fars_analysis

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11/5/2017

```
library(tidyverse)
```

```
## Warning: package 'tidyverse' was built under R version 3.4.2
```

```
## Loading tidyverse: ggplot2
## Loading tidyverse: tibble
## Loading tidyverse: tidyr
## Loading tidyverse: readr
## Loading tidyverse: purrr
## Loading tidyverse: dplyr
```

```
## Conflicts with tidy packages ----------------------------------------------
```

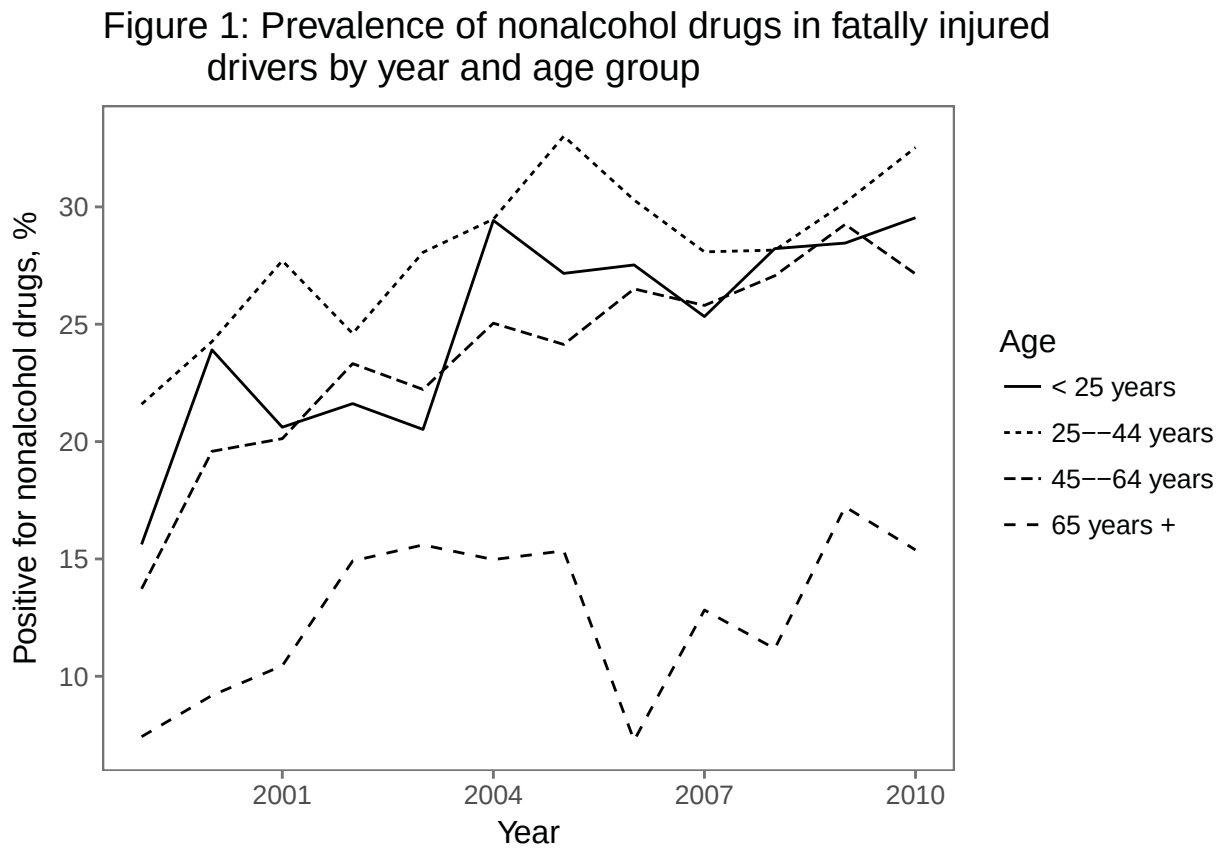
```
## filter(): dplyr, stats
## lag():    dplyr, stats
```

```
library(ggthemes)

load("../data/clean_fars.RData")
source("../R/fars_functions.R")
```

```
clean_fars %>%
  mutate(year_cat = cut(year, breaks = c(1999, 2002, 2006, 2010),
                        labels = c("1999-2002", "2003-2006",
                                   "2007-2010"),
                        include.lowest = TRUE, right = TRUE)) %>%
  filter(!is.na(sex)) %>%
  group_by(drug_type, sex, year_cat) %>%
  summarize(n_non_missing = sum(!is.na(positive_for_drug)),
            positive_test = sum(positive_for_drug, na.rm = TRUE),
            perc_positive = round(100 * positive_test / n_non_missing, 1)) %>%
  select(drug_type, sex, year_cat, perc_positive) %>%
  unite(sex_year_cat, sex, year_cat) %>%
  spread(sex_year_cat, perc_positive) %>%
  knitr::kable(col.names = c("Drug type", "F 1999-2002",
                             "F 2003-2006", "F 2007-2010",
                             "M 1999-2002", "M 2003-2006",
                             "M 2007-2010"))
```

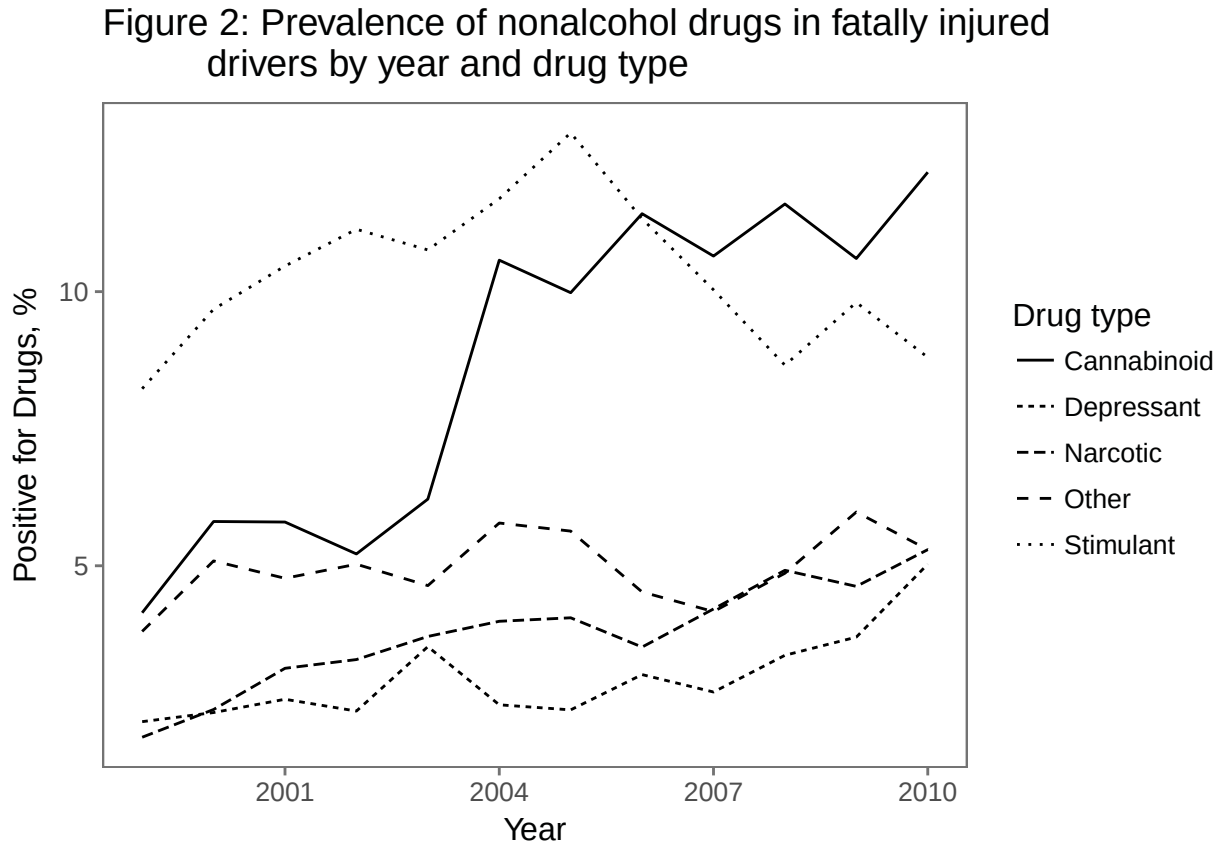
Drug type	F 1999-2002	F 2003-2006	F 2007-2010	M 1999-2002	M 2003-2006	M 2007-2010
Alcohol	26.4	24.3	27.1	43.2	42.9	43.3
Cannabinoid	2.8	5.7	7.3	5.8	10.3	11.8
Depressant	3.4	3.8	4.8	2.0	2.5	3.2
Narcotic	4.2	4.9	7.0	2.2	3.4	4.0
Other	5.6	6.6	7.2	4.3	4.5	4.2
Stimulant	7.2	9.1	8.7	10.5	11.9	9.2

```
fig1_data <- clean_fars %>%
  filter(!drug_type == "Alcohol",
         !is.na(positive_for_drug),
         !is.na(agecat)) %>%
  select(unique_id, drug_type, year, agecat, positive_for_drug) %>%
  group_by(year, agecat, unique_id) %>%
  summarize(positive = any(positive_for_drug)) %>%
  ungroup() %>%
  group_by(year, agecat) %>%
  summarize(perc = 100 * mean(positive))

fig1_data %>%
  ggplot(aes(x = year, y = perc)) +
  geom_line(aes(linetype = agecat)) +
  labs(x = "Year",
       y = "Positive for nonalcohol drugs, %",
       linetype = "Age") +
  ggtitle("Figure 1: Prevalence of nonalcohol drugs in fatally injured
          drivers by year and age group") +
  theme_few()
```




```
fig2_data <- clean_fars %>%
  filter(!drug_type == "Alcohol",
         !is.na(positive_for_drug)) %>%
  select(unique_id, drug_type, year, positive_for_drug) %>%
  group_by(year, drug_type, unique_id) %>%
```

```
  summarize(positive = any(positive_for_drug)) %>%
  ungroup() %>%
  group_by(year, drug_type) %>%
  summarize(perc = 100 * mean(positive))

fig2_data %>%
  ggplot(aes(x = year, y = perc)) +
  geom_line(aes(linetype = drug_type)) +
  labs(x = "Year",
       y = "Positive for Drugs, %",
       linetype = "Drug type") +
  ggtitle("Figure 2: Prevalence of nonalcohol drugs in fatally injured
          drivers by year and drug type") +
  theme_few()
```




```
fig3_data <- clean_fars %>%
  filter(drug_type == "Cannabinoid",
         !is.na(positive_for_drug),
         !is.na(agecat)) %>%
  select(unique_id, drug_type, agecat, year, positive_for_drug) %>%
  group_by(year, unique_id, agecat) %>%
  summarize(positive = any(positive_for_drug)) %>%
  ungroup() %>%
  group_by(year, agecat) %>%
  summarize(perc = 100 * mean(positive))
```

```
fig3_data %>%
  ggplot(aes(x = year, y = perc)) +
  geom_line(aes(linetype = agecat)) +
  labs(x = "Year",
       y = "Positive for Cannabinoid, %",
       linetype = "Age") +
  ggtitle("Figure 3: Prevalence of cannabinoid drugs in fatally injured
          drivers by year and age group") +
  theme_few()
```