BMI881 Homework 1

Convert a table to a graph

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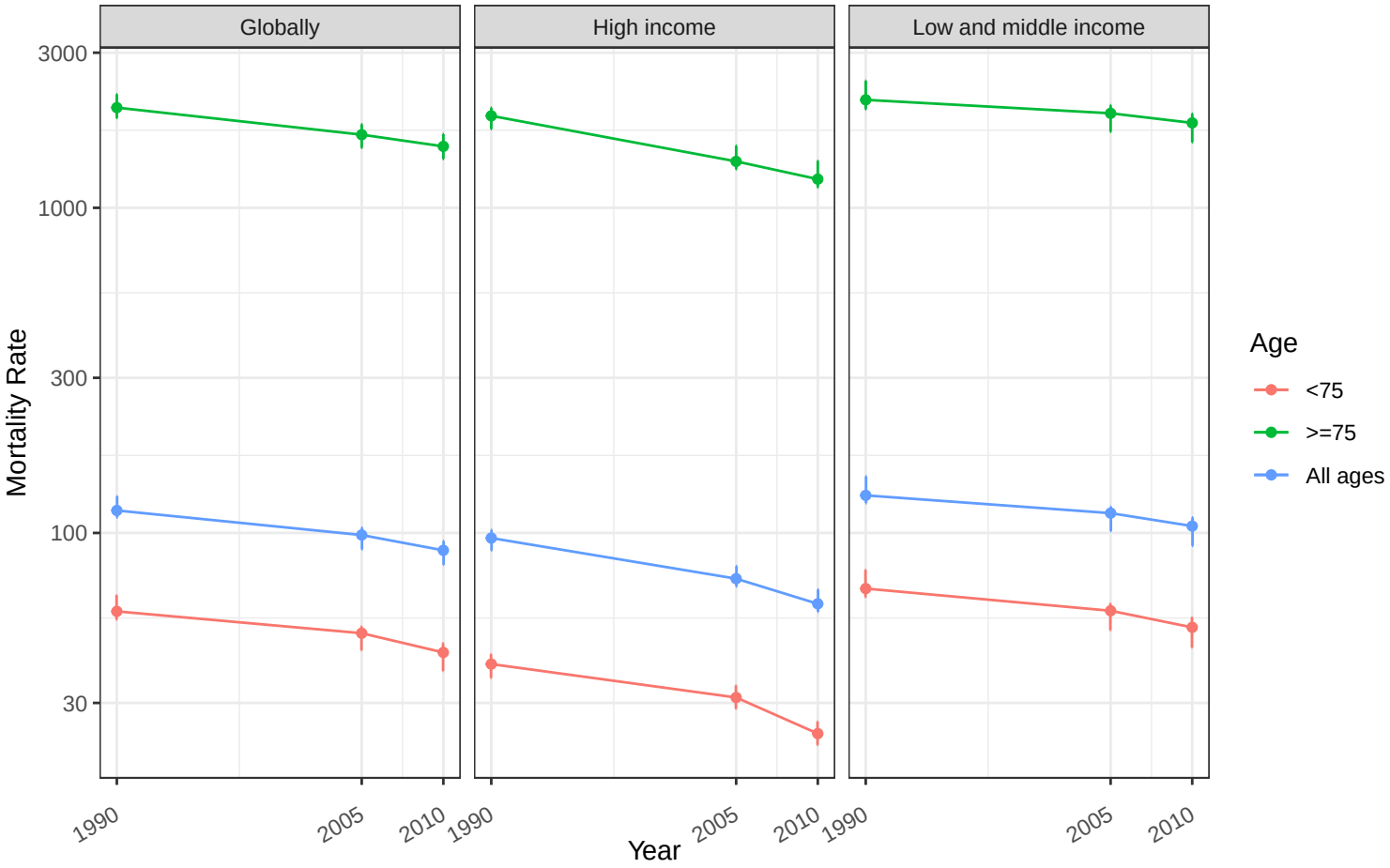
Design choice reason:

The original table shows the mortality rates and intervals by age group, year, and country income group. Since there is a time variable, I would like to show the time trend of mortality rates and intervals. A line plot with error bar would be suitable in this case. In the table, I see income group is used as the main stratifying variable, so I separate the graphs into 3 income group panels. All of the three graphs share the same y-axis so that we could make better comparisons. Because the range of mortality rates for 3 age groups is large, I used log10 scaled y axis. For age, I use different colors to show different mortality rates for each age group.

In order to make a comprehensive graph that includes all the information in the table, we could use panels in rows so that in total we would have 5 rows for each variables of interest and 3 columns for each income group. To include p-values, if we care about the exact numbers of the p-values, we could add p-values as text in the graph for each line. If we do not care about the exact numbers, we could use different line types (dotted or solid lines) to show whether the category is significant or not.

Graph

Make a graph of the mortality values (by age group, year, and country income group). Focus on the rates and intervals.



Appendix

```
## read data
mortality <- read_csv("feigin2014_table1_mortality.csv")
mortality$age_group <- ifelse(mortality$age_group=="all","All ages",mortality$age_group)
mortality$income_group <- ifelse(mortality$income_group=="all","All income",mortality$income_group)
mortality$income_group <- ifelse(mortality$income_group=="high","High income",mortality$income_group)
mortality$income_group <- ifelse(mortality$income_group=="low_and_middle",
                                 "Low and middle income",mortality$income_group)

p<- ggplot(mortality, aes(x=year, y=mortality_rate, group=age_group, color=age_group)) +
  geom_line() +
  geom_point()+xlab("Year")+ylab("Mortality Rate")+labs(color = "Age")+
  geom_errorbar(aes(ymin=interval_low, ymax=interval_high), width=.2,
                position=position_dodge(0.05))+
  scale_y_log10()+ scale_x_continuous(breaks=c(1990, 2005, 2010))+
  facet_wrap(~income_group)+theme_bw()+  theme(axis.text.x = element_text(angle = 30, vjust = 0.5, hjust=1))

p
```