# Load necessary libraries

library(tidyverse)

library(gridExtra)

library(grid)

library(gtable)

# Your original data

data\_table <- tibble(

Label = c(

"WellBeing.Low (0-4)", "WellBeing.Medium (5-6)", "WellBeing.High (7-10)",

"Anxiety.Low (0-3)", "Anxiety.Medium (4-5)", "Anxiety.High (6-10)"

),

N = c(1347, 3471, 18666, 15063, 3621, 4812),

Odds\_ratio = c("Reference", "0.43 (0.37, 0.50)", "0.14 (0.12, 0.16)",

"Reference", "1.47 (1.35, 1.59)", "1.78 (1.66, 1.92)"),

p\_value = c("Reference", "<0.001", "<0.001", "Reference", "<0.001", "<0.001")

)

# Create the table grob with white background

gt <- tableGrob(data\_table,

rows = NULL,

theme = ttheme\_minimal(

core = list(

fg\_params = list(hjust = 0, x = 0.1, fontsize = 7),

bg\_params = list(fill = "white"), # Changed to all white

padding = unit(c(2, 2), "mm") # Padding for better spacing

),

colhead = list(fg\_params = list(hjust = 0.5, x = 0.5, fontface = "bold", fontsize = 8))

))

# Forest plot data

plot\_data <- tibble(

Label = c("WellBeing.Low (0-4)", "WellBeing.Medium (5-6)", "WellBeing.High (7-10)",

"Anxiety.Low (0-3)", "Anxiety.Medium (4-5)", "Anxiety.High (6-10)"),

estimate = c(1, 0.43, 0.14, 1, 1.47, 1.78),

conf.low = c(1, 0.37, 0.12, 1, 1.35, 1.66),

conf.high = c(1, 0.50, 0.16, 1, 1.59, 1.92),

row\_id = 1:6

)

# Improved forest plot

forest\_plot <- ggplot(plot\_data, aes(y = reorder(Label, desc(row\_id)), x = estimate)) +

geom\_point(size = 2) +

geom\_errorbarh(aes(xmin = conf.low, xmax = conf.high), height = 0.2) +

geom\_vline(xintercept = 1, linetype = "dashed", color = "black") + # Black line

scale\_x\_continuous(limits = c(0, 2.2),

breaks = seq(0, 2, by = 0.5)) +

labs(x = "Odds Ratio", y = "") +

theme\_minimal() +

theme(

axis.text.y = element\_blank(),

axis.text.x = element\_text(size = 6),

axis.title.x = element\_text(size = 8),

panel.grid.minor = element\_blank(),

panel.grid.major.y = element\_blank(),

plot.margin = margin(2, 2, 2, 2, "mm")

)

# Convert the forest plot to a grob

forest\_grob <- ggplotGrob(forest\_plot)

# Adjust row heights to be smaller

nrows <- nrow(gt)

# Reduce row height to 0.07 npc (smaller than default)

row\_heights <- unit(rep(0.07, nrows), "npc")

gt$heights[2:(nrows+1)] <- row\_heights

# Add the forest plot between N and Odds\_ratio columns

plot\_width <- unit(2.5, "inches")

gt <- gtable\_add\_cols(gt, plot\_width, 2)

# Create a new grob for the forest plot with centering

centered\_forest\_grob <- grobTree(

rectGrob(gp = gpar(fill = "white", col = NA)),

forest\_grob,

vp = viewport(width = 0.95, height = 0.95, just = c("center", "center"))

)

# Add the centered forest plot to the table

gt <- gtable\_add\_grob(gt, centered\_forest\_grob,

t = 2, b = nrow(gt), l = 3, r = 3)

# Ensure the plot column has the correct width

gt$widths[3] <- plot\_width

# Add black gridlines for table structure

for (i in seq\_len(nrow(gt))) {

gt <- gtable\_add\_grob(gt,

grobs = segmentsGrob(

x0 = unit(0, "npc"),

x1 = unit(1, "npc"),

y0 = unit(0, "npc"),

y1 = unit(0, "npc"),

gp = gpar(lwd = 0.5, col = "black")

),

t = i, b = i, l = 1, r = ncol(gt))

}

for (i in seq\_len(ncol(gt))) {

gt <- gtable\_add\_grob(gt,

grobs = segmentsGrob(

x0 = unit(0, "npc"),

x1 = unit(0, "npc"),

y0 = unit(0, "npc"),

y1 = unit(1, "npc"),

gp = gpar(lwd = 0.5, col = "black")

),

t = 1, b = nrow(gt), l = i, r = i)

}

# Add outer border to the table

gt <- gtable\_add\_grob(gt,

grobs = rectGrob(gp = gpar(fill = NA, lwd = 1.5, col = "black")),

t = 1, b = nrow(gt), l = 1, r = ncol(gt))

# Add title

title <- textGrob("Forest Plot of Wellbeing and Anxiety Odds Ratios",

gp = gpar(fontface = "bold", fontsize = 10))

gt <- gtable\_add\_rows(gt, heights = unit(1, "line"), pos = 0)

gt <- gtable\_add\_grob(gt, title, t = 1, l = 1, r = ncol(gt))

# Display the plot

grid.newpage()

grid.draw(gt)

# Save the final plot

ggsave("wellbeingVsAnxiety\_forest\_plot.png", gt, width = 8, height = 5, dpi = 300)