

Geriatric Syndrome in Older Adults with AF

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2020-01-20

SETUP

- load packages
- set figure style

```
knitr::opts_chunk$set(echo = TRUE)
```

```
## Load the Libraries we will be using  
library(tidyverse)
```

```
## -- Attaching packages ----- tidyverse 1.3.0 --
```

```
## v ggplot2 3.2.1      v purrr  0.3.3  
## v tibble  2.1.3      v dplyr  0.8.3  
## v tidyr   1.0.2      v stringr 1.4.0  
## v readr   1.3.1      v forcats 0.4.0
```

```
## -- Conflicts ----- tidyverse_conflicts() --  
## x dplyr::filter() masks stats::filter()  
## x dplyr::lag()    masks stats::lag()
```

```

library(ggthemes)
library(haven)

##### Color Palette by Paletton.com 30degrees
##### Palette URL: http://paletton.com/#uid=7070u0ksyu7hHCkmJvyuMo9zZj4

##### Color Palette by Paletton.com 150 degrees
##### Palette URL: http://paletton.com/#uid=7072m0ksyu7hHCkmJvyuMo9zZj4

## FIGURE SETTINGS
sachin_theme <- theme_bw()+
  theme(
    panel.background = element_blank(),
    axis.line = element_line(colour = "grey75"),
    panel.border = element_blank(),
    panel.grid.major.x = element_blank(),
    panel.grid.minor.x = element_blank(),
    panel.grid.major.y = element_line(color = "grey", linetype = "dotted" ),
    panel.grid.minor.y = element_blank(),
    legend.position = "none",
    axis.title=element_text(size=10)
  )

sachin_theme_leg <- theme_bw()+
  theme(
    panel.background = element_blank(),
    axis.line = element_line(colour = "grey75"),
    panel.border = element_blank(),
    panel.grid.major.x = element_blank(),
    panel.grid.minor.x = element_blank(),
    panel.grid.major.y = element_line(color = "grey", linetype = "dotted" ),
    panel.grid.minor.y = element_blank(),
    legend.position = "top",
    legend.title = element_blank(),
    axis.title=element_text(size=10)
  )

```

Figure: Relationship between AC use and geriatric syndrome count

- analysis done in SAS and saved in dataset thinner_ame.sas7dbat
- imported to R to create figure

```

### read in data
library(haven)
ame <- read_sas("C:/Users/sachi/Box Sync/AF frailty/tables and figures/thinner_ame.sas7bdat",
  NULL)

### Add in reference rows
library(tibble)
toadd_names <- c("Falls", "ADL", "IADL", "Cognitive function", "Incontinence")
toadd_levels <- c("No falls (ref)", "No ADL impairment (ref)", "No IADL impairment (ref)", "No cognitive impairment (ref)", "Not incontinent (ref)")
ame <- add_row(ame, syndrome = toadd_names, Diff = 0, LL = 0, UL = 0, level = toadd_levels)

### create factors for syndrome and lables so that we get the right order
ame$syndrome <- as.factor(ame$syndrome)
ame$syndrome <- factor(ame$syndrome, levels = c("Falls", "ADL", "IADL", "Cognitive function", "Incontinence"))
color_level5 <- c("#FB6549", "#35B862", "#32829D", "#D53E80", "#FBA449")
color_sig <- c("#696969", "#157696")

ame$level <- as.factor(ame$level)
ame$level <- factor(ame$level, levels = c("No falls (ref)", "Noninjurious falls", "Injurious falls", "No ADL impairment (ref)", "ADL difficulty", "ADL dependent", "No IADL impairment (ref)", "IADL difficulty", "IADL dependent", "No cognitive impairment (ref)", "Cognitive impairment not dementia", "Dementia", "Not incontinent (ref)", "Incontinent"))

### Add columns to aid in the shading of the figure
ame <- ame %>% mutate(Xn=as.numeric(fct_rev(level)))
shade_cat <- c("Falls", "IADL", "Incontinence")
ame <- mutate(ame, shade = ifelse(syndrome %in% shade_cat, "gray", "white"))
ame <- mutate(ame, significant = ifelse(round(UL,2) < 0, "sig", "notsig"))

### Create figure
library(stringr)

fig_ac_x_gs_ame <- ggplot(data=ame, aes(y=Diff, x=fct_rev(level), group = syndrome)) +
  geom_rect(aes(xmin=Xn-0.5, xmax = Xn+0.5, ymin = -Inf, ymax= Inf, fill = shade),
    alpha = 0.3, stat="identity", show.legend = FALSE) +
    scale_fill_manual(values = alpha(c("gray", "white"), 0.3)) +
  geom_point(aes(color = significant), size=3)+
  geom_errorbar(aes(ymin=LL, ymax=UL, width = 0.2, color=significant)) +
  scale_x_discrete(name="") +
  scale_y_continuous(name = "Average marginal effect on anticoagulant use",
    limits = c(-0.35,0.15),
    breaks = c(seq(from = -0.3, to = 0.1, by = 0.1)),
    labels = scales::percent_format(accuracy = 1)) +
  scale_color_manual(values = color_sig)+
  theme(
    panel.background = element_blank(),

```

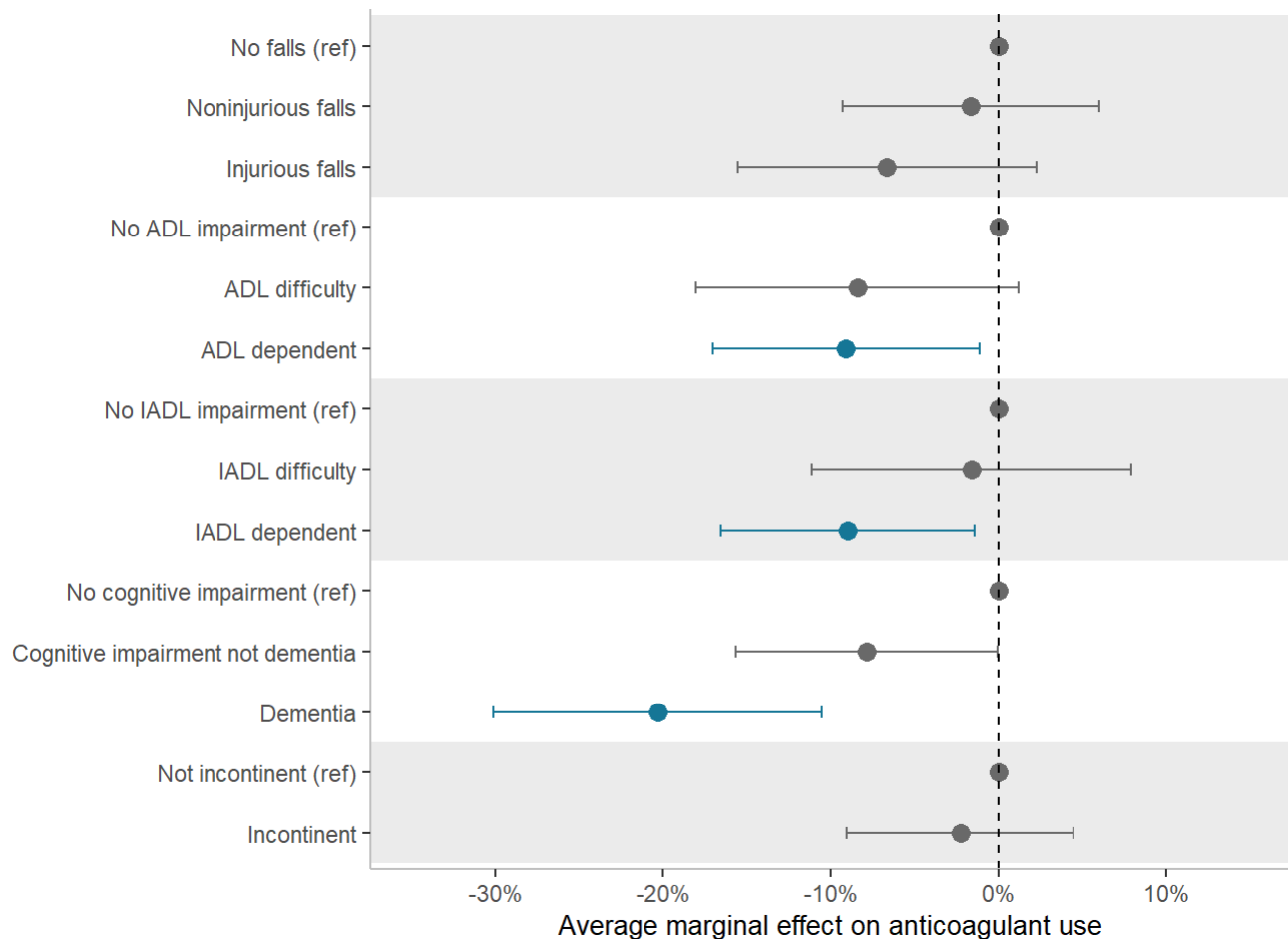
```

axis.line = element_line(colour = "grey75"),
panel.border = element_blank(),
panel.grid.major.y = element_blank(),
panel.grid.minor.x = element_blank(),
panel.grid.major.x = element_blank(),
panel.grid.minor.y = element_blank(),
legend.position = "none",
legend.title = element_blank(),
axis.title=element_text(size=10),
plot.caption = element_text(hjust = +0, face = "italic"),
plot.title = element_text(hjust = +1)
) +

geom_hline(yintercept = 0, linetype ="dashed") +
coord_flip()

```

fig_ac_x_gs_ame



```

ggsave("C:/Users/sachi/Box Sync/AF frailty/tables and figures/fig gs x ac_ame.png", width = 7, height = 4)

```

Figure AC use by geriatric count

- analysis done in sas and saved to gs_count_x_ac.sas7dbat
- sas output saved to dataset and imported to R

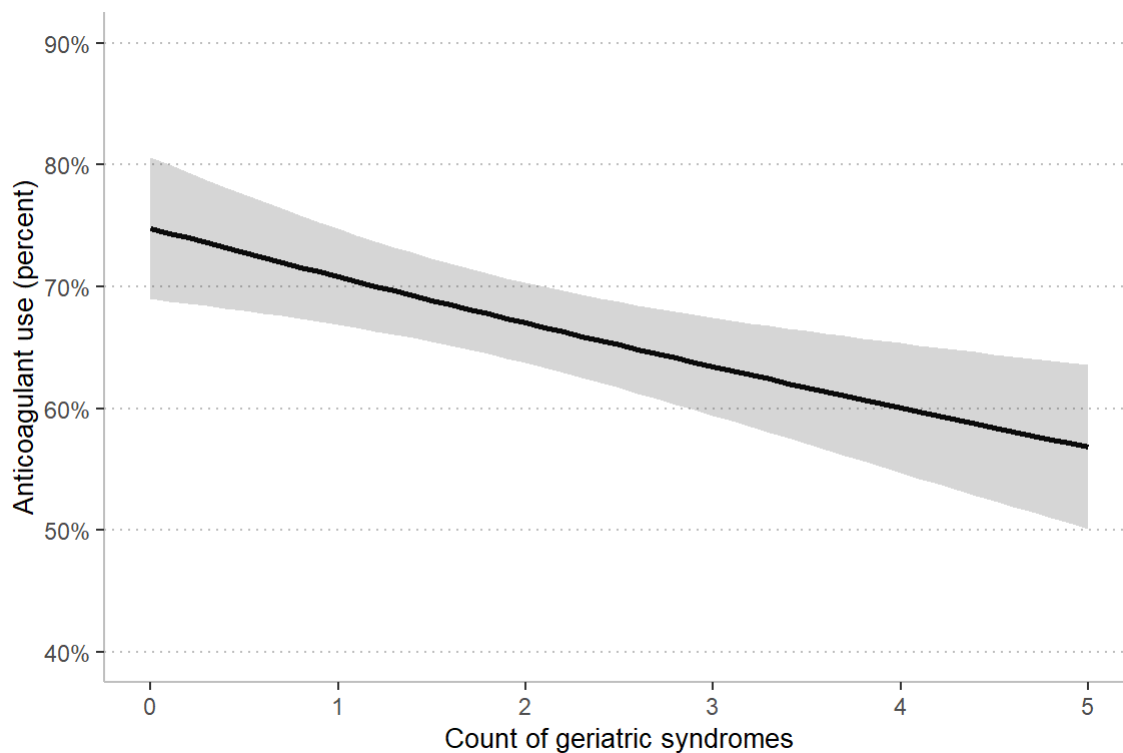
```

library(haven)
GS_count <- read_sas("C:/Users/sachi/Box Sync/AF frailty/tables and figures/gs_count_x_ac.sas7bd
at",
  NULL)

fig_ac_x_gscount <- ggplot(data = GS_count, mapping = aes(x = GERI_SYN_COUNT, y = Estimate )) +
  geom_line(size=1) +
  geom_ribbon(aes(ymin=Lower, ymax=Upper), alpha =0.2) +
  scale_x_continuous(name = "Count of geriatric syndromes") +
  scale_y_continuous(name = "Anticoagulant use (percent)", labels = scales::percent_fo
rmat(accuracy = 1), limits = c(0.4,0.9), breaks = c(seq(from = 0.4, to = 0.9, by = .10))) +
  sachin_theme_leg

fig_ac_x_gscount

```



```

ggsave("C:/Users/sachi/Box Sync/AF frailty/tables and figures/fig_ac_x_gscount.png", width = 6,
height = 4)

```

Cohort flow diagram

```
library(DiagrammeR)
```

```
# Define some sample data
```

```
data <- list(a=10364, b=9249, c=4882, d=779, e = 776)
```

```
flow <- DiagrammeR::grViz("
```

```
digraph graph2 {
```

```
graph [layout = dot, fontsize = 11]
```

```
# node definitions with substituted label text
```

```
node [shape = rectangle, width = 1, fontname = Arial]
```

```
a [label = '@@1']
```

```
b [label = '@@2']
```

```
c [label = '@@3']
```

```
d [label = '@@4']
```

```
1 [label = '@@5']
```

```
2 [label = '@@6']
```

```
3 [label = '@@7']
```

```
4 [label = '@@8']
```

```
5 [label = '@@9']
```

```
a -> b -> c -> d
```

```
d -> {1,2,3,4,5}
```

```
}
```

```
[1]: paste0('65+ at 2014 HRS interview\\n', '(n = ', data$a, '))
```

```
[2]: paste0('Agreed to Medicare claims linkage\\n', '(n = ', data$b, '))
```

```
[3]: paste0('Enrolled in Medicare Part A and B for 24\\n', 'consecutive months before 2014 inter  
view\\n', '(n = ', data$c, '))
```

```
[4]: paste0('Met claims definition for atrial fibrillation\\n', '(n = ', data$d, '))
```

```
[5]: paste0('Falls prevalence\\n', 'measure excludes\\n', '3 missing falls data\\n', '(n=776)  
\\n', ' \\n', ' \\n', 'Falls and AC\\n', 'analysis excludes\\n', 'an additional\\n', '3 missing  
AC data\\n', '(n=773)')
```

```
[6]: paste0('ADL prevalence\\n', 'measure excludes\\n', '3 missing ALD data\\n', '(n=776)\\n', '  
\\n', ' \\n', 'ADL and AC\\n', 'analysis excludes\\n', 'an additional\\n', '3 missing AC data  
\\n', '(n=773)')
```

```
[7]: paste0('IADL prevalence\\n', 'measure\\n', '(n=779)\\n', ' \\n', ' \\n', ' \\n', 'IADL and  
AC\\n', 'analysis excludes\\n', '3 missing AC data\\n', '(n=776)\\n', ' \\n')
```

```
[8]: paste0('Cognition prevalence\\n', 'measure\\n', '(n=779)\\n', ' \\n', ' \\n', ' \\n', 'Cogni  
tion and AC\\n', 'analysis excludes\\n', '3 missing AC data\\n', '(n=776)\\n', ' \\n')
```

```
[9]: paste0('Incontinence prevalence\\n', 'measure excludes\\n', '3 missing\\n', 'incontinence d  
ata\\n', '(n=776)\\n', ' \\n', 'Incontinence and AC\\n', 'analysis excludes\\n', 'an additional  
\\n', '2 missing AC data\\n', '(n=774)')
```

```
")
```

```
flow
```

