Nauka dla społeczeństwa

Katedra i Zakład Informatyki i Statystyki

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data przygotowania: 2024-05-05

Zalecenia dotyczące warsztatów – część 8 – kod wykresów w R cd. :

*Ilustracja graficzna*

*w publikacji naukowej*

*(język R)*

# Ćwiczenia praktyczne na warsztatach:

• Omówienie podstawowej składni języka R,

• Przygotowanie do pracy z danymi: import, tworzenie data frame,

• Wstęp do analizy danych i graficznej wizualizacji:

* przetwarzanie i analiza danych (biblioteka dplyr),
* tworzenie bogatych graficznie, typowych i nietypowych wykresów na podstawie warstw (biblioteka ggplot2)

• Przygotowanie wykresów pod wymogi czasopism naukowych, eksport wykresów wysokiej rozdzielczości



sodium %>%
 filter(hospitalization == 1, !is.na(department)) %>%
ggplot(aes(x=department, y=sodium\_concentration)) +
 geom\_violin(scale="width", aes(fill=department), color="white", alpha=0.4)



q3 <- function(x) {
 a <- quantile(x, c(0.25,0.5,0.75))
 names(a) <- c("ymin", "y", "ymax")
 a
}

sodium %>%
 filter(hospitalization == 1, !is.na(department)) %>%
ggplot(aes(x=department, y=Stay\_in\_the\_Emergency\_Department)) +
 geom\_violin(scale="width", aes(fill=department), color="white", alpha=0.4) +
 stat\_summary(
 fun.data = "q3",
 geom = "crossbar",
 colour = "red",
 width = 0.5,
 position = position\_dodge(width = 0.75)
 )+
 geom\_point(
 stat = "summary",
 fun = "mean",
 color = "darkred",
 size = 5,
 position = position\_dodge(width = 0.75)
 )



sodium %>%
 filter(hospitalization == 1, !is.na(department)) %>%
ggplot(aes(x=department, y=Stay\_in\_the\_Emergency\_Department)) +
 geom\_violin(scale="width", aes(fill=department), color="white", alpha=0.4, show.legend = FALSE) +
 geom\_point(
 aes(color = cut(age,
 breaks = c(0, 40, 80, 100),
 labels = c("0-40", "41-80", "81-100"))
 ),
 position = position\_jitter(
 width = 0.4),
 size = 1.5,
 alpha = 0.4 # Dodanie przezroczystości punktów
 ) +
 scale\_color\_manual(
 values = c("0-40" = "blue", "41-80" = "green", "81-100" = "orange")
 ) +
 theme(legend.position = "bottom") +
 guides(color = guide\_legend(title = "Age"))



sodium %>%
 filter(hospitalization == 1, medical\_transport==0,!is.na(department)) %>%
ggplot(aes(x=department, y=Stay\_in\_the\_Emergency\_Department)) +
 geom\_violin(scale="width", aes(fill=department), color="white", alpha=0.4, show.legend = FALSE) +
 geom\_point(
 aes(color = cut(sodium\_concentration,
 breaks = c(0, 129, 135, 144,150,170),
 labels = c("very low values",
 "below standard",
 "standard",
 "above normal",
 "very high values"))
 ),
 position = position\_jitter(
 width = 0.4),
 size = 1.5,
 alpha = 0.4 # Dodanie przezroczystości punktów
 ) +
 scale\_color\_manual(
 values = c("very low values" = "red","very high values"="black")
 ) +
 theme(legend.position = "bottom") +
 guides(color = guide\_legend(title = "Sodium concentration")) +
 facet\_wrap(~sex,ncol=1)

Warning: Groups with fewer than two datapoints have been dropped.
ℹ Set `drop = FALSE` to consider such groups for position adjustment purposes.



# Utwórz factor z wiekiem
sodium$age\_group <- cut(sodium$age, breaks = c(0, 60, 80, 120), labels = c("<=60", "61-80",">80"))
story2<-
sodium %>%
 filter(hospitalization == 1, medical\_transport==0,!is.na(department)) %>%
ggplot(aes(x=age\_group, y=Stay\_in\_the\_Emergency\_Department)) +
 geom\_violin(scale="width", aes(fill=age\_group), color="white", alpha=0.4, show.legend = FALSE) +
 theme(legend.position = "bottom") +
 guides(color = guide\_legend(title = "Dangerous sodium concentrations"))+
 labs(x = "Patient age groups", y = "How long did they stay in the Emergency Department?") +
 facet\_wrap(~sex,ncol=1)

ggsave(plot=story2,filename='sodium\_concentration\_story2.jpeg',dpi=300, scale=2, width=6)

Saving 12 x 8 in image

print(story2)

