#Misinformation perceived as a bigger informational threat than negativity: A cross-country survey on challenges of the news environment

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library(haven)
library(vtable)
library(dplyr)
library(ggplot2)
library(reshape2)
library(ltm)

setwd(".....")
FR <- read_sav("Cross+country+survey+2022+FR.sav")
GER <- read_sav("Cross+country+survey+2022+GER.sav")
INDIA <- read_sav("Cross+country+survey+2022+INDIA.sav")
NLD <- read_sav("Cross+country+survey+2022+NLD.sav")
UK <- read_sav("Cross+country+survey+2022+UK.sav")
US <- read_sav("Cross+country+survey+2022+US.sav")
POL <- read_sav("Cross+country+survey+2022+POLAND.sav")

FR$Country <- "France"
GER$Country <- "Germany"
INDIA$Country <- "India"
NLD$Country <- "Netherlands"
UK$Country <- "United Kingdom"
US$Country <- "United States"
POL$Country <- "Poland"


Country_merge <- US %>%
  bind_rows(GER, INDIA, NLD, UK, POL, FR)

#speeders
summary(CM$Duration__in_seconds_)
988 * .40
CM$Speeders <- 0
CM$Speeders[CM$Duration__in_seconds_ <= 395.5] <- 1

CM <- CM %>%
  filter(Speeders == 0)


CM_share = select(CM, age, edu, gender, Country, percentage_misinfo_1,
percentage_misinfo_2, consequence_neg_news_1, consequence_neg_news_2,
consequence_neg_news_3, misinfo_impact_1, misinfo_impact_2, misinfo_impact_3,
misinfo_impact_4, neg_bias_general_1, ResponseId)

write.csv(CM_share, "CM.csv", sep="\t")

#variables creation
CM$misinfo_all <- ((CM$percentage_misinfo_1 + CM$percentage_misinfo_2)/2)
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CM$negativity <- (100-CM$neg_bias_general_1)

cronbach.alpha(CM[c("consequence_neg_news_1", "consequence_neg_news_2",
"consequence_neg_news_3")], standardized = FALSE, CI = FALSE,
            probs = c(0.025, 0.975), B = 1000, na.rm = TRUE)
CM$negimpact <- ((CM$consequence_neg_news_1 +
CM$consequence_neg_news_2 + CM$consequence_neg_news_3)/3)

cronbach.alpha(CM[c("misinfo_impact_1", "misinfo_impact_2", "misinfo_impact_3",
"misinfo_impact_4")], standardized = FALSE, CI = FALSE,
            probs = c(0.025, 0.975), B = 1000, na.rm = TRUE)
CM$misinfoimpact <- ((CM$misinfo_impact_1 + CM$misinfo_impact_2 +
CM$misinfo_impact_3 + CM$misinfo_impact_4)/4)


#RQ1
res1 <- t.test(CM$misinfo_all, CM$negativity, paired = TRUE)
res1
res2 <- t.test(CM$misinfoimpact, CM$negimpact, paired = TRUE)
res2

#RQ2
df2 <- melt(dplyr::select(CM, negativity, misinfo_all, ResponseId),
id.vars=c("ResponseId"))
df2$variable <- gsub("negativity", "Negativity", df2$variable)
df2$variable <- gsub("misinfo_all", "Misinformation", df2$variable)

df3 = subset(CM, select = c(Country, ResponseId))
alldata <- df2 %>%
  left_join(df3, by='ResponseId')

#change order for legend in table
alldata$variable <- factor(alldata$variable, levels = c("Negativity", "Misinformation"))


df.summary <- alldata %>%
  group_by(Country, variable) %>%
  summarise(
    SD = sd(value, na.rm = TRUE),
    N = sum(!is.na(value)),
    SE = SD/sqrt(N),
    mean = mean(value, na.rm = TRUE)
  )%>%
  ungroup()%>%
  mutate(SE=SD/sqrt(N), upper=mean+1.96*SE, lower=mean-1.96*SE)%>%
  mutate(percent = paste0(round((mean * 100),0), "%"))
df.summary

plot1 <- ggplot(df.summary, aes(Country, mean, fill = variable)) +
  geom_col(data = df.summary, position = position_dodge(0.8),
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        width = 0.7, color = "ivory1") +
  geom_errorbar(aes(ymin = lower, ymax = upper), width = 0.2, position =
position_dodge(0.8))+
  scale_fill_manual(values = c("lightseagreen", "indianred3")) +
  geom_text(aes(label=round(mean, 1)), position = position_dodge(width=0.8),
vjust=-2.5, size = 3.5, show.legend = F) +
  theme(legend.position = "top") +
  labs(x ="Country", y = "Percentage of all information", fill = "Salience")
plot1
#ggsave("negativity_vs_misinfo.jpeg", plot1, dpi = 500)


#RQ3
df2 <- melt(dplyr::select(CM, negimpact, misinfoimpact, ResponseId),
id.vars=c("ResponseId"))
df2$variable <- gsub("negimpact", "Impact negativity", df2$variable)
df2$variable <- gsub("misinfoimpact", "Impact misinformation", df2$variable)

df3 = subset(CM, select = c(Country, ResponseId))
alldata <- df2 %>%
  left_join(df3, by='ResponseId')
alldata$variable <- factor(alldata$variable, levels = c("Impact negativity", "Impact
misinformation"))

df.summary <- alldata %>%
  group_by(Country, variable) %>%
  summarise(
    SD = sd(value, na.rm = TRUE),
    N = sum(!is.na(value)),
    SE = SD/sqrt(N),
    mean = mean(value, na.rm = TRUE)
  )%>%
  ungroup()%>%
  mutate(SE=SD/sqrt(N), upper=mean+1.96*SE, lower=mean-1.96*SE)%>%
  mutate(percent = paste0(round((mean * 100),0), "%"))
df.summary


plot2 <- ggplot(df.summary, aes(Country, mean, fill = variable)) +
  geom_col(data = df.summary, position = position_dodge(0.8),
        width = 0.7, color = "ivory1") +
  geom_errorbar(aes(ymin = lower, ymax = upper), width = 0.2, position =
position_dodge(0.8))+
  scale_fill_manual(values = c("lightseagreen", "indianred3")) +
  geom_text(aes(label=round(mean, 1)), position = position_dodge(width=0.8),
vjust=-2.5, size = 3.5, show.legend = F) +
  theme(legend.position = "top") +
  labs(x ="Country", y = "Perceived threat level", fill = "Type")
plot2
#ggsave("impact_misinfo_vs_nega.jpeg", plot2, dpi = 500)
```