33% U 98.33%
##   preg  0.3798912 0.2211678 0.652524
##   puerp 1.2845148 0.7813465 2.111711
```

```
#odds ratio - pregnant women as reference
or_rl1(aj1$coeftable)
```

```
##        Measures
## Groups        OR L 98.33% U 98.33%
##   no    2.632333 1.532511 4.521453
##   puerp 3.381270 1.793801 6.373609
```

```
#probability of success
prob_rl(aj$coeftable)
```

```
##        Prob
## Groups  Probabilidade
##   no       0.04490335
##   preg     0.01754698
##   puerp    0.05695142
```

Fever

```
data6$febre1 <- ifelse(data6$febre == "no", 0, 1)

aj <-
  summ(glm(
    febre1 ~ relevel(gest_puerp, "no"),
    family = binomial(link = 'logit'),
    data = data6,
    weights = w.out$weights
  ),
  robust = "HC1")

aj1 <-
  summ(glm(
    febre1 ~ relevel(gest_puerp, "preg"),
    family = binomial(link = 'logit'),
    data = data6,
    weights = w.out$weights
  ),
  robust = "HC1")
```

Odds ratio and probability of success:

```
#odds ratio - women of reproductive age as reference
or_rl(aj$coeftable)
```

```
##        Measures
## Groups         OR  L 98.33%  U 98.33%
##   preg  0.7775561 0.6720412 0.8996375
##   puerp 0.6259774 0.5076805 0.7718392
```

```
#odds ratio - pregnant women as reference
or_rl1(aj1$coeftable)
```

```
##        Measures
## Groups         OR  L 98.33% U 98.33%
##   no    1.2860809 1.1115589 1.488004
##   puerp 0.8050575 0.6467404 1.002130
```

```
#probability of success
prob_rl(aj$coeftable)
```

```
##        Prob
## Groups  Probabilidade
##   no       0.7210810
##   preg     0.6677953
##   puerp    0.6180758
```

Cough

```
data6$tosse1 <- ifelse(data6$tosse=="no", 0, 1)

aj <- summ(glm(tosse1 ~ relevel(gest_puerp, "no"), family=binomial(link='logit'),
               data = data6,
               weights = w.out$weights), robust = "HC1")

aj1 <- summ(glm(tosse1 ~ relevel(gest_puerp, "preg"), family=binomial(link='logit'),
               data = data6,
               weights = w.out$weights), robust = "HC1")
```

Odds ratio and probability of success:

```
##odds ratio - women of reproductive age as reference
or_rl(aj$coeftable)
```

```
##        Measures
## Groups         OR  L 98.33% U 98.33%
##   preg  1.1906358 1.0083693 1.405848
##   puerp 0.8051885 0.6430888 1.008148
```

```
##odds ratio - pregnant women as reference
or_rl1(aj1$coeftable)
```

```
##        Measures
## Groups         OR  L 98.33%  U 98.33%
##   no    0.8398874 0.7113147 0.9917002
##   puerp 0.6762677 0.5362972 0.8527698
```

```
#probability of success
prob_rl(aj$coeftable)
```

```
##        Prob
## Groups  Probabilidade
##   no         0.7310775
##   preg       0.7639725
##   puerp      0.6864162
```

Sore throat

```
data6$garganta1 <- ifelse(data6$garganta == "no", 0, 1)

aj <-
  summ(
    glm(
      garganta1 ~ relevel(gest_puerp, "no"),
      family = binomial(link = 'logit'),
      data = data6,
      weights = w.out$weights
    ),
```

```
    robust = "HC1"
  )

aj1 <-
  summ(
    glm(
      garganta1 ~ relevel(gest_puerp, "preg"),
      family = binomial(link = 'logit'),
      data = data6,
      weights = w.out$weights
    ),
    robust = "HC1"
  )
```

Odds ratio and probability of success:

```
#odds ratio - women of reproductive age as reference
or_rl(aj$coeftable)
```

```
##        Measures
## Groups         OR  L 98.33% U 98.33%
##   preg  0.8831329 0.7547610 1.033339
##   puerp 0.9010734 0.7076383 1.147384
```

```
#odds ratio - pregnant women as reference
or_rl1(aj1$coeftable)
```

```
##        Measures
## Groups        OR  L 98.33% U 98.33%
##   no    1.132332 0.9677370 1.324923
##   puerp 1.020315 0.7905812 1.316806
```

```
#probability of success
prob_rl(aj$coeftable)
```

```
##        Prob
## Groups  Probabilidade
##   no         0.2791797
##   preg       0.2548684
##   puerp      0.2587065
```

Dyspnea

```
data6$dispneia1 <- ifelse(data6$dispneia == "no", 0, 1)

aj <-
  summ(
    glm(
      dispneia1 ~ relevel(gest_puerp, "no"),
      family = binomial(link = 'logit'),
      data = data6,
```

```
      weights = w.out$weights
    ),
    robust = "HC1"
  )

aj1 <-
  summ(
    glm(
      dispneia1 ~ relevel(gest_puerp, "preg"),
      family = binomial(link = 'logit'),
      data = data6,
      weights = w.out$weights
    ),
    robust = "HC1"
  )
```

Odds ratio and probability of success:

```
##odds ratio - women of reproductive age as reference
or_rl(aj$coeftable)
```

```
##        Measures
## Groups         OR  L 98.33%  U 98.33%
##   preg  0.5381217 0.4633422 0.6249699
##   puerp 0.5395662 0.4357585 0.6681032
```

```
##odds ratio - pregnant women as reference
or_rl1(aj1$coeftable)
```

```
##        Measures
## Groups        OR  L 98.33% U 98.33%
##   no    1.858316 1.6000770 2.158232
##   puerp 1.002684 0.8081453 1.244053
```

```
#probability of success
prob_rl(aj$coeftable)
```

```
##        Prob
## Groups  Probabilidade
##   no         0.7110126
##   preg       0.5697023
##   puerp      0.5703593
```

Respiratory discomfort

```
data6$desc_resp1 <- ifelse(data6$desc_resp == "no", 0, 1)

aj <-
  summ(
    glm(
      desc_resp1 ~ relevel(gest_puerp, "no"),
```

```
      family = binomial(link = 'logit'),
      data = data6,
      weights = w.out$weights
    ),
    robust = "HC1"
  )

aj1 <-
  summ(
    glm(
      desc_resp1 ~ relevel(gest_puerp, "preg"),
      family = binomial(link = 'logit'),
      data = data6,
      weights = w.out$weights
    ),
    robust = "HC1"
  )
```

Odds ratio and probability of success:

```
#odds ratio - women of reproductive age as reference
or_rl(aj$coeftable)
```

```
##        Measures
## Groups         OR  L 98.33%  U 98.33%
##   preg  0.6017666 0.5219237 0.6938236
##   puerp 0.7300919 0.5925719 0.8995265
```

```
#odds ratio - pregnant women as reference
or_rl1(aj1$coeftable)
```

```
##        Measures
## Groups        OR  L 98.33% U 98.33%
##   no    1.661774 1.4412885 1.915989
##   puerp 1.213248 0.9768923 1.506788
```

```
#probability of success
prob_rl(aj$coeftable)
```

```
##        Prob
## Groups  Probabilidade
##   no         0.6002902
##   preg       0.4747188
##   puerp      0.5230061
```

Saturation

```
data6$saturacao1 <- ifelse(data6$saturacao == "no", 0, 1)

aj <-
  summ(
```

```
    glm(
      saturacao1 ~ relevel(gest_puerp, "no"),
      family = binomial(link = 'logit'),
      data = data6,
      weights = w.out$weights
    ),
    robust = "HC1"
  )

aj1 <-
  summ(
    glm(
      saturacao1 ~ relevel(gest_puerp, "preg"),
      family = binomial(link = 'logit'),
      data = data6,
      weights = w.out$weights
    ),
    robust = "HC1"
  )
```

Odds ratio and probability of success:

```
#odds ratio - women of reproductive age as reference
or_rl(aj$coeftable)
```

```
##        Measures
## Groups         OR  L 98.33%  U 98.33%
##   preg  0.3988810 0.3440204 0.4624902
##   puerp 0.7927089 0.6427853 0.9776007
```

```
#odds ratio - pregnant women as reference
or_rl1(aj1$coeftable)
```

```
##        Measures
## Groups        OR L 98.33% U 98.33%
##   no    2.507013 2.162208 2.906804
##   puerp 1.987332 1.588333 2.486562
```

```
#probability of success
prob_rl(aj$coeftable)
```

```
##        Prob
## Groups  Probabilidade
##   no        0.5147916
##   preg      0.2973585
##   puerp     0.4568289
```

Diarrhea

```r
data6$diarreia1 <- ifelse(data6$diarreia == "no", 0, 1)

aj <-
  summ(
    glm(
      diarreia1 ~ relevel(gest_puerp, "no"),
      family = binomial(link = 'logit'),
      data = data6,
      weights = w.out$weights
    ),
    robust = "HC1"
  )

aj1 <-
  summ(
    glm(
      diarreia1 ~ relevel(gest_puerp, "preg"),
      family = binomial(link = 'logit'),
      data = data6,
      weights = w.out$weights
    ),
    robust = "HC1"
  )
```

Odds ratio and probability of success:

```r
##odds ratio - women of reproductive age as reference
or_rl(aj$coeftable)
```

```
##        Measures
## Groups         OR  L 98.33%  U 98.33%
##   preg  0.6057205 0.4978706 0.7369330
##   puerp 0.5317160 0.3819387 0.7402286
```

```r
##odds ratio - pregnant women as reference
or_rl1(aj1$coeftable)
```

```
##        Measures
## Groups         OR  L 98.33% U 98.33%
##   no    1.6509265 1.3569754 2.008554
##   puerp 0.8778241 0.6145244 1.253938
```

```r
#probability of success
prob_rl(aj$coeftable)
```

```
##        Prob
## Groups  Probabilidade
##   no         0.1933516
##   preg       0.1267822
##   puerp      0.1130435
```

Vomit

```
data6$vomito1 <- ifelse(data6$vomito == "no", 0, 1)

aj <-
  summ(
    glm(
      vomito1 ~ relevel(gest_puerp, "no"),
      family = binomial(link = 'logit'),
      data = data6,
      weights = w.out$weights
    ),
    robust = "HC1"
  )

aj1 <-
  summ(
    glm(
      vomito1 ~ relevel(gest_puerp, "preg"),
      family = binomial(link = 'logit'),
      data = data6,
      weights = w.out$weights
    ),
    robust = "HC1"
  )
```

Odds ratio and probability of success:

```
##odds ratio - women of reproductive age as reference
or_rl(aj$coeftable)
```

```
##        Measures
## Groups         OR  L 98.33%  U 98.33%
##   preg  0.7457020 0.6028393 0.9224207
##   puerp 0.4668918 0.3148873 0.6922728
```

```
##odds ratio - pregnant women as reference
or_rl1(aj1$coeftable)
```

```
##        Measures
## Groups         OR  L 98.33%  U 98.33%
##   no    1.3410183 1.0841041 1.6588169
##   puerp 0.6261104 0.4167171 0.9407204
```

```
#probability of success
prob_rl(aj$coeftable)
```

```
##        Prob
## Groups  Probabilidade
##   no       0.15510921
##   preg     0.12041488
##   puerp    0.07894737
```

Abdominal pain

```
data6$dor_abd1 <- ifelse(data6$dor_abd == "no", 0, 1)

aj <-
  summ(
    glm(
      dor_abd1 ~ relevel(gest_puerp, "no"),
      family = binomial(link = 'logit'),
      data = data6,
      weights = w.out$weights
    ),
    robust = "HC1"
  )

aj1 <-
  summ(
    glm(
      dor_abd1 ~ relevel(gest_puerp, "preg"),
      family = binomial(link = 'logit'),
      data = data6,
      weights = w.out$weights
    ),
    robust = "HC1"
  )
```

Odds ratio and probability of success:

```
#odds ratio - women of reproductive age as reference
or_rl(aj$coeftable)
```

```
##        Measures
## Groups         OR  L 98.33% U 98.33%
##   preg  0.9394143 0.6470564 1.363868
##   puerp 0.7512648 0.4070669 1.386501
```

```
#odds ratio - pregnant women as reference
or_rl1(aj1$coeftable)
```

```
##        Measures
## Groups         OR  L 98.33% U 98.33%
##   no    1.0644930 0.7332090 1.545460
##   puerp 0.7997161 0.4293883 1.489435
```

```
#probability of success
prob_rl(aj$coeftable)
```

```
##        Prob
## Groups  Probabilidade
##   no       0.10794575
##   preg     0.10207334
##   puerp    0.08333333
```

Fatigue

```
data6$fadiga1 <- ifelse(data6$fadiga == "no", 0, 1)

aj <-
  summ(
    glm(
      fadiga1 ~ relevel(gest_puerp, "no"),
      family = binomial(link = 'logit'),
      data = data6,
      weights = w.out$weights
    ),
    robust = "HC1"
  )

aj1 <-
  summ(
    glm(
      fadiga1 ~ relevel(gest_puerp, "preg"),
      family = binomial(link = 'logit'),
      data = data6,
      weights = w.out$weights
    ),
    robust = "HC1"
  )
```

Odds ratio and probability of success:

```
#odds ratio - women of reproductive age as reference
or_rl(aj$coeftable)
```

```
##        Measures
## Groups        OR  L 98.33% U 98.33%
##   preg  0.945652 0.7448823 1.200536
##   puerp 0.855364 0.5678637 1.288421
```

```
#odds ratio - pregnant women as reference
or_rl1(aj1$coeftable)
```

```
##        Measures
## Groups        OR  L 98.33% U 98.33%
##   no    1.057471 0.8329615 1.342494
##   puerp 0.904523 0.5849683 1.398643
```

```
#probability of success
prob_rl(aj$coeftable)
```

```
##        Prob
## Groups  Probabilidade
##   no         0.2172285
##   preg       0.2078767
##   puerp      0.1918367
```

Olfactory loss

```
data6$perd_olft1 <- ifelse(data6$perd_olft == "no", 0, 1)

aj <-
  summ(
    glm(
      perd_olft1 ~ relevel(gest_puerp, "no"),
      family = binomial(link = 'logit'),
      data = data6,
      weights = w.out$weights
    ),
    robust = "HC1"
  )

aj1 <-
  summ(
    glm(
      perd_olft1 ~ relevel(gest_puerp, "preg"),
      family = binomial(link = 'logit'),
      data = data6,
      weights = w.out$weights
    ),
    robust = "HC1"
  )
```

Odds ratio and probability of success:

```
#odds ratio - women of reproductive age as reference
or_rl(aj$coeftable)
```

```
##        Measures
## Groups        OR  L 98.33% U 98.33%
##   preg  1.793009 1.4205696 2.263094
##   puerp 1.260606 0.8450179 1.880585
```

```
#odds ratio - pregnant women as reference
or_rl1(aj1$coeftable)
```

```
##        Measures
## Groups         OR  L 98.33% U 98.33%
##   no    0.5577215 0.4418729 0.703943
##   puerp 0.7030671 0.4638653 1.065618
```

```
#probability of success
prob_rl(aj$coeftable)
```

```
##        Prob
## Groups  Probabilidade
##   no         0.1621794
##   preg       0.2576525
##   puerp      0.1961538
```

Loss of taste

```
data6$perd_pala1 <- ifelse(data6$perd_pala == "no", 0, 1)

aj <-
  summ(
    glm(
      perd_pala1 ~ relevel(gest_puerp, "no"),
      family = binomial(link = 'logit'),
      data = data6,
      weights = w.out$weights
    ),
    robust = "HC1"
  )

aj1 <-
  summ(
    glm(
      perd_pala1 ~ relevel(gest_puerp, "preg"),
      family = binomial(link = 'logit'),
      data = data6,
      weights = w.out$weights
    ),
    robust = "HC1"
  )
```

Odds ratio and probability of success:

```
#odds ratio - women of reproductive age as reference
or_rl(aj$coeftable)
```

```
##        Measures
## Groups        OR  L 98.33% U 98.33%
##   preg  1.700034 1.3571295 2.129581
##   puerp 1.171848 0.7772822 1.766703
```

```
#odds ratio - pregnant women as reference
or_rl1(aj1$coeftable)
```

```
##        Measures
## Groups         OR  L 98.33%  U 98.33%
##   no    0.5882234 0.4695760 0.7368493
##   puerp 0.6893083 0.4457537 1.0659381
```

```
#probability of success
prob_rl(aj$coeftable)
```

```
##        Prob
## Groups  Probabilidade
##   no         0.1533576
##   preg       0.2354377
##   puerp      0.1750973
```

SARI

```
data6$sari1 <- ifelse(data6$sari == "no", 0, 1)

aj <-
  summ(glm(
    sari1 ~ relevel(gest_puerp, "no"),
    family = binomial(link = 'logit'),
    data = data6,
    weights = w.out$weights
  ),
  robust = "HC1")

aj1 <-
  summ(glm(
    sari1 ~ relevel(gest_puerp, "preg"),
    family = binomial(link = 'logit'),
    data = data6,
    weights = w.out$weights
  ),
  robust = "HC1")
```

Odds ratio and probability of success:

```
#odds ratio - women of reproductive age as reference
or_rl(aj$coeftable)
```

```
##        Measures
## Groups         OR  L 98.33%  U 98.33%
##   preg  0.7805121 0.6782130 0.8982416
##   puerp 0.5798100 0.4677791 0.7186717
```

```
#odds ratio - pregnant women as reference
or_rl1(aj1$coeftable)
```

```
##        Measures
## Groups         OR  L 98.33%  U 98.33%
##   no    1.2812102 1.1132863 1.4744631
##   puerp 0.7428585 0.5940159 0.9289966
```

```
#probability of success
prob_rl(aj$coeftable)
```

```
##        Prob
## Groups  Probabilidade
##   no         0.5156775
##   preg       0.4538630
##   puerp      0.3817035
```

SARI without fever

```r
data6$sari_sfebre1 <- ifelse(data6$sari_sfebre == "no", 0, 1)

aj <-
  summ(
    glm(
      sari_sfebre1 ~ relevel(gest_puerp, "no"),
      family = binomial(link = 'logit'),
      data = data6,
      weights = w.out$weights
    ),
    robust = "HC1"
  )

aj1 <-
  summ(
    glm(
      sari_sfebre1 ~ relevel(gest_puerp, "preg"),
      family = binomial(link = 'logit'),
      data = data6,
      weights = w.out$weights
    ),
    robust = "HC1"
  )
```

Odds ratio and probability of success:

```r
#odds ratio - women of reproductive age as reference
or_rl(aj$coeftable)
```

```
##        Measures
## Groups         OR  L 98.33%  U 98.33%
##   preg  0.7524667 0.6488573 0.8726205
##   puerp 0.5670049 0.4589092 0.7005624
```

```r
#odds ratio - pregnant women as reference
or_rl1(aj1$coeftable)
```

```
##        Measures
## Groups         OR  L 98.33%  U 98.33%
##   no    1.3289625 1.1459736 1.5411710
##   puerp 0.7535282 0.6072041 0.9351135
```

```r
#probability of success
prob_rl(aj$coeftable)
```

```
##        Prob
## Groups  Probabilidade
##   no         0.6663230
##   preg       0.6004170
##   puerp      0.5310136
```

Any respiratory symptom

```
data6$sint_resp1 <- ifelse(data6$sint_resp == "no", 0, 1)

aj <-
  summ(
    glm(
      sint_resp1 ~ relevel(gest_puerp, "no"),
      family = binomial(link = 'logit'),
      data = data6,
      weights = w.out$weights
    ),
    robust = "HC1"
  )

aj1 <-
  summ(
    glm(
      sint_resp1 ~ relevel(gest_puerp, "preg"),
      family = binomial(link = 'logit'),
      data = data6,
      weights = w.out$weights
    ),
    robust = "HC1"
  )
```

Odds ratio and probability of success:

```
#odds ratio - women of reproductive age as reference
or_rl(aj$coeftable)
```

```
##        Measures
## Groups         OR  L 98.33%  U 98.33%
##   preg  0.4412975 0.3702817 0.5259333
##   puerp 0.4328660 0.3418217 0.5481598
```

```
#odds ratio - pregnant women as reference
or_rl1(aj1$coeftable)
```

```
##        Measures
## Groups         OR  L 98.33% U 98.33%
##   no    2.2660452 1.9013819 2.700647
##   puerp 0.9808938 0.7809227 1.232072
```

```
#probability of success
prob_rl(aj$coeftable)
```

```
##        Prob
## Groups  Probabilidade
##   no         0.8416345
##   preg       0.7010713
##   puerp      0.6970128
```

Any symptom (yes or no)

```
data6$sintomas_SN1 <- ifelse(data6$sintomas_SN == "no", 0, 1)

aj <-
  summ(
    glm(
      sintomas_SN1 ~ relevel(gest_puerp, "no"),
      family = binomial(link = 'logit'),
      data = data6,
      weights = w.out$weights
    ),
    robust = "HC1"
  )

aj1 <-
  summ(
    glm(
      sintomas_SN1 ~ relevel(gest_puerp, "preg"),
      family = binomial(link = 'logit'),
      data = data6,
      weights = w.out$weights
    ),
    robust = "HC1"
  )
```

Odds ratio and probability of success:

```
#odds ratio - women of reproductive age as reference
or_rl(aj$coeftable)
```

```
##        Measures
## Groups         OR   L 98.33%  U 98.33%
##   preg  0.3658586 0.22965070 0.5828525
##   puerp 0.1745462 0.09655444 0.3155357
```

```
#odds ratio - pregnant women as reference
or_rl1(aj1$coeftable)
```

```
##        Measures
## Groups         OR  L 98.33%  U 98.33%
##   no    2.7332968 1.7157000 4.3544392
##   puerp 0.4770866 0.2496036 0.9118921
```

```
#probability of success
prob_rl(aj$coeftable)
```

```
##        Prob
## Groups  Probabilidade
##   no         0.9805132
##   preg       0.9484771
##   puerp      0.8977778
```

Outcomes

For the analysis of the outcomes, only the cases that we know whether it is a case of death or cure are selected.

```
data6 <-
  data6 %>% mutate(
    evolucao = case_when(
      EVOLUCAO == 1 ~ "cure",
      EVOLUCAO == 2 ~ "death",
      EVOLUCAO == 3 ~ "death",
      TRUE ~ "in progress"
    )
  )
```

Now we exclude cases "in progress".

```
data7 <- filter(data6, evolucao != "in progress")

data7$evolucao <- factor(
  data7$evolucao,
  levels = c("death", "cure"),
  labels = c("death", "cure")
)
```

For the case indicator, ICU (`UTI`) was used, with categories 1-yes, 2-no and 9-ignored.

```
questionr::freq(
  data7$UTI,
  cum = FALSE,
  total = TRUE,
  na.last = FALSE,
  valid = FALSE
) %>%
  knitr::kable(caption = "Frequency table for ICU admission", digits = 2) %>%
  kable_styling(latex_options = "hold_position")
```

Table 42: Frequency table for ICU admission

	n	%
1	8832	24.7
2	23937	67.1
9	527	1.5
NA	2404	6.7
Total	35700	100.0

We will now label this variable, creating the variable `uti`, considering only the valid categories.

```
data7$uti <- factor(data7$UTI,
                    levels = c("1", "2"),
                    labels = c("yes", "no"))
```

Below we can see the distribution of the variable by groups (gest_puerp).

```
ctable(
  data7$gest_puerp,
  data7$uti,
  prop = "r",
  OR = TRUE,
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Row Proportions
## gest_puerp * uti
## Data Frame: data7
##
##
## ------------ ----- -------------- --------------- -----------------
##                uti            yes              no             Total
##   gest_puerp
##           no         8014 (27.3%)   21354 (72.7%)   29368 (100.0%)
##         preg          574 (21.1%)    2147 (78.9%)    2721 (100.0%)
##        puerp          244 (35.9%)     436 (64.1%)     680 (100.0%)
##        Total         8832 (27.0%)   23937 (73.0%)   32769 (100.0%)
## ------------ ----- -------------- --------------- -----------------
##
## ----------------------------
##  Chi.squared   df   p.value
## ------------- ---- ---------
##    76.6389     2       0
## ----------------------------
```

```
oi <- table(data7$gest_puerp, data7$uti)
odds_function(oi)
```

```
## $data
##        Var Present
## Groups     no  yes Total
##   no    21354 8014 29368
##   preg   2147  574  2721
##   puerp   436  244   680
##   Total 23937 8832 32769
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups   estimate     lower     upper
##   no    1.0000000        NA        NA
##   preg  0.7125146 0.6332597 0.7998908
##   puerp 1.4916054 1.2263767 1.8081231
##
## $p.value
##        two-sided
## Groups    midp.exact fisher.exact   chi.square
##   no              NA           NA           NA
```

```
##   preg  9.585666e-13 1.096299e-12 3.452130e-12
##   puerp 1.337921e-06 1.325198e-06 8.678188e-07
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

```
odds_function1(oi)
```

```
## $data
##        Var Present
## Groups     no  yes Total
##   preg   2147  574  2721
##   no    21354 8014 29368
##   puerp   436  244   680
##   Total 23937 8832 32769
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups  estimate    lower    upper
##   preg  1.000000       NA       NA
##   no    1.403469 1.250171 1.579131
##   puerp 2.093120 1.674515 2.611245
##
## $p.value
##        two-sided
## Groups    midp.exact fisher.exact   chi.square
##   preg            NA           NA           NA
##   no    9.585666e-13 1.096299e-12 3.452130e-12
##   puerp 6.217249e-15 6.929728e-15 1.059654e-15
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

The ventilatory support variable (`SUPORT_VEN`) has the categories 1-yes invasive, 2-yes non-invasive, 3-no and 9-ignored.

```
questionr::freq(
  data7$SUPORT_VEN,
  cum = FALSE,
  total = TRUE,
  na.last = FALSE,
  valid = FALSE
) %>%
  knitr::kable(caption = "Frequency table for ventilatory support", digits = 2) %>%
  kable_styling(latex_options = "hold_position")
```

We will now label this variable, creating the variable `suport_ven`, considering only the valid categories.

Table 43: Frequency table for ventilatory support

	n	%
1	3878	10.9
2	14154	39.6
3	13425	37.6
9	1078	3.0
NA	3165	8.9
Total	35700	100.0

```
data7$suport_ven <- factor(
  data7$SUPORT_VEN,
  levels = c("1", "2", "3"),
  labels = c("yes, invasive", "yes, not invasive", "no")
)
```

Below we can see the distribution of the variable by groups (gest_puerp).

```
ctable(
  data7$gest_puerp,
  data7$suport_ven,
  prop = "r",
  OR = TRUE,
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Row Proportions
## gest_puerp * suport_ven
## Data Frame: data7
##
##
## ------------ ------------ --------------- -------------------- --------------- ----------------
##                suport_ven   yes, invasive   yes, not invasive              no            Total
##   gest_puerp
##           no                3536 (12.5%)       13213 (46.9%)   11450 (40.6%)   28199 (100.0%)
##         preg                 209 ( 8.0%)         763 (29.4%)    1626 (62.6%)    2598 (100.0%)
##        puerp                 133 (20.2%)         178 (27.0%)     349 (52.9%)     660 (100.0%)
##        Total                3878 (12.3%)       14154 (45.0%)   13425 (42.7%)   31457 (100.0%)
## ------------ ------------ --------------- -------------------- --------------- ----------------
##
## ----------------------------
##  Chi.squared   df   p.value
## ------------- ---- ---------
##   568.6044     4       0
## ----------------------------
```

Odds ratio for the use of invasive support versus non-use.

```
oi <- table(data7$gest_puerp, data7$suport_ven)
#using not as the reference
odds_function_supvent1(oi)
```

```
## $data
##        Var Present
## Groups     no yes inv Total
##   no    11450    3536 14986
##   preg   1626     209  1835
##   puerp   349     133   482
##   Total 13425    3878 17303
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups   estimate     lower    upper
##   no    1.0000000        NA       NA
##   preg  0.4164894 0.3459192 0.497765
##   puerp 1.2349244 0.9589355 1.576687
##
## $p.value
##        two-sided
## Groups  midp.exact fisher.exact   chi.square
##   no            NA           NA           NA
##   preg  0.00000000 1.079400e-36 2.633782e-32
##   puerp 0.04520276 4.417757e-02 4.807547e-02
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

```
#using pregnant women as the reference
odds_function1_supvent1(oi)
```

```
## $data
##        Var Present
## Groups     no yes inv Total
##   preg   1626     209  1835
##   no    11450    3536 14986
##   puerp   349     133   482
##   Total 13425    3878 17303
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups  estimate    lower    upper
##   preg  1.000000       NA       NA
##   no    2.400937 2.008980 2.890849
##   puerp 2.963934 2.189587 3.999904
##
## $p.value
##        two-sided
## Groups  midp.exact fisher.exact   chi.square
##   preg          NA           NA           NA
##   no             0 1.079400e-36 2.633782e-32
##   puerp          0 7.434423e-17 8.508521e-19
##
## $correction
```

```
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

Odds ratio for the use of non-invasive support versus non-use.

```
#using not as the reference
odds_function_supvent2(oi)
```

```
## $data
##        Var Present
## Groups     no yes, non-inv Total
##   no    11450        13213 24663
##   preg   1626          763  2389
##   puerp   349          178   527
##   Total 13425        14154 27579
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups   estimate     lower     upper
##   no    1.0000000        NA        NA
##   preg  0.4066898 0.3643023 0.4534336
##   puerp 0.4421887 0.3529489 0.5511590
##
## $p.value
##        two-sided
## Groups  midp.exact fisher.exact   chi.square
##   no            NA           NA           NA
##   preg           0 3.836676e-92 1.336783e-90
##   puerp          0 1.845197e-19 3.013825e-19
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

```
#using pregnant women as the reference
odds_function1_supvent2(oi)
```

```
## $data
##        Var Present
## Groups     no yes, non-inv Total
##   preg   1626          763  2389
##   no    11450        13213 24663
##   puerp   349          178   527
##   Total 13425        14154 27579
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups  estimate     lower    upper
##   preg  1.000000        NA       NA
```

```
##   no    2.458846 2.2053947 2.744973
##   puerp 1.087254 0.8497131 1.385601
##
## $p.value
##        two-sided
## Groups  midp.exact fisher.exact   chi.square
##   preg          NA           NA           NA
##   no     0.0000000 3.836676e-92 1.336783e-90
##   puerp  0.4138596 4.107643e-01 4.439988e-01
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

We will now analyze the "evolucao" variable.

```
ctable(
  data7$gest_puerp,
  data7$evolucao,
  prop = "r",
  OR = TRUE,
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Row Proportions
## gest_puerp * evolucao
## Data Frame: data7
##
##
## ------------ ---------- -------------- --------------- ----------------
##                evolucao          death            cure            Total
##   gest_puerp
##           no              4534 (14.1%)   27547 (85.9%)   32081 (100.0%)
##         preg               181 ( 6.2%)    2723 (93.8%)    2904 (100.0%)
##        puerp               114 (15.9%)     601 (84.1%)     715 (100.0%)
##        Total              4829 (13.5%)   30871 (86.5%)   35700 (100.0%)
## ------------ ---------- -------------- --------------- ----------------
##
## ----------------------------
##  Chi.squared   df   p.value
## ------------- ---- ---------
##   145.7363     2       0
## ----------------------------
```

```
oi <- table(data7$gest_puerp, data7$evolucao)
odds_function(oi)
```

```
## $data
##        Var Present
## Groups     no  yes Total
```

```
##   no    27547 4534 32081
##   preg   2723  181  2904
##   puerp   601  114   715
##   Total 30871 4829 35700
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups   estimate     lower     upper
##   no    1.0000000        NA        NA
##   preg  0.4041932 0.3333714 0.4854266
##   puerp 1.1537777 0.8944385 1.4686298
##
## $p.value
##        two-sided
## Groups  midp.exact fisher.exact   chi.square
##   no            NA           NA           NA
##   preg   0.0000000 8.871470e-39 1.046773e-32
##   puerp  0.1734155 1.751471e-01 1.871356e-01
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

```
odds_function1(oi)
```

```
## $data
##        Var Present
## Groups     no  yes Total
##   preg   2723  181  2904
##   no    27547 4534 32081
##   puerp   601  114   715
##   Total 30871 4829 35700
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups  estimate    lower    upper
##   preg  1.000000       NA       NA
##   no    2.474065 2.060044 2.999657
##   puerp 2.853859 2.095098 3.867465
##
## $p.value
##        two-sided
## Groups    midp.exact fisher.exact   chi.square
##   preg            NA           NA           NA
##   no    0.000000e+00 8.871470e-39 1.046773e-32
##   puerp 3.996803e-15 5.125718e-15 3.610200e-17
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

Length of stay in the ICU and time between hospitalization and outcome

```
# Length of stay in the ICU is tempo_uti
# Time between hospitalization and outcome is tempo_interna_evolucao
data7 <- data7 %>%
  dplyr::mutate(
    tempo_uti = as.numeric(dt_saiduti - dt_entuti),
    tempo_interna_evolucao = as.numeric(dt_evoluca - dt_interna)
  ) %>%
  dplyr::mutate(
    tempo_interna_evolucao = case_when(
      dt_interna == "2021-01-27" ~ NA_real_,
      TRUE ~ tempo_interna_evolucao
    )
  )
```

Now we will see if there are any inconsistent cases in the sense of being ICU = "no" and having ICU time.

```
ai <- data7 %>% group_by(uti) %>% count(!is.na(tempo_uti))
ai
```

```
## # A tibble: 4 x 3
## # Groups:   uti [3]
##   uti   `!is.na(tempo_uti)`     n
##   <fct> <lgl>               <int>
## 1 yes   FALSE                3667
## 2 yes   TRUE                 5165
## 3 no    FALSE               23937
## 4 <NA>  FALSE                2931
```

See the table above that there is no `TRUE` when ICU is no. Excellent! However, note that there are 3667 cases that were admitted to the ICU, but there is no information about time. There is only 5165 information about staying in the ICU.

We will now see analyzing the ICU time by group:

```
datasummary(
  gest_puerp ~ tempo_uti * (n + media + DP + mediana + minimo + maximo + q25 + q75 + IQR),
  data = data7,
  output = 'markdown'
)
```

	n	media	DP	mediana	minimo	maximo	q25	q75	IQR
no	4697.00	9.75	11.03	6.00	0.00	175.00	3.00	13.00	10.00
preg	349.00	9.45	14.27	5.00	0.00	183.00	3.00	11.00	8.00
puerp	119.00	11.75	11.71	7.00	0.00	53.00	3.00	16.50	13.50

Kruskal-Wallis test for ICU time:

```r
#Kruskal-Wallis test for ICU time
kruskal.test(tempo_uti ~ gest_puerp,
             data = data7)
```

```
##
##  Kruskal-Wallis rank sum test
##
## data:  tempo_uti by gest_puerp
## Kruskal-Wallis chi-squared = 6.1419, df = 2, p-value = 0.04638
```

```r
pairwise.wilcox.test(data7$tempo_uti, data7$gest_puerp)
```

```
##
##  Pairwise comparisons using Wilcoxon rank sum test with continuity correction
##
## data:  data7$tempo_uti and data7$gest_puerp
##
##       no    preg
## preg  0.129 -
## puerp 0.129 0.072
##
## P value adjustment method: holm
```

Now we consider the time between hospitalization and outcome (death or discharge). First we see the time of the outcome, regardless of whether it cures or dies:

```r
datasummary(
  gest_puerp ~ tempo_interna_evolucao * (n + media + DP + mediana + minimo +
                                         maximo +  q25 + q75 + IQR),
  data = data7,
  output = 'markdown'
)
```

	n	media	DP	mediana	minimo	maximo	q25	q75	IQR
no	30066.00	9.25	11.42	6.00	0.00	287.00	3.00	11.00	8.00
preg	2785.00	8.34	10.69	5.00	0.00	187.00	3.00	9.00	6.00
puerp	686.00	9.01	10.27	5.00	0.00	70.00	2.00	12.00	10.00

Kruskal-Wallis test for the time between hospitalization and outcome:

```r
#Kruskal-Wallis test for the time between hospitalization and outcome
kruskal.test(tempo_interna_evolucao ~ gest_puerp,
             data = data7)
```

```
##
##  Kruskal-Wallis rank sum test
##
## data:  tempo_interna_evolucao by gest_puerp
## Kruskal-Wallis chi-squared = 56.379, df = 2, p-value = 5.719e-13
```

```
pairwise.wilcox.test(data7$tempo_interna_evolucao, data7$gest_puerp)
```

```
##
##  Pairwise comparisons using Wilcoxon rank sum test with continuity correction
##
## data:  data7$tempo_interna_evolucao and data7$gest_puerp
##
##       no      preg
## preg  6.3e-12 -
## puerp 0.0062  0.9286
##
## P value adjustment method: holm
```

Now we consider only cured cases:

```
data7_aux <- data7 %>% filter(evolucao == "cure")

datasummary(
  gest_puerp ~ tempo_interna_evolucao * (n + media + DP + mediana + minimo +
                                         maximo + q25 + q75 + IQR),
  data = data7_aux,
  output = 'markdown'
)
```

	n	media	DP	mediana	minimo	maximo	q25	q75	IQR
no	25624.00	8.60	10.66	6.00	0.00	287.00	3.00	10.00	7.00
preg	2605.00	7.89	9.80	5.00	0.00	142.00	3.00	9.00	6.00
puerp	574.00	7.69	9.06	4.00	0.00	70.00	2.00	10.00	8.00

Kruskal-Wallis test for the time between hospitalization and outcome:

```
#Kruskal-Wallis test for the time between hospitalization and outcome
kruskal.test(tempo_interna_evolucao ~ gest_puerp,
             data = data7_aux)
```

```
##
##  Kruskal-Wallis rank sum test
##
## data:  tempo_interna_evolucao by gest_puerp
## Kruskal-Wallis chi-squared = 70.555, df = 2, p-value = 4.778e-16
```

```
pairwise.wilcox.test(data7_aux$tempo_interna_evolucao, data7_aux$gest_puerp)
```

```
##
##  Pairwise comparisons using Wilcoxon rank sum test with continuity correction
##
## data:  data7_aux$tempo_interna_evolucao and data7_aux$gest_puerp
##
##       no      preg
```

```
## preg  3.7e-11 -
## puerp 3.0e-07 0.036
##
## P value adjustment method: holm
```

Now we consider only death cases:

```
data7_aux <- data7 %>% filter(evolucao == "death")

datasummary(
  gest_puerp ~ tempo_interna_evolucao * (n + media + DP + mediana + minimo +
                                         maximo + q25 + q75 + IQR),
  data = data7_aux,
  output = 'markdown'
)
```

	n	media	DP	mediana	minimo	maximo	q25	q75	IQR
no	4442.00	13.00	14.49	9.00	0.00	193.00	4.00	18.00	14.00
preg	180.00	14.88	18.32	10.50	0.00	187.00	5.00	19.00	14.00
puerp	112.00	15.79	13.11	13.00	0.00	68.00	6.00	20.00	14.00

Kruskal-Wallis test for the time between hospitalization and outcome:

```
#Kruskal-Wallis test for the time between hospitalization and outcome
kruskal.test(tempo_interna_evolucao ~ gest_puerp,
             data = data7_aux)
```

```
##
##  Kruskal-Wallis rank sum test
##
## data:  tempo_interna_evolucao by gest_puerp
## Kruskal-Wallis chi-squared = 14.04, df = 2, p-value = 0.0008938
```

```
pairwise.wilcox.test(data7_aux$tempo_interna_evolucao, data7_aux$gest_puerp)
```

```
##
##  Pairwise comparisons using Wilcoxon rank sum test with continuity correction
##
## data:  data7_aux$tempo_interna_evolucao and data7_aux$gest_puerp
##
##       no     preg
## preg  0.0608 -
## puerp 0.0054 0.2136
##
## P value adjustment method: holm
```

Propensity score matching

In this propensity score, we considered as control variables: NU_IDADE_N + raca + escol + SG_UF + cardiopati + asma + diabetes + immunodepre + obesidade + sint_res.

```r
remove(w.out)

w.out <- weightit(gest_puerp ~ NU_IDADE_N + raca + escol + SG_UF + cardiopati + asma +
                    diabetes + imunodepre + obesidade + sint_resp, use.mlogit = FALSE,
                  data = data7, focal = "puerp", method = "ps", estimand = "ATT")

data7$peso <- w.out$weights
```

ICU admission

```r
data7$uti1 <- ifelse(data7$uti=="no", 0, 1)

aj <-
  summ(glm(
    uti1 ~ relevel(gest_puerp, "no"),
    family = binomial(link = 'logit'),
    data = data7,
    weights = w.out$weights
  ),
  robust = "HC1")

aj1 <-
  summ(glm(
    uti1 ~ relevel(gest_puerp, "preg"),
    family = binomial(link = 'logit'),
    data = data7,
    weights = w.out$weights
  ),
  robust = "HC1")
```

Odds ratio and probability of success:

```r
#odds ratio - women of reproductive age as reference
or_rl(aj$coeftable)
```

```
##        Measures
## Groups         OR  L 98.33%  U 98.33%
##   preg  0.5812714 0.4552171 0.7422315
##   puerp 1.1444004 0.8693964 1.5063926
```

```r
#odds ratio - pregnant women as reference
or_rl1(aj1$coeftable)
```

```
##        Measures
## Groups        OR L 98.33% U 98.33%
##   no    1.720367 1.347289 2.196754
##   puerp 1.968788 1.549846 2.500976
```

```r
#probability of success
prob_rl(aj$coeftable)
```

```
##        Prob
## Groups  Probabilidade
##   no         0.3284167
##   preg       0.2213369
##   puerp      0.3588235
```

Ventilatory support

```
data7$suport_ven1 <- relevel(data7$suport_ven, ref = "no")

aj <-
  multinom(
    suport_ven1 ~ relevel(gest_puerp, "no"),
    data = data7,
    weights = w.out$weights
  )
```

```
## # weights:  12 (6 variable)
## initial  value 2190.358708
## iter  10 value 1917.052476
## final  value 1917.048502
## converged
```

```
sum_aj <- summary(aj)
coef <- sum_aj$coefficients
ep <- sum_aj$standard.errors

aj1 <-
  multinom(
    suport_ven1 ~ relevel(gest_puerp, "preg"),
    data = data7,
    weights = w.out$weights
  )
```

```
## # weights:  12 (6 variable)
## initial  value 2190.358708
## iter  10 value 1917.048770
## final  value 1917.048502
## converged
```

```
sum_aj1 <- summary(aj1)
coef1 <- sum_aj1$coefficients
ep1 <- sum_aj1$standard.errors
```

OR for **invasive respiratory support**:

```
#1) considering women of reproductive age as a reference:
or_rlo_inv_nao(coef,ep)
```

```
##        Measures
## Groups         OR  L 98.33%  U 98.33%
##   preg  0.4758752 0.3070470 0.7375329
##   puerp 1.2879551 0.8945132 1.8544480
```

```r
#2) considering pregnant women as a reference:
or_rlo_inv_gesta(coef1,ep1)
```

```
##        Measures
## Groups        OR L 98.33% U 98.33%
##   no    2.101234 1.355773 3.256582
##   puerp 2.706348 1.775401 4.125446
```

OR for **noninvasive respiratory support**:

```r
#1) considering women of reproductive age as a reference:
or_rlo_ninv_nao(coef,ep)
```

```
##        Measures
## Groups         OR  L 98.33%  U 98.33%
##   preg  0.5918646 0.4426242 0.7914246
##   puerp 0.6516322 0.4854148 0.8747664
```

```r
#2) considering pregnant women as a reference:
or_rlo_ninv_gesta(coef1,ep1)
```

```
##        Measures
## Groups        OR  L 98.33% U 98.33%
##   no    1.689548 1.2635234 2.259215
##   puerp 1.100970 0.8094378 1.497501
```

Evolution (death or cure)

```r
data7$evolucao1 <- ifelse(data7$evolucao=="cure", 0, 1)

aj <-
  summ(
    glm(
      evolucao1 ~ relevel(gest_puerp, "no"),
      family = binomial(link = 'logit'),
      data = data7,
      weights = w.out$weights
    ),
    robust = "HC1"
  )

aj1 <-
  summ(
    glm(
      evolucao1 ~ relevel(gest_puerp, "preg"),
      family = binomial(link = 'logit'),
      data = data7,
      weights = w.out$weights
    ),
    robust = "HC1"
  )
```

Odds ratio and probability of success:

```
#odds ratio - women of reproductive age as reference
or_rl(aj$coeftable)
```

```
##        Measures
## Groups         OR  L 98.33%  U 98.33%
##   preg  0.4327452 0.3268482 0.5729524
##   puerp 1.0856635 0.8132138 1.4493916
```

```
#odds ratio - pregnant women as reference
or_rl1(aj1$coeftable)
```

```
##        Measures
## Groups        OR L 98.33% U 98.33%
##   no    2.310828 1.745346 3.059525
##   puerp 2.508782 1.788565 3.519016
```

```
#probability of success
prob_rl(aj$coeftable)
```

```
##        Prob
## Groups  Probabilidade
##   no       0.14873114
##   preg     0.07029322
##   puerp    0.15944056
```

Comparison of groups with respect to death and cure among each risk factor

Cardiopathy

```
data7_selec <- data7 %>%
  filter(cardiopati == "yes")
```

```
ctable(
  data7_selec$gest_puerp,
  data7_selec$evolucao,
  prop = "r",
  OR = TRUE,
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Row Proportions
## gest_puerp * evolucao
## Data Frame: data7_selec
##
```

```
##
## ------------ ---------- -------------- -------------- ---------------
##                evolucao          death           cure           Total
##   gest_puerp
##           no              1159 (22.8%)   3934 (77.2%)   5093 (100.0%)
##         preg                24 (12.9%)    162 (87.1%)    186 (100.0%)
##        puerp                15 (21.4%)     55 (78.6%)     70 (100.0%)
##        Total              1198 (22.4%)   4151 (77.6%)   5349 (100.0%)
## ------------ ---------- -------------- -------------- ---------------
##
## ----------------------------
##  Chi.squared   df   p.value
## ------------- ---- ---------
##    10.0625     2    0.0065
## ----------------------------
```

```
oi <- table(data7_selec$gest_puerp, data7_selec$evolucao)
odds_function(oi)
```

```
## $data
##        Var Present
## Groups    no  yes Total
##   no    3934 1159  5093
##   preg   162   24   186
##   puerp   55   15    70
##   Total 4151 1198  5349
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups   estimate     lower     upper
##   no    1.0000000        NA        NA
##   preg  0.5058049 0.2866738 0.8342472
##   puerp 0.9330050 0.4364957 1.8149447
##
## $p.value
##        two-sided
## Groups    midp.exact fisher.exact  chi.square
##   no              NA           NA          NA
##   preg  0.0008779484    0.0011901 0.002098322
##   puerp 0.8126221974    0.8863317 0.904677152
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

```
odds_function1(oi)
```

```
## $data
##        Var Present
## Groups    no  yes Total
##   preg   162   24   186
```

```
##   no    3934 1159  5093
##   puerp   55   15    70
##   Total 4151 1198  5349
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups  estimate     lower    upper
##   preg  1.000000        NA       NA
##   no    1.977074 1.1986855 3.488285
##   puerp 1.841518 0.7451289 4.384764
##
## $p.value
##        two-sided
## Groups    midp.exact fisher.exact  chi.square
##   preg            NA           NA          NA
##   no    0.0008779484    0.0011901 0.002098322
##   puerp 0.1022322577    0.1173982 0.134445276
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

Hematology

```
data7_selec <- data7 %>%
  filter(hematologi == "yes")
```

```
ctable(
  data7_selec$gest_puerp,
  data7_selec$evolucao,
  prop = "r",
  OR = TRUE,
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Row Proportions
## gest_puerp * evolucao
## Data Frame: data7_selec
##
##
## ------------ ---------- ------------ ------------- --------------
##                evolucao        death          cure          Total
##   gest_puerp
##           no              87 (27.5%)   229 (72.5%)   316 (100.0%)
##         preg               3 (18.8%)    13 (81.2%)    16 (100.0%)
##        puerp               2 (28.6%)     5 (71.4%)     7 (100.0%)
##        Total              92 (27.1%)   247 (72.9%)   339 (100.0%)
## ------------ ---------- ------------ ------------- --------------
```

```
##
## ----------------------------
##  Chi.squared   df   p.value
## ------------- ---- ---------
##    0.6014      2    0.7403
## ----------------------------
```

```
oi <- table(data7_selec$gest_puerp, data7_selec$evolucao)
odds_function(oi)
```

```
## $data
##        Var Present
## Groups   no yes Total
##   no    229  87   316
##   preg   13   3    16
##   puerp   5   2     7
##   Total 247  92   339
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups   estimate      lower    upper
##   no    1.0000000         NA       NA
##   preg  0.6315549 0.08895821 2.593712
##   puerp 1.0981227 0.07699714 7.708052
##
## $p.value
##        two-sided
## Groups  midp.exact fisher.exact chi.square
##   no            NA           NA         NA
##   preg   0.4702400    0.5717897  0.6293056
##   puerp  0.9158256    1.0000000  1.0000000
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

```
odds_function1(oi)
```

```
## $data
##        Var Present
## Groups   no yes Total
##   preg   13   3    16
##   no    229  87   316
##   puerp   5   2     7
##   Total 247  92   339
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups  estimate      lower    upper
##   preg  1.000000         NA       NA
##   no    1.583372 0.38554782 11.24123
```

```
##   puerp 1.711580 0.08618515 24.59912
##
## $p.value
##        two-sided
## Groups  midp.exact fisher.exact chi.square
##   preg          NA           NA         NA
##   no     0.4702400    0.5717897  0.6293056
##   puerp  0.6336592    0.6213855  1.0000000
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

Hepatic

```
data7_selec <- data7 %>%
  filter(hepatica == "yes")
```

```
ctable(
  data7_selec$gest_puerp,
  data7_selec$evolucao,
  prop = "r",
  OR = TRUE,
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Row Proportions
## gest_puerp * evolucao
## Data Frame: data7_selec
##
##
## ------------ ---------- ------------ -------------- --------------
##                evolucao        death           cure          Total
##   gest_puerp
##           no              68 (39.8%)   103 ( 60.2%)   171 (100.0%)
##         preg               1 (12.5%)     7 ( 87.5%)     8 (100.0%)
##        puerp               0 ( 0.0%)     3 (100.0%)     3 (100.0%)
##        Total              69 (37.9%)   113 ( 62.1%)   182 (100.0%)
## ------------ ---------- ------------ -------------- --------------
##
## ----------------------------
##  Chi.squared   df   p.value
## ------------- ---- ---------
##    4.2763      2    0.1179
## ----------------------------
```

```
oi <- table(data7_selec$gest_puerp, data7_selec$evolucao)
odds_function(oi, met = "small")
```

```
## $data
##        Var Present
## Groups     no  yes Total
##   no    103.5 68.5   172
##   preg    7.5  1.5     9
##   puerp   3.5  0.5     4
##   Total 114.5 70.5   185
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups   estimate      lower    upper
##   no    1.0000000         NA       NA
##   preg  0.2628015 0.05479353 2.591309
##   puerp 0.1654676 0.02528811 5.614772
##
## $p.value
##        two-sided
## Groups  midp.exact fisher.exact chi.square
##   no            NA           NA         NA
##   preg   0.2376852    0.3211035  0.2985126
##   puerp  0.1387256    0.1598068  0.5561065
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "small sample-adjusted UMLE & normal approx (Wald) CI"
```

```
odds_function1(oi, met = "small")
```

```
## $data
##        Var Present
## Groups     no  yes Total
##   preg    7.5  1.5     9
##   no    103.5 68.5   172
##   puerp   3.5  0.5     4
##   Total 114.5 70.5   185
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups   estimate      lower    upper
##   preg  1.0000000         NA       NA
##   no    1.9665072 0.38590534 18.25033
##   puerp 0.3333333 0.03773798 26.49850
##
## $p.value
##        two-sided
## Groups  midp.exact fisher.exact chi.square
##   preg          NA           NA         NA
##   no     0.2376852    0.3211035  0.2985126
##   puerp  0.4945055    1.0000000  1.0000000
##
## $correction
## [1] TRUE
```

```
##
## attr(,"method")
## [1] "small sample-adjusted UMLE & normal approx (Wald) CI"
```

Asthma

```
data7_selec <- data7 %>%
  filter(asma == "yes")
```

```
ctable(
  data7_selec$gest_puerp,
  data7_selec$evolucao,
  prop = "r",
  OR = TRUE,
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Row Proportions
## gest_puerp * evolucao
## Data Frame: data7_selec
##
##
## ------------ ---------- ------------- -------------- ---------------
##                evolucao         death           cure           Total
##   gest_puerp
##           no              254 (15.3%)   1404 (84.7%)   1658 (100.0%)
##         preg                8 ( 6.7%)    111 (93.3%)    119 (100.0%)
##        puerp                6 (22.2%)     21 (77.8%)     27 (100.0%)
##        Total              268 (14.9%)   1536 (85.1%)   1804 (100.0%)
## ------------ ---------- ------------- -------------- ---------------
##
## ----------------------------
##  Chi.squared   df   p.value
## ------------- ---- ---------
##    7.6635      2    0.0217
## ----------------------------
```

```
oi <- table(data7_selec$gest_puerp, data7_selec$evolucao)
odds_function(oi)
```

```
## $data
##        Var Present
## Groups    no yes Total
##   no    1404 254  1658
##   preg   111   8   119
##   puerp   21   6    27
##   Total 1536 268  1804
##
## $measure
##        odds ratio with 98.33% C.I.
```

```
## Groups   estimate     lower     upper
##   no    1.0000000        NA        NA
##   preg  0.4058292 0.1454536 0.9044012
##   puerp 1.6083839 0.4450660 4.5689865
##
## $p.value
##        two-sided
## Groups   midp.exact fisher.exact chi.square
##   no             NA           NA         NA
##   preg  0.006324443   0.01027436 0.01546917
##   puerp 0.336802636   0.29049352 0.47376901
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

```
odds_function1(oi)
```

```
## $data
##        Var Present
## Groups    no yes Total
##   preg   111   8   119
##   no    1404 254  1658
##   puerp   21   6    27
##   Total 1536 268  1804
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups  estimate    lower     upper
##   preg  1.000000       NA        NA
##   no    2.464104 1.105704  6.875044
##   puerp 3.931497 0.868708 16.637168
##
## $p.value
##        two-sided
## Groups   midp.exact fisher.exact chi.square
##   preg           NA           NA         NA
##   no    0.006324443   0.01027436 0.01546917
##   puerp 0.028947132   0.02410382 0.03507786
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

Diabetes

```r
data7_selec <- data7 %>%
  filter(diabetes  == "yes")
```

```r
ctable(
  data7_selec$gest_puerp,
  data7_selec$evolucao,
  prop = "r",
  OR = TRUE,
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Row Proportions
## gest_puerp * evolucao
## Data Frame: data7_selec
##
##
## ------------ ---------- -------------- -------------- ---------------
##                evolucao          death           cure           Total
##   gest_puerp
##           no              1143 (26.8%)   3125 (73.2%)   4268 (100.0%)
##         preg                27 (12.7%)    185 (87.3%)    212 (100.0%)
##        puerp                19 (32.2%)     40 (67.8%)     59 (100.0%)
##        Total              1189 (26.2%)   3350 (73.8%)   4539 (100.0%)
## ------------ ---------- -------------- -------------- ---------------
##
## ----------------------------
##  Chi.squared   df   p.value
## ------------- ---- ---------
##    21.7229     2       0
## ----------------------------
```

```r
oi <- table(data7_selec$gest_puerp, data7_selec$evolucao)
odds_function(oi)
```

```
## $data
##        Var Present
## Groups    no  yes Total
##   no    3125 1143  4268
##   preg   185   27   212
##   puerp   40   19    59
##   Total 3350 1189  4539
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups   estimate     lower     upper
##   no    1.0000000        NA        NA
##   preg  0.4011406 0.2352577 0.6443113
##   puerp 1.3044029 0.6425289 2.5100985
##
## $p.value
##        two-sided
```

```
## Groups    midp.exact fisher.exact   chi.square
##   no              NA           NA           NA
##   preg  1.291644e-06 0.0000018124 8.051496e-06
##   puerp 3.539755e-01 0.3749116846 4.321649e-01
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

```
odds_function1(oi)
```

```
## $data
##        Var Present
## Groups    no  yes Total
##   preg   185   27   212
##   no    3125 1143  4268
##   puerp   40   19    59
##   Total 3350 1189  4539
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups  estimate    lower    upper
##   preg  1.000000       NA       NA
##   no    2.493036 1.552045 4.250658
##   puerp 3.240857 1.389138 7.453999
##
## $p.value
##        two-sided
## Groups    midp.exact fisher.exact   chi.square
##   preg            NA           NA           NA
##   no    1.291644e-06 0.0000018124 8.051496e-06
##   puerp 1.003057e-03 0.0013105354 8.778360e-04
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

Neurological

```
data7_selec <- data7 %>%
  filter(neuro == "yes")
```

```
ctable(
  data7_selec$gest_puerp,
  data7_selec$evolucao,
  prop = "r",
  OR = TRUE,
```

```
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Row Proportions
## gest_puerp * evolucao
## Data Frame: data7_selec
##
##
## ------------ ---------- ------------- ------------- --------------
##                evolucao         death          cure          Total
##   gest_puerp
##           no               179 (35.9%)   319 (64.1%)   498 (100.0%)
##         preg                 1 ( 4.2%)    23 (95.8%)    24 (100.0%)
##        puerp                 2 (40.0%)     3 (60.0%)     5 (100.0%)
##        Total               182 (34.5%)   345 (65.5%)   527 (100.0%)
## ------------ ---------- ------------- ------------- --------------
##
## ----------------------------
##  Chi.squared   df   p.value
## ------------- ---- ---------
##    10.2932     2    0.0058
## ----------------------------
```

```
oi <- table(data7_selec$gest_puerp, data7_selec$evolucao)
odds_function(oi)
```

```
## $data
##        Var Present
## Groups   no yes Total
##   no    319 179   498
##   preg   23   1    24
##   puerp   3   2     5
##   Total 345 182   527
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups    estimate       lower      upper
##   no    1.00000000          NA         NA
##   preg  0.08832648 0.001234405  0.5478304
##   puerp 1.21551522 0.076943864 12.7243371
##
## $p.value
##        two-sided
## Groups    midp.exact fisher.exact  chi.square
##   no              NA           NA          NA
##   preg  0.0004554119 0.0006486086 0.002889953
##   puerp 0.8409155271 1.0000000000 1.000000000
##
## $correction
## [1] TRUE
##
## attr(,"method")
```

```
## [1] "median-unbiased estimate & mid-p exact CI"
```

```
odds_function1(oi)
```

```
## $data
##        Var Present
## Groups   no yes Total
##   preg   23   1    24
##   no    319 179   498
##   puerp   3   2     5
##   Total 345 182   527
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups  estimate     lower     upper
##   preg   1.00000        NA        NA
##   no    11.32163 1.8253825  810.1069
##   puerp 12.42152 0.4220791 1414.8733
##
## $p.value
##        two-sided
## Groups    midp.exact fisher.exact  chi.square
##   preg            NA           NA          NA
##   no    0.0004554119 0.0006486086 0.002889953
##   puerp 0.0711548987 0.0684181719 0.112654204
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

Pneumopathy

```
data7_selec <- data7 %>%
  filter(pneumopati == "yes")
```

```
ctable(
  data7_selec$gest_puerp,
  data7_selec$evolucao,
  prop = "r",
  OR = TRUE,
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Row Proportions
## gest_puerp * evolucao
## Data Frame: data7_selec
##
##
```

```
## ------------ ---------- ------------- -------------- --------------
##                evolucao         death           cure          Total
##   gest_puerp
##           no              136 (26.5%)   377 ( 73.5%)   513 (100.0%)
##         preg                1 ( 4.3%)    22 ( 95.7%)    23 (100.0%)
##        puerp                0 ( 0.0%)     4 (100.0%)     4 (100.0%)
##        Total              137 (25.4%)   403 ( 74.6%)   540 (100.0%)
## ------------ ---------- ------------- -------------- --------------
##
## ----------------------------
##  Chi.squared   df   p.value
## ------------- ---- ---------
##    7.0807      2     0.029
## ----------------------------
```

```
oi <- table(data7_selec$gest_puerp, data7_selec$evolucao)
odds_function(oi, met = "small")
```

```
## $data
##        Var Present
## Groups     no   yes Total
##   no    377.5 136.5   514
##   preg   22.5   1.5    24
##   puerp   4.5   0.5     5
##   Total 404.5 138.5   543
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups   estimate      lower    upper
##   no    1.0000000         NA       NA
##   preg  0.1752418 0.04044437 1.423275
##   puerp 0.2495868 0.03967492 7.675142
##
## $p.value
##        two-sided
## Groups  midp.exact fisher.exact chi.square
##   no            NA           NA         NA
##   preg  0.03808053    0.0544212 0.04686748
##   puerp 0.29453297    0.5772403 0.74435867
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "small sample-adjusted UMLE & normal approx (Wald) CI"
```

```
odds_function1(oi, met = "small")
```

```
## $data
##        Var Present
## Groups     no   yes Total
##   preg   22.5   1.5    24
##   no    377.5 136.5   514
```

```
##   puerp   4.5   0.5     5
##   Total 404.5 138.5   543
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups   estimate      lower    upper
##   preg  1.0000000         NA       NA
##   no    3.2457067 0.70260515 24.72532
##   puerp 0.8181818 0.09757304 54.21580
##
## $p.value
##        two-sided
## Groups  midp.exact fisher.exact chi.square
##   preg          NA           NA         NA
##   no    0.03808053    0.0544212 0.04686748
##   puerp 0.73015873    1.0000000 1.00000000
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "small sample-adjusted UMLE & normal approx (Wald) CI"
```

Immunodepression

```
data7_selec <- data7 %>%
  filter(imunodepre == "yes")
```

```
ctable(
  data7_selec$gest_puerp,
  data7_selec$evolucao,
  prop = "r",
  OR = TRUE,
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Row Proportions
## gest_puerp * evolucao
## Data Frame: data7_selec
##
##
## ------------ ---------- ------------- ------------- ---------------
##                evolucao         death          cure           Total
##   gest_puerp
##           no              408 (35.2%)   751 (64.8%)   1159 (100.0%)
##         preg                6 (16.7%)    30 (83.3%)     36 (100.0%)
##        puerp                3 (16.7%)    15 (83.3%)     18 (100.0%)
##        Total              417 (34.4%)   796 (65.6%)   1213 (100.0%)
## ------------ ---------- ------------- ------------- ---------------
##
```

```
## ----------------------------
##  Chi.squared   df   p.value
## ------------- ---- ---------
##    7.8582      2    0.0197
## ----------------------------
```

```
oi <- table(data7_selec$gest_puerp, data7_selec$evolucao)
odds_function(oi)
```

```
## $data
##        Var Present
## Groups   no yes Total
##   no    751 408  1159
##   preg   30   6    36
##   puerp  15   3    18
##   Total 796 417  1213
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups   estimate      lower    upper
##   no    1.0000000         NA       NA
##   preg  0.3761865 0.10722848 1.008831
##   puerp 0.3836259 0.05565939 1.481273
##
## $p.value
##        two-sided
## Groups  midp.exact fisher.exact chi.square
##   no            NA           NA         NA
##   preg  0.01778466   0.02070842 0.03367176
##   puerp 0.10090314   0.13509011 0.16517531
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

```
odds_function1(oi)
```

```
## $data
##        Var Present
## Groups   no yes Total
##   preg   30   6    36
##   no    751 408  1159
##   puerp  15   3    18
##   Total 796 417  1213
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups  estimate     lower    upper
##   preg  1.000000        NA       NA
##   no    2.658352 0.9912463 9.325881
##   puerp 1.019710 0.1166036 6.432563
```

```
##
## $p.value
##        two-sided
## Groups  midp.exact fisher.exact chi.square
##   preg          NA           NA         NA
##   no    0.01778466   0.02070842 0.03367176
##   puerp 0.98053551   1.00000000 1.00000000
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

Kidney disease

```
data7_selec <- data7 %>%
  filter(renal == "yes")
```

```
ctable(
  data7_selec$gest_puerp,
  data7_selec$evolucao,
  prop = "r",
  OR = TRUE,
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Row Proportions
## gest_puerp * evolucao
## Data Frame: data7_selec
##
##
## ------------ ---------- ------------- ------------- ---------------
##                evolucao         death          cure           Total
##   gest_puerp
##           no               385 (40.0%)   578 (60.0%)   963 (100.0%)
##         preg                 2 ( 9.5%)    19 (90.5%)    21 (100.0%)
##        puerp                 4 (36.4%)     7 (63.6%)    11 (100.0%)
##        Total               391 (39.3%)   604 (60.7%)   995 (100.0%)
## ------------ ---------- ------------- ------------- ---------------
##
## ----------------------------
##  Chi.squared   df   p.value
## ------------- ---- ---------
##    8.0313      2     0.018
## ----------------------------
```

```
oi <- table(data7_selec$gest_puerp, data7_selec$evolucao)
odds_function(oi)
```

```
## $data
##        Var Present
## Groups   no yes Total
##   no    578 385   963
##   preg   19   2    21
##   puerp   7   4    11
##   Total 604 391   995
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups   estimate      lower     upper
##   no    1.0000000         NA        NA
##   preg  0.1690280 0.01385936 0.7451448
##   puerp 0.8721124 0.15362201 3.9233874
##
## $p.value
##        two-sided
## Groups   midp.exact fisher.exact  chi.square
##   no             NA           NA          NA
##   preg  0.002989411  0.005288978 0.009304179
##   puerp 0.831008168  1.000000000 1.000000000
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

```
odds_function1(oi)
```

```
## $data
##        Var Present
## Groups   no yes Total
##   preg   19   2    21
##   no    578 385   963
##   puerp   7   4    11
##   Total 604 391   995
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups  estimate     lower    upper
##   preg  1.000000        NA       NA
##   no    5.916085 1.3420211 72.15342
##   puerp 4.962028 0.4901666 87.49873
##
## $p.value
##        two-sided
## Groups   midp.exact fisher.exact  chi.square
##   preg           NA           NA          NA
##   no    0.002989411  0.005288978 0.009304179
##   puerp 0.098906192  0.147571376 0.170446724
##
## $correction
## [1] TRUE
```

```
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

Obesity

```
data7_selec <- data7 %>%
  filter(obesidade == "yes")
```

```
ctable(
  data7_selec$gest_puerp,
  data7_selec$evolucao,
  prop = "r",
  OR = TRUE,
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Row Proportions
## gest_puerp * evolucao
## Data Frame: data7_selec
##
##
## ------------ ---------- ------------- -------------- ---------------
##                evolucao         death           cure           Total
##   gest_puerp
##           no               762 (22.9%)   2565 (77.1%)   3327 (100.0%)
##         preg                19 (15.2%)    106 (84.8%)    125 (100.0%)
##        puerp                15 (31.2%)     33 (68.8%)     48 (100.0%)
##        Total               796 (22.7%)   2704 (77.3%)   3500 (100.0%)
## ------------ ---------- ------------- -------------- ---------------
##
## ----------------------------
##  Chi.squared   df   p.value
## ------------- ---- ---------
##    6.0736      2     0.048
## ----------------------------
```

```
oi <- table(data7_selec$gest_puerp, data7_selec$evolucao)
odds_function(oi)
```

```
## $data
##        Var Present
## Groups    no yes Total
##   no    2565 762  3327
##   preg   106  19   125
##   puerp   33  15    48
##   Total 2704 796  3500
##
## $measure
##        odds ratio with 98.33% C.I.
```

```
## Groups   estimate     lower    upper
##   no    1.0000000        NA       NA
##   preg  0.6076271 0.3165168 1.074491
##   puerp 1.5387743 0.6912101 3.191746
##
## $p.value
##        two-sided
## Groups  midp.exact fisher.exact chi.square
##   no            NA           NA         NA
##   preg  0.03788076   0.04931636 0.05587399
##   puerp 0.18492771   0.17018015 0.23359226
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

```
odds_function1(oi)
```

```
## $data
##        Var Present
## Groups    no yes Total
##   preg   106  19   125
##   no    2565 762  3327
##   puerp   33  15    48
##   Total 2704 796  3500
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups  estimate     lower    upper
##   preg  1.000000        NA       NA
##   no    1.645716 0.9306732 3.159390
##   puerp 2.522727 0.9501462 6.618207
##
## $p.value
##        two-sided
## Groups  midp.exact fisher.exact chi.square
##   preg          NA           NA         NA
##   no    0.03788076   0.04931636 0.05587399
##   puerp 0.02316618   0.03093899 0.03038975
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

Metabolic syndrome

```r
data7_selec <- data7 %>%
  filter(gr_sind_met == "yes")
```

```r
ctable(
  data7_selec$gest_puerp,
  data7_selec$evolucao,
  prop = "r",
  useNA = "no",
  chisq = TRUE
)
```

```
## Cross-Tabulation, Row Proportions
## gest_puerp * evolucao
## Data Frame: data7_selec
##
##
## ------------ ---------- ------------- ------------- --------------
##                evolucao         death          cure          Total
##   gest_puerp
##           no               145 (37.8%)   239 (62.2%)   384 (100.0%)
##         preg                 1 (14.3%)     6 (85.7%)     7 (100.0%)
##        puerp                 3 (42.9%)     4 (57.1%)     7 (100.0%)
##        Total               149 (37.4%)   249 (62.6%)   398 (100.0%)
## ------------ ---------- ------------- ------------- --------------
##
## ----------------------------
##  Chi.squared   df   p.value
## ------------- ---- ---------
##    1.7068      2     0.426
## ----------------------------
```

```r
oi <- table(data7_selec$gest_puerp, data7_selec$evolucao)
odds_function(oi)
```

```
## $data
##        Var Present
## Groups   no yes Total
##   no    239 145   384
##   preg    6   1     7
##   puerp   4   3     7
##   Total 249 149   398
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups  estimate       lower    upper
##   no    1.000000          NA       NA
##   preg  0.307138 0.003915957 2.674054
##   puerp 1.250546 0.146510102 8.817345
##
## $p.value
##        two-sided
## Groups  midp.exact fisher.exact chi.square
```

```
##   no            NA           NA         NA
##   preg   0.2304175    0.2646446  0.3798253
##   puerp  0.7810218    1.0000000  1.0000000
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

```
odds_function1(oi)
```

```
## $data
##        Var Present
## Groups   no yes Total
##   preg    6   1     7
##   no    239 145   384
##   puerp   4   3     7
##   Total 249 149   398
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups  estimate     lower    upper
##   preg  1.000000        NA       NA
##   no    3.255844 0.3739640 255.3654
##   puerp 3.808781 0.1843334 415.0221
##
## $p.value
##        two-sided
## Groups  midp.exact fisher.exact chi.square
##   preg          NA           NA         NA
##   no     0.2304175    0.2646446  0.3798253
##   puerp  0.3146853    0.5594406  0.5541131
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

Invasive support

Invasive

```
data7_selec <- data7 %>%
  filter(suport_ven == "yes, invasive")
```

```
ctable(
  data7_selec$gest_puerp,
  data7_selec$evolucao,
  prop = "r",
  useNA = "no",
```

```
  chisq = FALSE
)
```

```
## Cross-Tabulation, Row Proportions
## gest_puerp * evolucao
## Data Frame: data7_selec
##
## ------------ ---------- -------------- -------------- ---------------
##                evolucao          death           cure           Total
##   gest_puerp
##           no              2249 (63.6%)   1287 (36.4%)   3536 (100.0%)
##         preg               104 (49.8%)    105 (50.2%)    209 (100.0%)
##        puerp                77 (57.9%)     56 (42.1%)    133 (100.0%)
##        Total              2430 (62.7%)   1448 (37.3%)   3878 (100.0%)
## ------------ ---------- -------------- -------------- ---------------
```

```
oi <- table(data7_selec$gest_puerp, data7_selec$evolucao)
odds_function(oi)
```

```
## $data
##        Var Present
## Groups    no  yes Total
##   no    1287 2249  3536
##   preg   105  104   209
##   puerp   56   77   133
##   Total 1448 2430  3878
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups   estimate     lower     upper
##   no    1.0000000        NA        NA
##   preg  0.5669204 0.4024233 0.7984666
##   puerp 0.7862938 0.5133403 1.2152347
##
## $p.value
##        two-sided
## Groups    midp.exact fisher.exact   chi.square
##   no              NA           NA           NA
##   preg  7.721615e-05 0.0000869114 7.812554e-05
##   puerp 1.832200e-01 0.1991703580 2.113401e-01
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

```
odds_function1(oi)
```

```
## $data
##        Var Present
## Groups    no  yes Total
```

```
##   preg   105  104   209
##   no    1287 2249  3536
##   puerp   56   77   133
##   Total 1448 2430  3878
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups  estimate     lower    upper
##   preg  1.000000        NA       NA
##   no    1.763966 1.2524005 2.484945
##   puerp 1.386210 0.8124081 2.379114
##
## $p.value
##        two-sided
## Groups    midp.exact fisher.exact   chi.square
##   preg            NA           NA           NA
##   no    7.721615e-05 0.0000869114 7.812554e-05
##   puerp 1.439721e-01 0.1500167460 1.744554e-01
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

Non-invasive

```
data7_selec <- data7 %>%
  filter(suport_ven == "yes, not invasive")
```

```
ctable(
  data7_selec$gest_puerp,
  data7_selec$evolucao,
  prop = "r",
  useNA = "no",
  chisq = FALSE
)
```

```
## Cross-Tabulation, Row Proportions
## gest_puerp * evolucao
## Data Frame: data7_selec
##
## ------------ ---------- -------------- --------------- -----------------
##                evolucao          death            cure             Total
##   gest_puerp
##           no              1246 ( 9.4%)   11967 (90.6%)   13213 (100.0%)
##         preg                37 ( 4.8%)     726 (95.2%)     763 (100.0%)
##        puerp                18 (10.1%)     160 (89.9%)     178 (100.0%)
##        Total             1301 ( 9.2%)   12853 (90.8%)   14154 (100.0%)
## ------------ ---------- -------------- --------------- -----------------
```

```r
oi <- table(data7_selec$gest_puerp, data7_selec$evolucao)
odds_function(oi)
```

```
## $data
##        Var Present
## Groups     no  yes Total
##   no    11967 1246 13213
##   preg    726   37   763
##   puerp   160   18   178
##   Total 12853 1301 14154
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups   estimate     lower     upper
##   no    1.0000000        NA        NA
##   preg  0.4914879 0.3179235 0.7242978
##   puerp 1.0891511 0.5666629 1.9037756
##
## $p.value
##        two-sided
## Groups    midp.exact fisher.exact   chi.square
##   no              NA           NA           NA
##   preg  4.340917e-06  5.67912e-06 2.711419e-05
##   puerp 7.364199e-01  6.99488e-01 8.569872e-01
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

```r
odds_function1(oi)
```

```
## $data
##        Var Present
## Groups     no  yes Total
##   preg    726   37   763
##   no    11967 1246 13213
##   puerp   160   18   178
##   Total 12853 1301 14154
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups  estimate    lower    upper
##   preg  1.000000       NA       NA
##   no    2.034524 1.380648 3.145410
##   puerp 2.214465 1.041482 4.474211
##
## $p.value
##        two-sided
## Groups    midp.exact fisher.exact   chi.square
##   preg            NA           NA           NA
##   no    4.340917e-06 5.679120e-06 2.711419e-05
```

```
##   puerp 1.188662e-02 1.187845e-02 1.180573e-02
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

ICU admission

```
data7_selec <- data7 %>%
  filter(uti == "yes")
```

```
ctable(
  data7_selec$gest_puerp,
  data7_selec$evolucao,
  prop = "r",
  useNA = "no",
  chisq = FALSE
)
```

```
## Cross-Tabulation, Row Proportions
## gest_puerp * evolucao
## Data Frame: data7_selec
##
## ------------ ---------- -------------- -------------- ---------------
##                evolucao          death           cure           Total
##   gest_puerp
##           no              2755 (34.4%)   5259 (65.6%)   8014 (100.0%)
##         preg               127 (22.1%)    447 (77.9%)    574 (100.0%)
##        puerp                90 (36.9%)    154 (63.1%)    244 (100.0%)
##        Total              2972 (33.7%)   5860 (66.3%)   8832 (100.0%)
## ------------ ---------- -------------- -------------- ---------------
```

```
oi <- table(data7_selec$gest_puerp, data7_selec$evolucao)
odds_function(oi)
```

```
## $data
##        Var Present
## Groups    no  yes Total
##   no    5259 2755  8014
##   preg   447  127   574
##   puerp  154   90   244
##   Total 5860 2972  8832
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups  estimate     lower     upper
##   no    1.000000        NA        NA
##   preg  0.542864 0.4216457 0.6918243
##   puerp 1.116377 0.8043550 1.5362398
```

```
##
## $p.value
##        two-sided
## Groups    midp.exact fisher.exact   chi.square
##   no              NA           NA           NA
##   preg  5.815246e-10 7.154979e-10 2.533090e-09
##   puerp 4.165484e-01 4.127817e-01 4.570449e-01
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

```
odds_function1(oi)
```

```
## $data
##        Var Present
## Groups    no  yes Total
##   preg   447  127   574
##   no    5259 2755  8014
##   puerp  154   90   244
##   Total 5860 2972  8832
##
## $measure
##        odds ratio with 98.33% C.I.
## Groups  estimate    lower    upper
##   preg  1.000000       NA       NA
##   no    1.842082 1.445454 2.371659
##   puerp 2.055309 1.377237 3.062035
##
## $p.value
##        two-sided
## Groups    midp.exact fisher.exact   chi.square
##   preg            NA           NA           NA
##   no    5.815246e-10 7.154979e-10 2.533090e-09
##   puerp 1.818574e-05 2.029079e-05 1.802278e-05
##
## $correction
## [1] TRUE
##
## attr(,"method")
## [1] "median-unbiased estimate & mid-p exact CI"
```

Propensity score matching

Cardiopathy

```
data7_selec <- data7 %>%
  filter(cardiopati == "yes")
```

```
aj_aux <-
  summ(
    glm(
      evolucao1 ~ relevel(gest_puerp, "no"),
      family = binomial(link = 'logit'),
      data = data7_selec,
      weights = data7_selec$peso
    ),
    robust = "HC1"
  )

aj1_aux <-
  summ(
    glm(
      evolucao1 ~ relevel(gest_puerp, "preg"),
      family = binomial(link = 'logit'),
      data = data7_selec,
      weights = data7_selec$peso
    ),
    robust = "HC1"
  )
```

Odds ratio and probability of success:

```
#odds ratio - women of reproductive age as reference
or_rl(aj_aux$coeftable)
```

```
##        Measures
## Groups         OR  L 98.33%  U 98.33%
##   preg  0.4717342 0.2532391 0.8787474
##   puerp 0.9557546 0.4564390 2.0012903
```

```
#odds ratio - pregnant women as reference
or_rl1(aj1_aux$coeftable)
```

```
##        Measures
## Groups        OR  L 98.33% U 98.33%
##   no    2.119838 1.1379835 3.948838
##   puerp 2.026045 0.8234235 4.985111
```

```
#probability of success
prob_rl(aj_aux$coeftable)
```

```
##        Prob
## Groups  Probabilidade
##   no         0.2220035
##   preg       0.1186404
##   puerp      0.2142857
```

Hematology

```
data7_selec <- data7 %>%
  filter(hematologi == "yes")
```

```
aj_aux <-
  summ(
    glm(
      evolucao1 ~ relevel(gest_puerp, "no"),
      family = binomial(link = 'logit'),
      data = data7_selec,
      weights = data7_selec$peso
    ),
    robust = "HC1"
  )

aj1_aux <-
  summ(
    glm(
      evolucao1 ~ relevel(gest_puerp, "preg"),
      family = binomial(link = 'logit'),
      data = data7_selec,
      weights = data7_selec$peso
    ),
    robust = "HC1"
  )
```

Odds ratio and probability of success:

```
#odds ratio - women of reproductive age as reference
or_rl(aj_aux$coeftable)
```

```
##        Measures
## Groups        OR   L 98.33%  U 98.33%
##   preg  0.424644 0.05689335  3.169483
##   puerp 1.780035 0.18561029 17.070843
```

```
#odds ratio - pregnant women as reference
or_rl1(aj1_aux$coeftable)
```

```
##        Measures
## Groups        OR  L 98.33% U 98.33%
##   no    2.354914 0.3155089 17.57675
##   puerp 4.191829 0.2975429 59.05512
```

```
#probability of success
prob_rl(aj_aux$coeftable)
```

```
##        Prob
## Groups  Probabilidade
##   no       0.18348330
##   preg     0.08711126
##   puerp    0.28571429
```

Hepatic

```
data7_selec <- data7 %>%
  filter(hepatica == "yes")
```

```
aj_aux <-
  summ(
    glm(
      evolucao1 ~ relevel(gest_puerp, "no"),
      family = binomial(link = 'logit'),
      data = data7_selec,
      weights = data7_selec$peso
    ),
    robust = "HC1"
  )

aj1_aux <-
  summ(
    glm(
      evolucao1 ~ relevel(gest_puerp, "preg"),
      family = binomial(link = 'logit'),
      data = data7_selec,
      weights = data7_selec$peso
    ),
    robust = "HC1"
  )
```

Odds ratio and probability of success:

```
#odds ratio - women of reproductive age as reference
or_rl(aj_aux$coeftable)
```

```
##        Measures
## Groups            OR     L 98.33%     U 98.33%
##   preg  1.155204e-01 7.398735e-03 1.803680e+00
##   puerp 8.138714e-09 1.652144e-09 4.009256e-08
```

```
#odds ratio - pregnant women as reference
or_rl1(aj1_aux$coeftable)
```

```
##        Measures
## Groups            OR     L 98.33%     U 98.33%
##   no    8.656483e+00 5.544220e-01 1.351582e+02
##   puerp 7.045264e-08 3.577809e-09 1.387322e-06
```

```
#probability of success
prob_rl(aj_aux$coeftable)
```

```
##        Prob
## Groups  Probabilidade
##   no     2.810145e-01
##   preg   4.320043e-02
##   puerp  3.181005e-09
```

Asthma

```
data7_selec <- data7 %>%
  filter(asma == "yes")
```

```
aj_aux <-
  summ(
    glm(
      evolucao1 ~ relevel(gest_puerp, "no"),
      family = binomial(link = 'logit'),
      data = data7_selec,
      weights = data7_selec$peso
    ),
    robust = "HC1"
  )

aj1_aux <-
  summ(
    glm(
      evolucao1 ~ relevel(gest_puerp, "preg"),
      family = binomial(link = 'logit'),
      data = data7_selec,
      weights = data7_selec$peso
    ),
    robust = "HC1"
  )
```

Odds ratio and probability of success:

```
#odds ratio - women of reproductive age as reference
or_rl(aj_aux$coeftable)
```

```
##        Measures
## Groups         OR  L 98.33% U 98.33%
##   preg  0.5601534 0.1574975 1.992234
##   puerp 2.6818043 0.8043899 8.941030
```

```
#odds ratio - pregnant women as reference
or_rl1(aj1_aux$coeftable)
```

```
##        Measures
## Groups        OR  L 98.33%  U 98.33%
##   no    1.785225 0.5019489  6.349309
##   puerp 4.787624 0.9511096 24.099585
```

```
#probability of success
prob_rl(aj_aux$coeftable)
```

```
##        Prob
## Groups  Probabilidade
##   no       0.09628054
##   preg     0.05631682
##   puerp    0.22222222
```

Diabetes

```
data7_selec <- data7 %>%
  filter(diabetes  == "yes")
```

```
aj_aux <-
  summ(
    glm(
      evolucao1 ~ relevel(gest_puerp, "no"),
      family = binomial(link = 'logit'),
      data = data7_selec,
      weights = data7_selec$peso
    ),
    robust = "HC1"
  )

aj1_aux <-
  summ(
    glm(
      evolucao1 ~ relevel(gest_puerp, "preg"),
      family = binomial(link = 'logit'),
      data = data7_selec,
      weights = data7_selec$peso
    ),
    robust = "HC1"
  )
```

Odds ratio and probability of success:

```
#odds ratio - women of reproductive age as reference
or_rl(aj_aux$coeftable)
```

```
##        Measures
## Groups        OR  L 98.33%  U 98.33%
##   preg  0.433858 0.2334597 0.8062753
##   puerp 1.519111 0.7533967 3.0630594
```

```
#odds ratio - pregnant women as reference
or_rl1(aj1_aux$coeftable)
```

```
##        Measures
## Groups        OR L 98.33% U 98.33%
##   no    2.304902 1.240271 4.283395
##   puerp 3.501402 1.447964 8.466930
```

```
#probability of success
prob_rl(aj_aux$coeftable)
```

```
##        Prob
## Groups  Probabilidade
##   no         0.2382014
##   preg       0.1194547
##   puerp      0.3220339
```

Neurological

```
data7_selec <- data7 %>%
  filter(neuro == "yes")
```

```
aj_aux <-
  summ(
    glm(
      evolucao1 ~ relevel(gest_puerp, "no"),
      family = binomial(link = 'logit'),
      data = data7_selec,
      weights = data7_selec$peso
    ),
    robust = "HC1"
  )

aj1_aux <-
  summ(
    glm(
      evolucao1 ~ relevel(gest_puerp, "preg"),
      family = binomial(link = 'logit'),
      data = data7_selec,
      weights = data7_selec$peso
    ),
    robust = "HC1"
  )
```

Odds ratio and probability of success:

```
#odds ratio - women of reproductive age as reference
or_rl(aj_aux$coeftable)
```

```
##        Measures
## Groups          OR    L 98.33%   U 98.33%
##   preg  0.04851716 0.003764843  0.6252358
##   puerp 1.93312319 0.195028734 19.1611009
```

```
#odds ratio - pregnant women as reference
or_rl1(aj1_aux$coeftable)
```

```
##        Measures
## Groups        OR L 98.33%  U 98.33%
##   no    20.61126 1.599396  265.6153
##   puerp 39.84411 1.479053 1073.3579
```

```
#probability of success
prob_rl(aj_aux$coeftable)
```

```
##        Prob
## Groups  Probabilidade
##   no       0.25643098
##   preg     0.01645653
##   puerp    0.40000000
```

Pneumopathy

```
data7_selec <- data7 %>%
  filter(pneumopati == "yes")
```

```
aj_aux <-
  summ(
    glm(
      evolucao1 ~ relevel(gest_puerp, "no"),
      family = binomial(link = 'logit'),
      data = data7_selec,
      weights = data7_selec$peso
    ),
    robust = "HC1"
  )

aj1_aux <-
  summ(
    glm(
      evolucao1 ~ relevel(gest_puerp, "preg"),
      family = binomial(link = 'logit'),
      data = data7_selec,
      weights = data7_selec$peso
    ),
    robust = "HC1"
  )
```

Odds ratio and probability of success:

```
#odds ratio - women of reproductive age as reference
or_rl(aj_aux$coeftable)
```

```
##        Measures
## Groups            OR     L 98.33%     U 98.33%
##   preg  1.945999e-01 1.384596e-02 2.735032e+00
##   puerp 3.909066e-08 8.495512e-09 1.798691e-07
```

```
#odds ratio - pregnant women as reference
or_rl1(aj1_aux$coeftable)
```

```
##        Measures
## Groups            OR     L 98.33%     U 98.33%
##   no    5.138748e+00 3.656264e-01 7.222325e+01
##   puerp 2.008771e-07 1.292378e-08 3.122275e-06
```

```
#probability of success
prob_rl(aj_aux$coeftable)
```

```
##        Prob
## Groups  Probabilidade
##   no     1.811336e-01
##   preg   4.126913e-02
##   puerp  8.646869e-09
```

Immunodepression

```
data7_selec <- data7 %>%
  filter(imunodepre == "yes")
```

```
aj_aux <-
  summ(
    glm(
      evolucao1 ~ relevel(gest_puerp, "no"),
      family = binomial(link = 'logit'),
      data = data7_selec,
      weights = data7_selec$peso
    ),
    robust = "HC1"
  )

aj1_aux <-
  summ(
    glm(
      evolucao1 ~ relevel(gest_puerp, "preg"),
      family = binomial(link = 'logit'),
      data = data7_selec,
      weights = data7_selec$peso
    ),
    robust = "HC1"
  )
```

Odds ratio and probability of success:

```
#odds ratio - women of reproductive age as reference
or_rl(aj_aux$coeftable)
```

```
##        Measures
## Groups         OR  L 98.33% U 98.33%
##   preg  0.5354250 0.1549716 1.849888
##   puerp 0.5533096 0.1171068 2.614294
```

```
#odds ratio - pregnant women as reference
or_rl1(aj1_aux$coeftable)
```

```
##        Measures
## Groups        OR  L 98.33% U 98.33%
##   no    1.867675 0.5405734 6.452796
##   puerp 1.033402 0.1506994 7.086428
```

```
#probability of success
prob_rl(aj_aux$coeftable)
```

```
##        Prob
## Groups  Probabilidade
##   no         0.2654951
##   preg       0.1621531
##   puerp      0.1666667
```

Kidney disease

```
data7_selec <- data7 %>%
  filter(renal == "yes")
```

```
aj_aux <-
  summ(
    glm(
      evolucao1 ~ relevel(gest_puerp, "no"),
      family = binomial(link = 'logit'),
      data = data7_selec,
      weights = data7_selec$peso
    ),
    robust = "HC1"
  )

aj1_aux <-
  summ(
    glm(
      evolucao1 ~ relevel(gest_puerp, "preg"),
      family = binomial(link = 'logit'),
      data = data7_selec,
      weights = data7_selec$peso
    ),
    robust = "HC1"
  )
```

Odds ratio and probability of success:

```
#odds ratio - women of reproductive age as reference
or_rl(aj_aux$coeftable)
```

```
##        Measures
## Groups         OR   L 98.33% U 98.33%
##   preg  0.5931221 0.08865846 3.967967
##   puerp 1.5159860 0.30469022 7.542787
```

```
#odds ratio - pregnant women as reference
or_rl1(aj1_aux$coeftable)
```

```
##        Measures
## Groups        OR  L 98.33% U 98.33%
##   no    1.685993 0.2520182 11.27924
##   puerp 2.555942 0.2428806 26.89734
```

```
#probability of success
prob_rl(aj_aux$coeftable)
```

```
##        Prob
## Groups  Probabilidade
##   no         0.2737494
##   preg       0.1827185
##   puerp      0.3636364
```

Obesity

```
data7_selec <- data7 %>%
  filter(obesidade == "yes")
```

```
aj_aux <-
  summ(
    glm(
      evolucao1 ~ relevel(gest_puerp, "no"),
      family = binomial(link = 'logit'),
      data = data7_selec,
      weights = data7_selec$peso
    ),
    robust = "HC1"
  )

aj1_aux <-
  summ(
    glm(
      evolucao1 ~ relevel(gest_puerp, "preg"),
      family = binomial(link = 'logit'),
      data = data7_selec,
      weights = data7_selec$peso
    ),
    robust = "HC1"
  )
```

Odds ratio and probability of success:

```
#odds ratio - women of reproductive age as reference
or_rl(aj_aux$coeftable)
```

```
##        Measures
## Groups         OR  L 98.33% U 98.33%
##   preg  0.8044845 0.3686837 1.755421
##   puerp 2.2856782 1.0587056 4.934634
```

```
#odds ratio - pregnant women as reference
or_rl1(aj1_aux$coeftable)
```

```
##        Measures
## Groups        OR  L 98.33% U 98.33%
##   no    1.243032 0.5696638 2.712352
##   puerp 2.841171 0.9835735 8.207067
```

```
#probability of success
prob_rl(aj_aux$coeftable)
```

```
##        Prob
## Groups  Probabilidade
##   no         0.1658790
##   preg       0.1379201
##   puerp      0.3125000
```

Metabolic syndrome

```
data7_selec <- data7 %>%
  filter(gr_sind_met == "yes")
```

```
aj_aux <-
  summ(
    glm(
      evolucao1 ~ relevel(gest_puerp, "no"),
      family = binomial(link = 'logit'),
      data = data7_selec,
      weights = data7_selec$peso
    ),
    robust = "HC1"
  )

aj1_aux <-
  summ(
    glm(
      evolucao1 ~ relevel(gest_puerp, "preg"),
      family = binomial(link = 'logit'),
      data = data7_selec,
      weights = data7_selec$peso
    ),
    robust = "HC1"
  )
```

Odds ratio and probability of success:

```
#odds ratio - women of reproductive age as reference
or_rl(aj_aux$coeftable)
```

```
##        Measures
## Groups         OR    L 98.33% U 98.33%
##   preg  0.1030644 0.007517303 1.413041
##   puerp 1.3969873 0.217075419 8.990302
```

```
#odds ratio - pregnant women as reference
or_rl1(aj1_aux$coeftable)
```

```
##        Measures
## Groups         OR  L 98.33% U 98.33%
##   no     9.702676 0.7076933 133.0264
##   puerp 13.554515 0.5645060 325.4613
```

```
#probability of success
prob_rl(aj_aux$coeftable)
```

```
##        Prob
## Groups  Probabilidade
##   no         0.3493267
##   preg       0.0524310
##   puerp      0.4285714
```

Invasive support

Invasive

```
data7_selec <- data7 %>%
  filter(suport_ven == "yes, invasive")
```

```
aj_aux <-
  summ(
    glm(
      evolucao1 ~ relevel(gest_puerp, "no"),
      family = binomial(link = 'logit'),
      data = data7_selec,
      weights = data7_selec$peso
    ),
    robust = "HC1"
  )

aj1_aux <-
  summ(
    glm(
      evolucao1 ~ relevel(gest_puerp, "preg"),
      family = binomial(link = 'logit'),
      data = data7_selec,
      weights = data7_selec$peso
    ),
    robust = "HC1"
  )
```

Odds ratio and probability of success:

```
#odds ratio - women of reproductive age as reference
or_rl(aj_aux$coeftable)
```

```
##        Measures
## Groups         OR  L 98.33% U 98.33%
##   preg  0.6784549 0.3346551 1.375449
##   puerp 0.8283702 0.4096169 1.675217
```

```
#odds ratio - pregnant women as reference
or_rl1(aj1_aux$coeftable)
```

```
##        Measures
## Groups        OR  L 98.33% U 98.33%
##   no    1.473937 0.7270352 2.988151
##   puerp 1.220966 0.6722441 2.217583
```

```
#probability of success
prob_rl(aj_aux$coeftable)
```

```
##        Prob
```

```
## Groups  Probabilidade
##   no        0.6240440
##   preg      0.5296680
##   puerp     0.5789474
```

Non-invasive

```
data7_selec <- data7 %>%
  filter(suport_ven == "yes, not invasive")
```

```
aj_aux <-
  summ(
    glm(
      evolucao1 ~ relevel(gest_puerp, "no"),
      family = binomial(link = 'logit'),
      data = data7_selec,
      weights = data7_selec$peso
    ),
    robust = "HC1"
  )

aj1_aux <-
  summ(
    glm(
      evolucao1 ~ relevel(gest_puerp, "preg"),
      family = binomial(link = 'logit'),
      data = data7_selec,
      weights = data7_selec$peso
    ),
    robust = "HC1"
  )
```

Odds ratio and probability of success:

```
#odds ratio - women of reproductive age as reference
or_rl(aj_aux$coeftable)
```

```
##        Measures
## Groups         OR  L 98.33%  U 98.33%
##   preg  0.4792323 0.2686063 0.8550195
##   puerp 0.9239359 0.4734543 1.8030412
```

```
#odds ratio - pregnant women as reference
or_rl1(aj1_aux$coeftable)
```

```
##        Measures
## Groups        OR  L 98.33% U 98.33%
##   no    2.086671 1.1695640 3.722921
##   puerp 1.927950 0.8918035 4.167949
```

```r
#probability of success
prob_rl(aj_aux$coeftable)
```

```
##        Prob
## Groups  Probabilidade
##   no       0.10854506
##   preg     0.05513489
##   puerp    0.10112360
```

ICU admission

```r
data7_selec <- data7 %>%
  filter(uti == "yes")
```

```r
aj_aux <-
  summ(
    glm(
      evolucao1 ~ relevel(gest_puerp, "no"),
      family = binomial(link = 'logit'),
      data = data7_selec,
      weights = data7_selec$peso
    ),
    robust = "HC1"
  )

aj1_aux <-
  summ(
    glm(
      evolucao1 ~ relevel(gest_puerp, "preg"),
      family = binomial(link = 'logit'),
      data = data7_selec,
      weights = data7_selec$peso
    ),
    robust = "HC1"
  )
```

Odds ratio and probability of success:

```r
#odds ratio - women of reproductive age as reference
or_rl(aj_aux$coeftable)
```

```
##        Measures
## Groups         OR  L 98.33% U 98.33%
##   preg  0.6899916 0.4446549 1.070692
##   puerp 1.2686703 0.8123436 1.981335
```

```r
#odds ratio - pregnant women as reference
or_rl1(aj1_aux$coeftable)
```

```
##        Measures
## Groups        OR  L 98.33% U 98.33%
##   no    1.449293 0.9339755 2.248935
##   puerp 1.838675 1.1816208 2.861092
```

```
#probability of success
prob_rl(aj_aux$coeftable)
```

```
##        Prob
## Groups  Probabilidade
##   no         0.3153742
##   preg       0.2411860
##   puerp      0.3688525
```