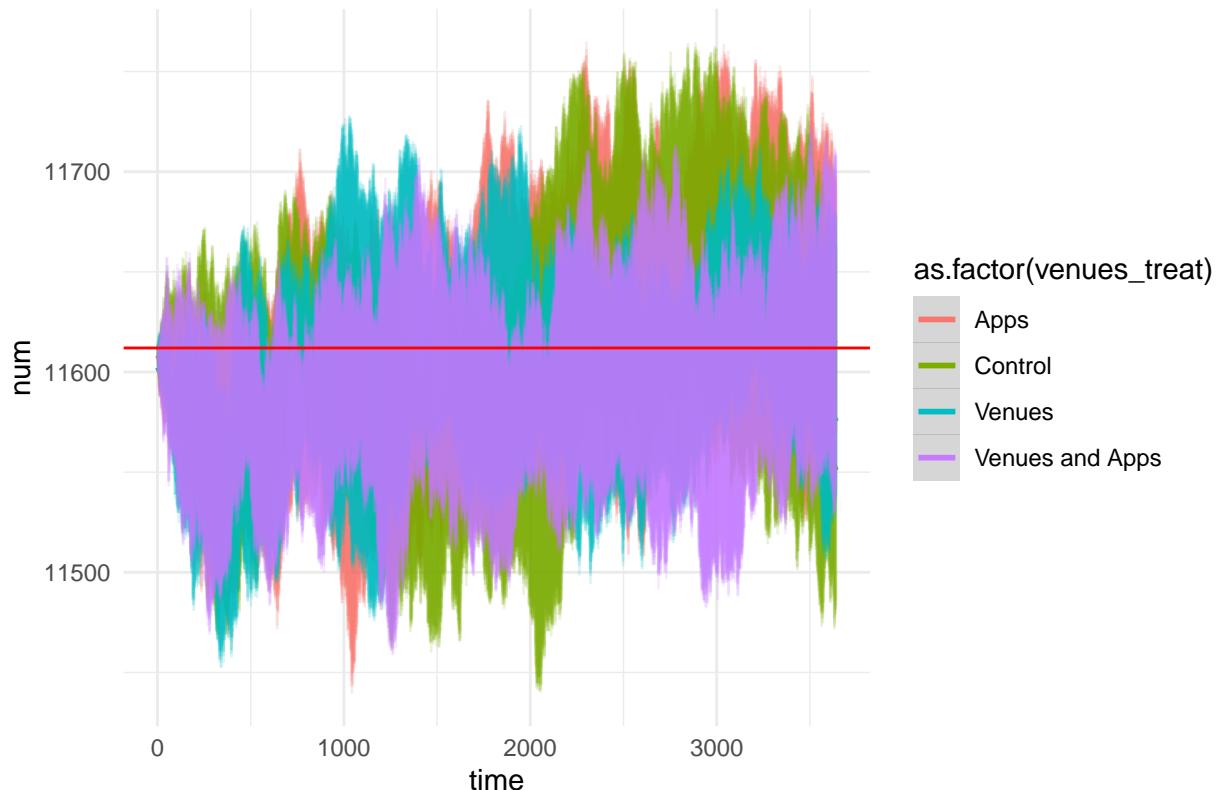


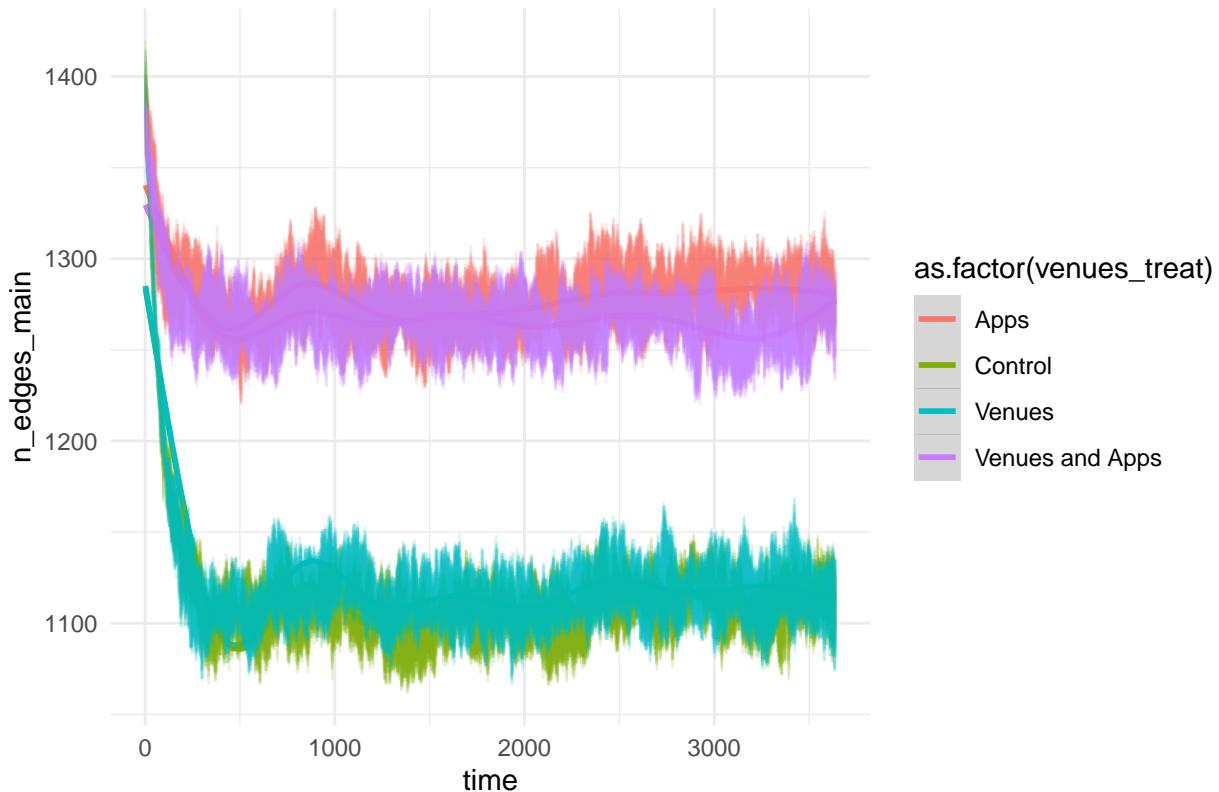
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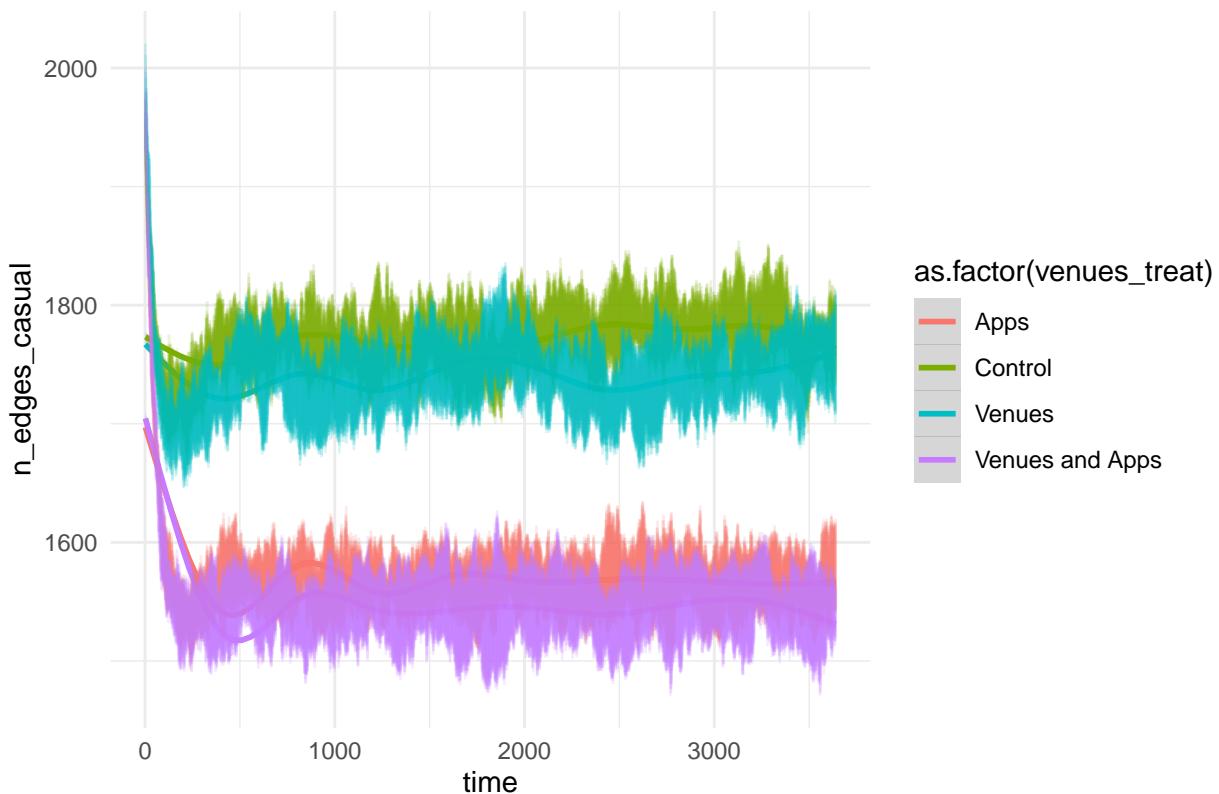
Plot 1: Population Size



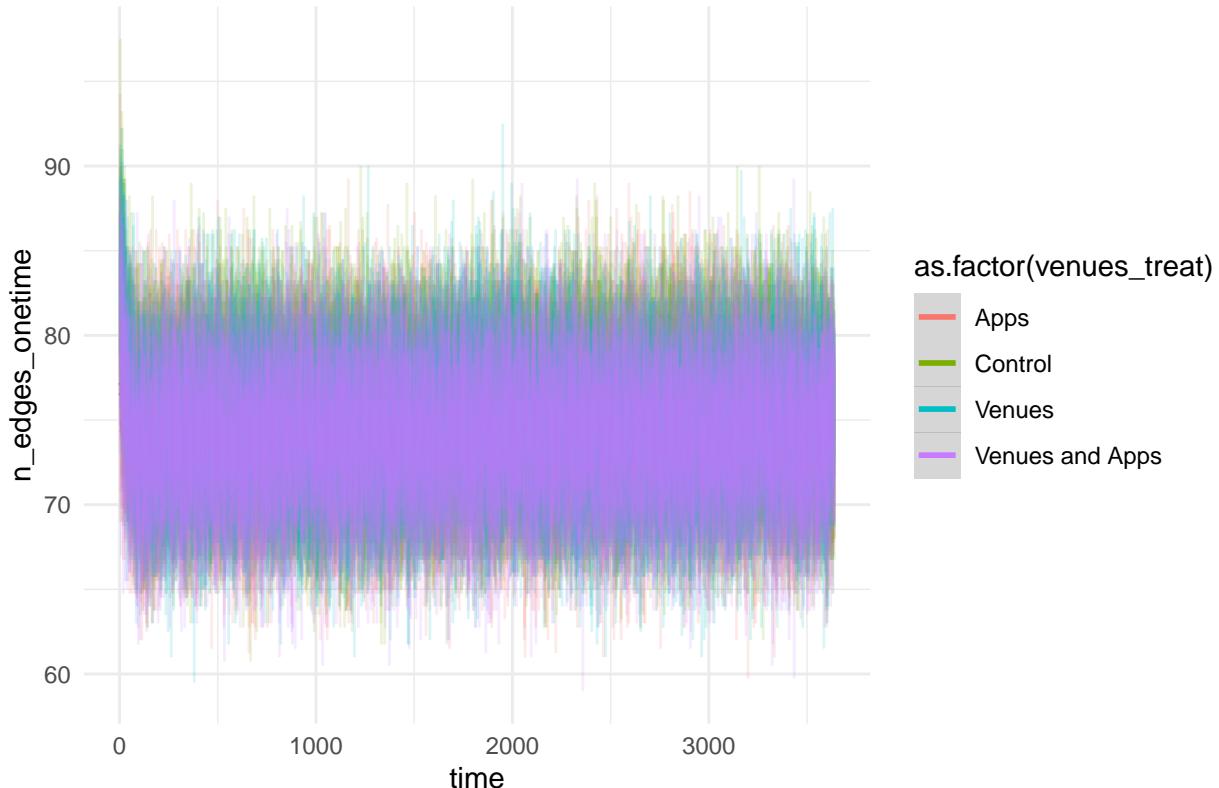
Plot 1: Number of Main Partnerships



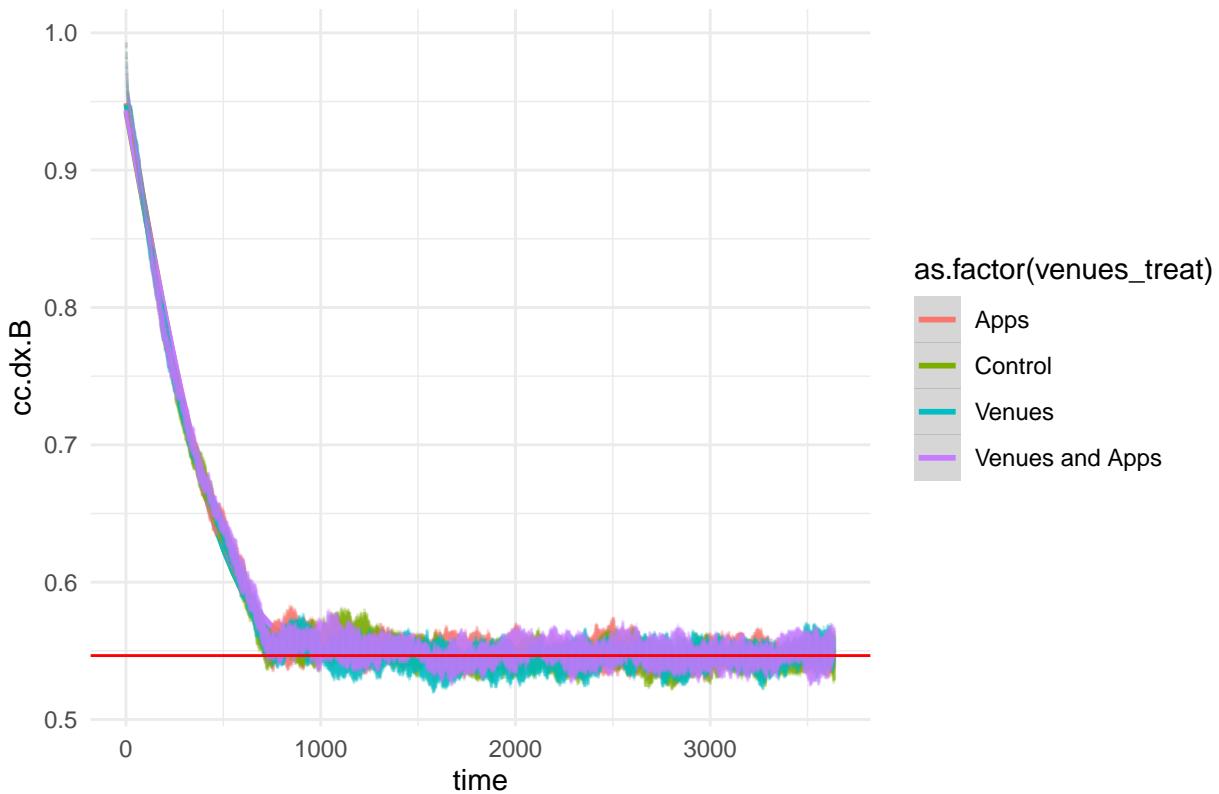
Plot 2: Number of Casual Partnerships



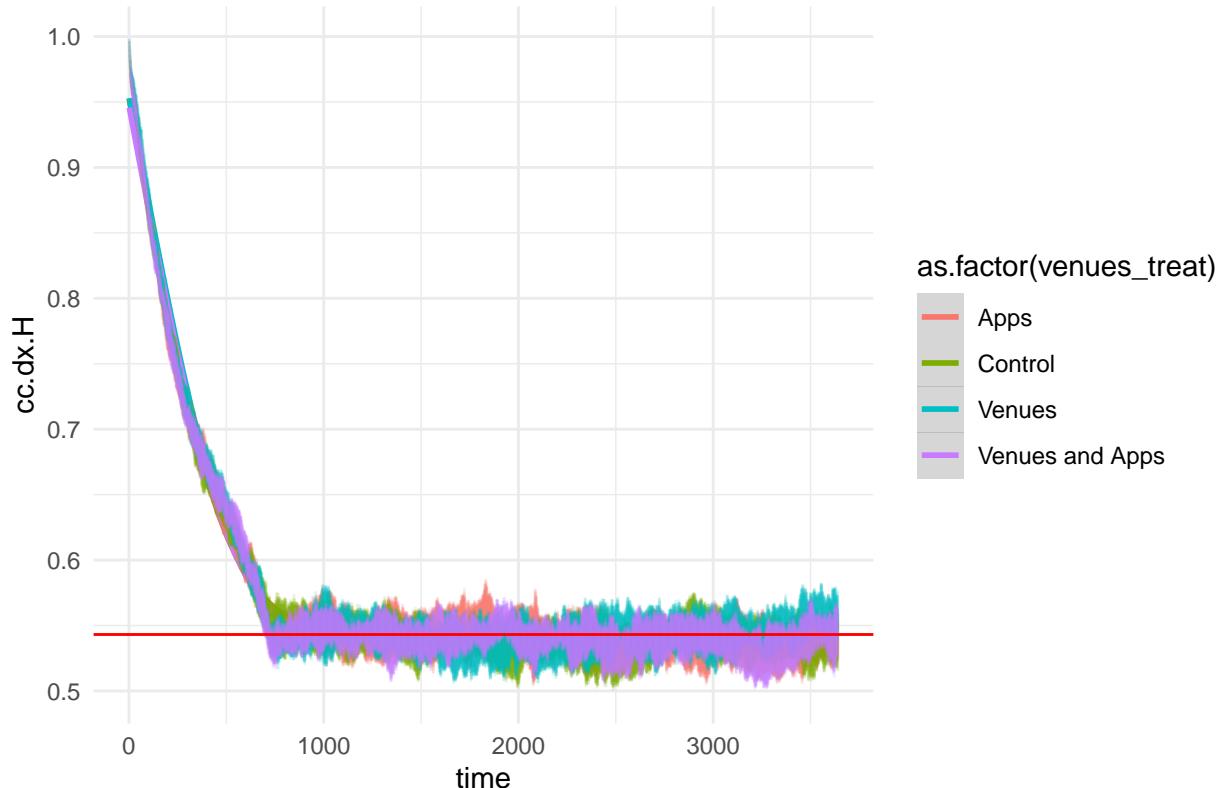
Plot 3: Number of One-Time Partnerships



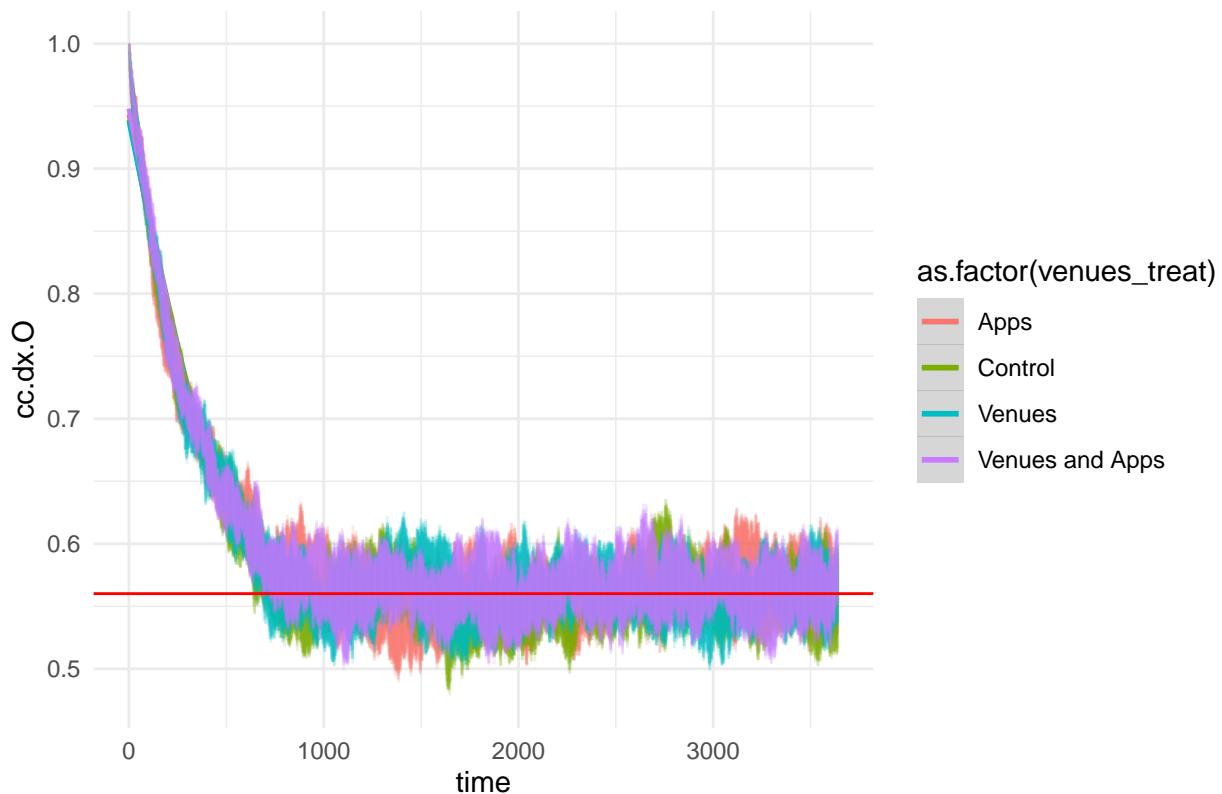
Plot 4: Proportion of HIV+ that are Diagnosed (Black)



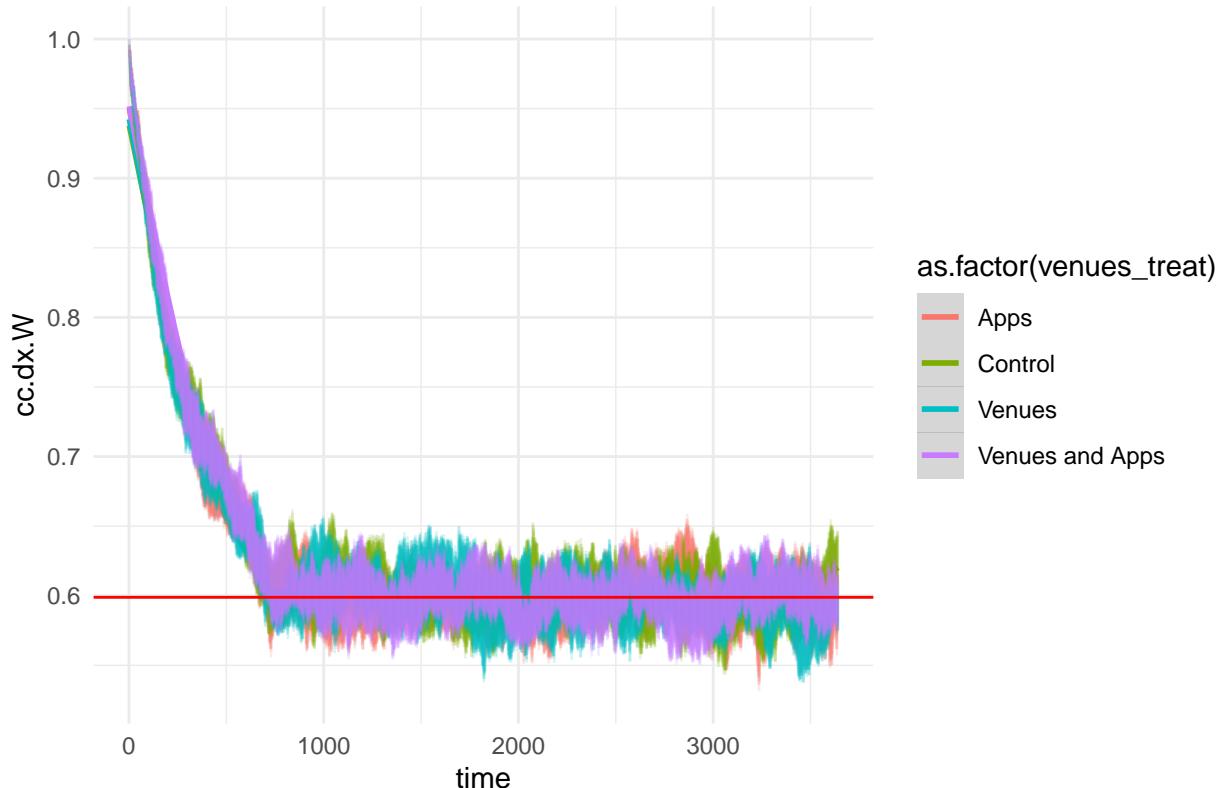
Plot 5: Proportion of HIV+ that are Diagnosed (Hispanic)



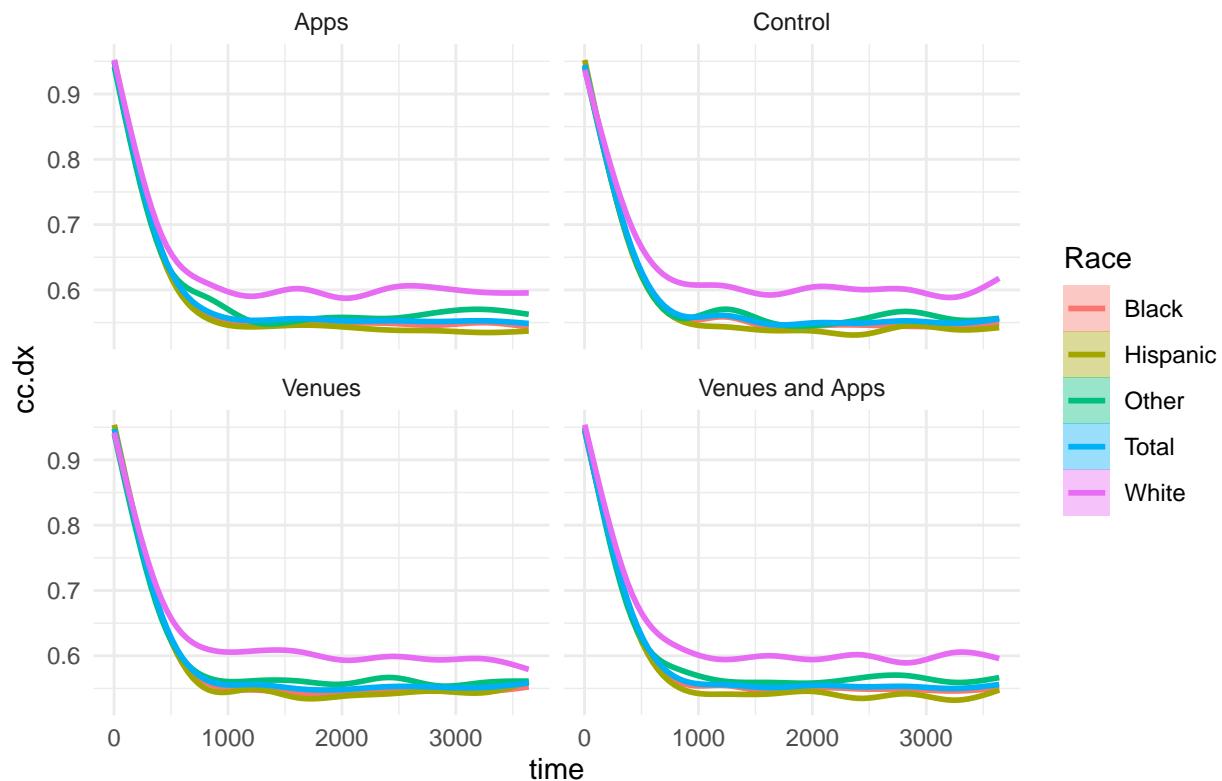
Plot 6: Proportion of HIV+ that are Diagnosed (Other)



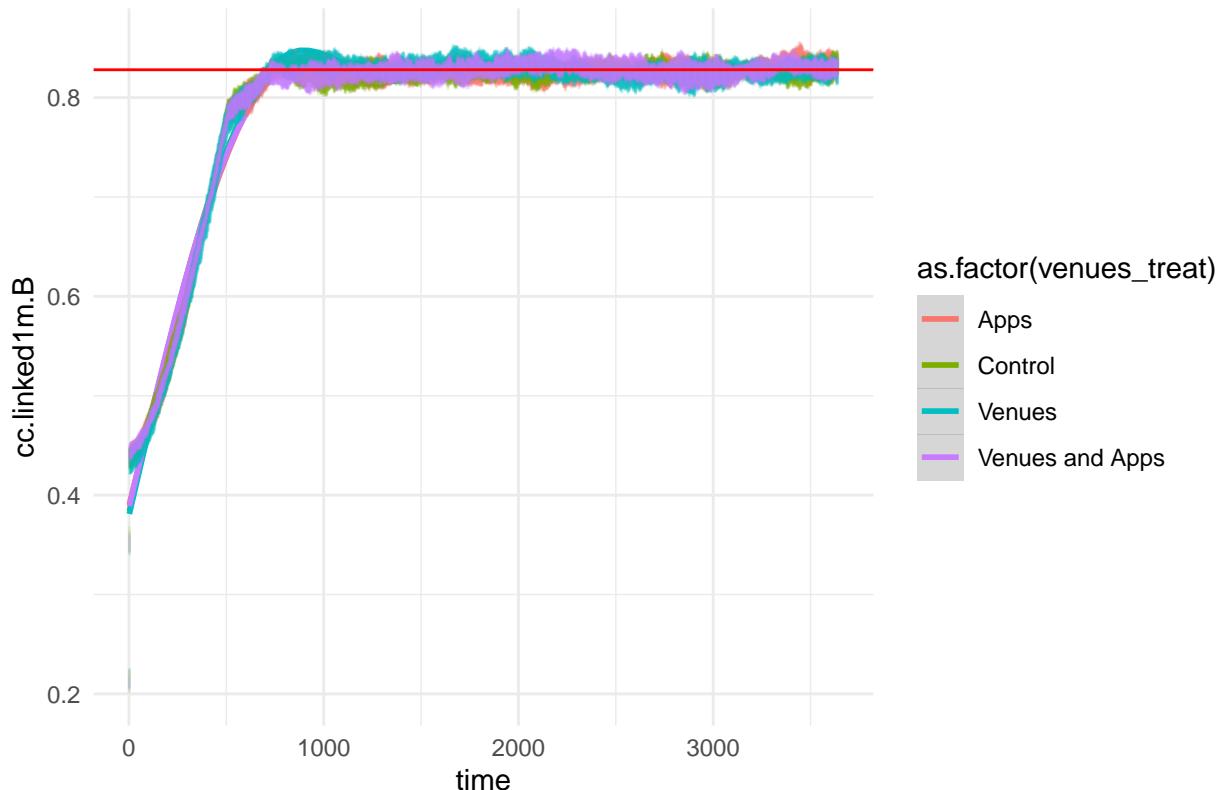
Plot 7: Proportion of HIV+ that are Diagnosed (White)



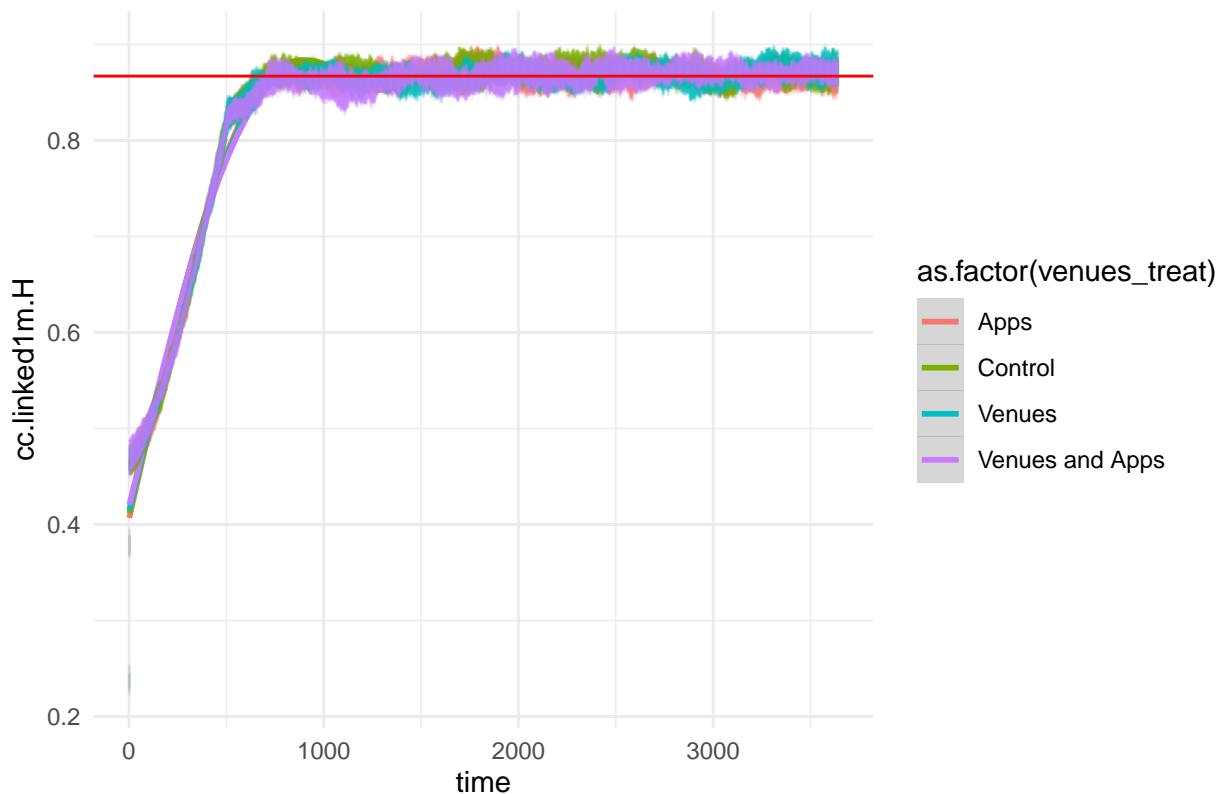
Plot 8: Proportion of HIV+ that are Diagnosed



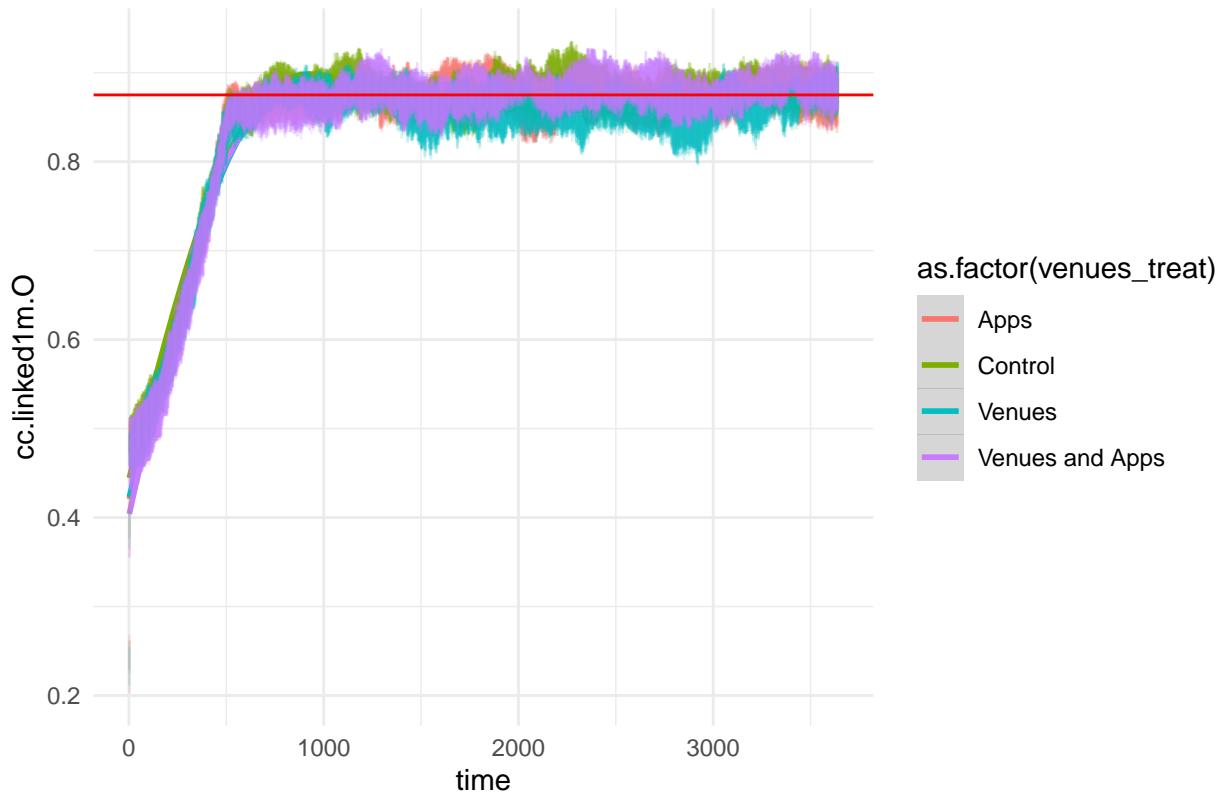
Plot 9: Proportion of HIV+ Nodes Linked to Care within One Month (Black)



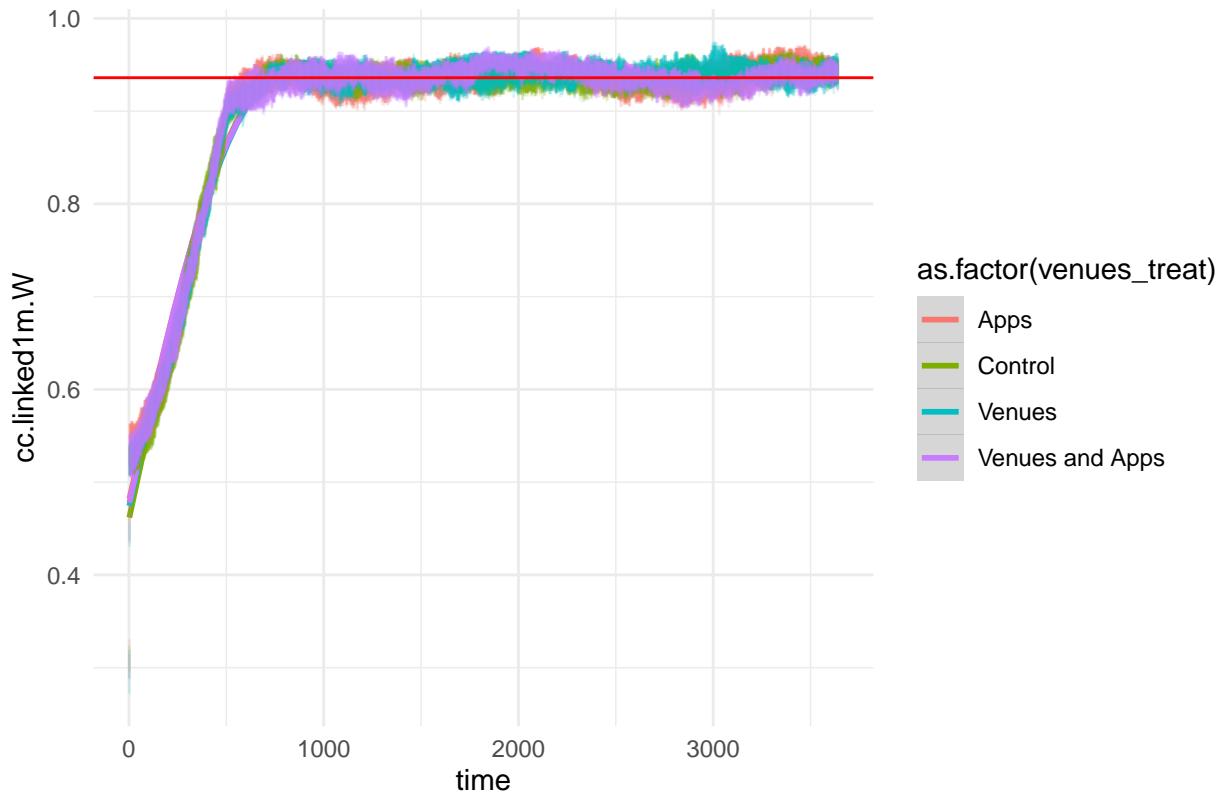
Plot 10: Proportion of HIV+ Nodes Linked to Care within One Month (Hispanic)



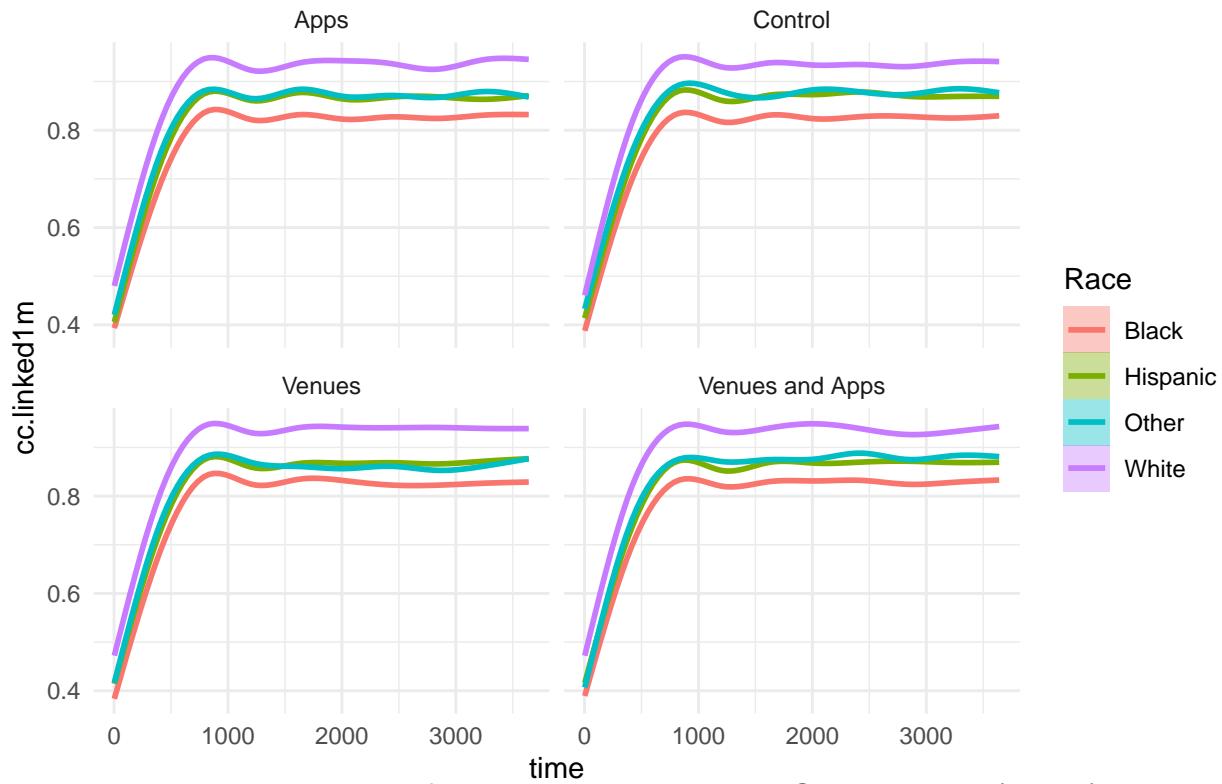
Plot 11: Proportion of HIV+ Nodes Linked to Care within One Month (Other)



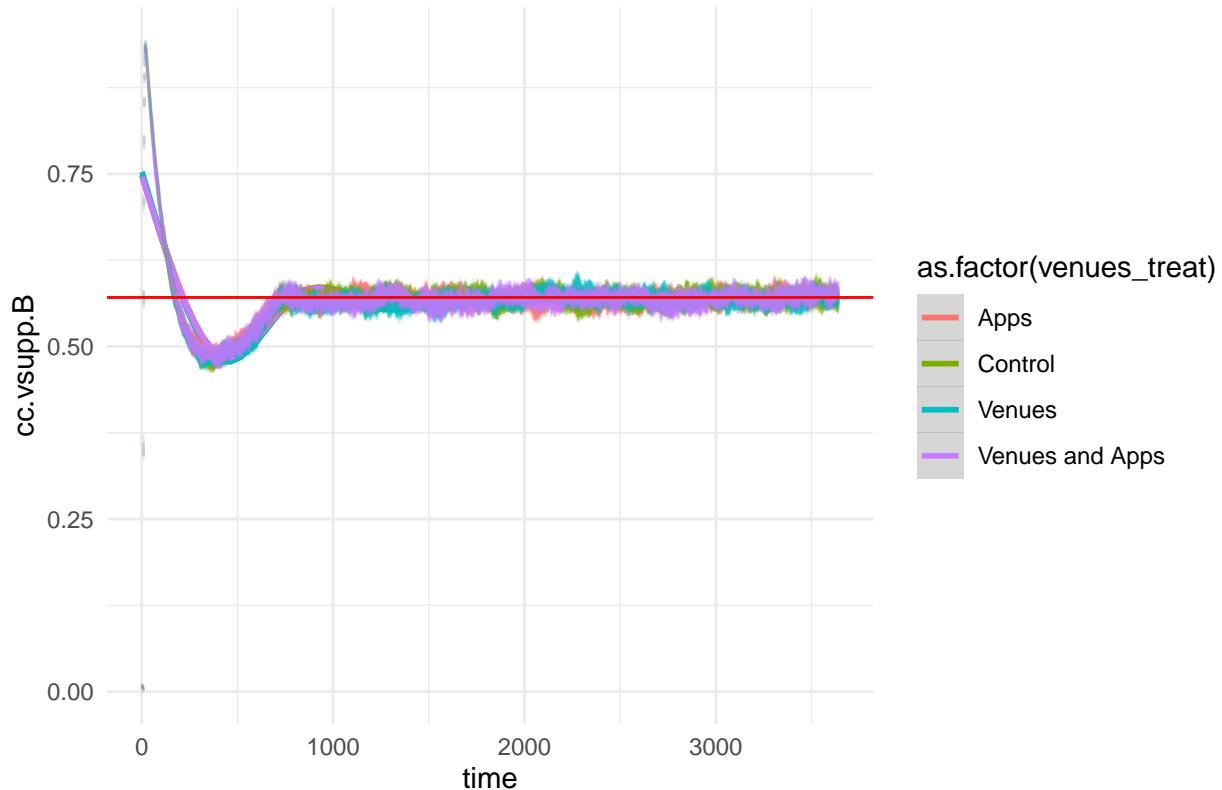
Plot 12: Proportion of HIV+ Nodes Linked to Care within One Month (White)



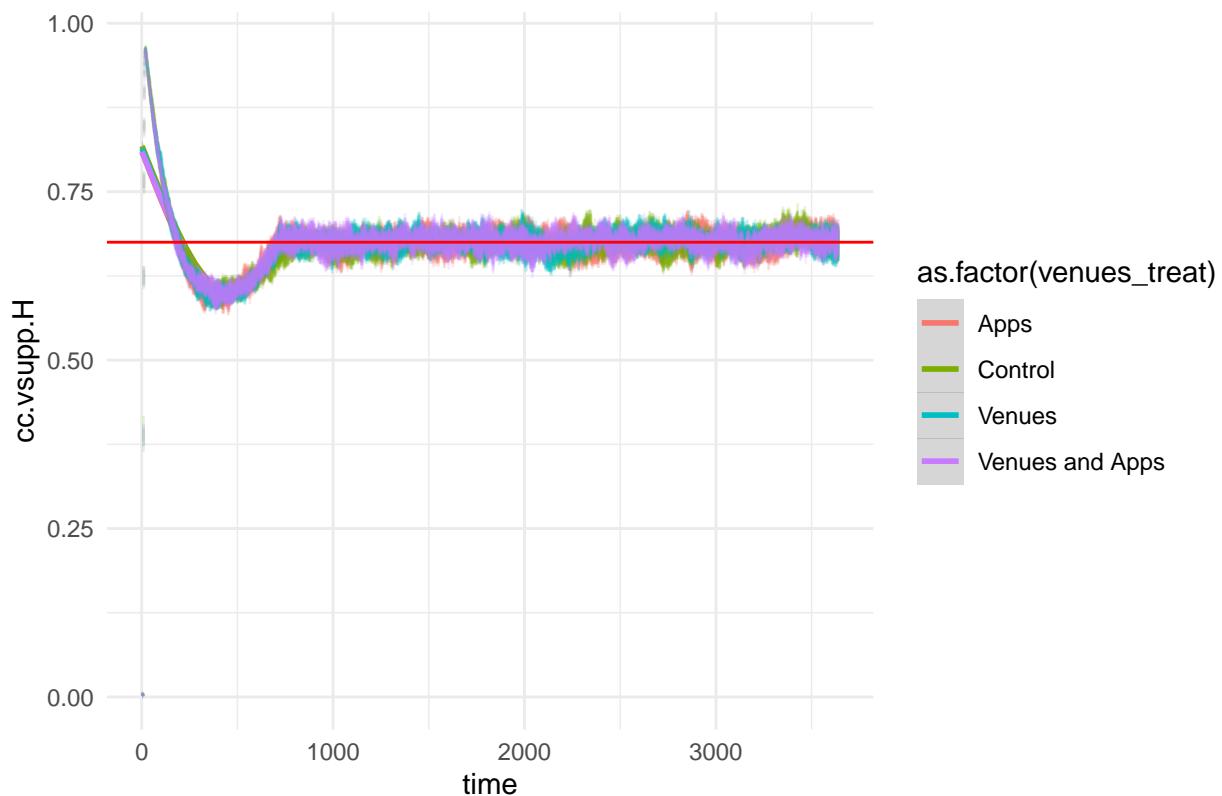
Plot 13: Proportion of HIV+ Nodes Linked to Care within One Month



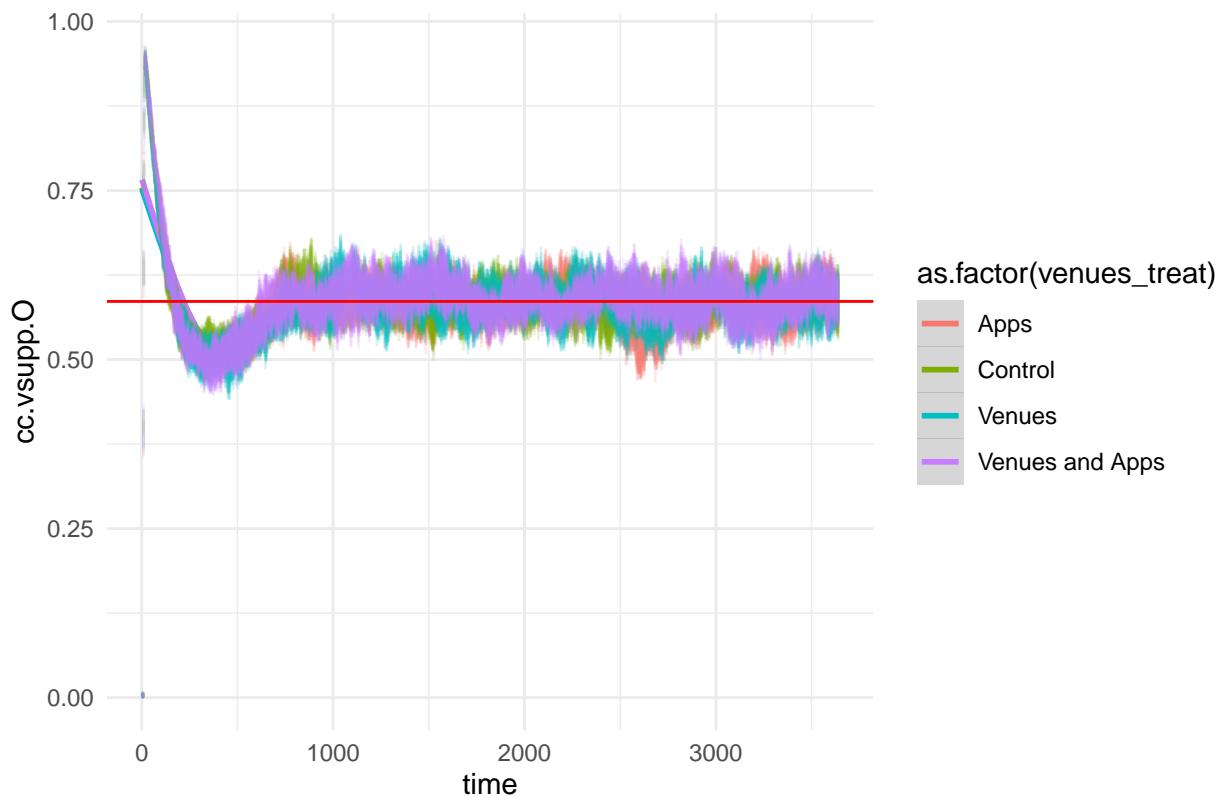
Plot 14: Proportion of HIV+ Nodes with Viral Suppression (Black)



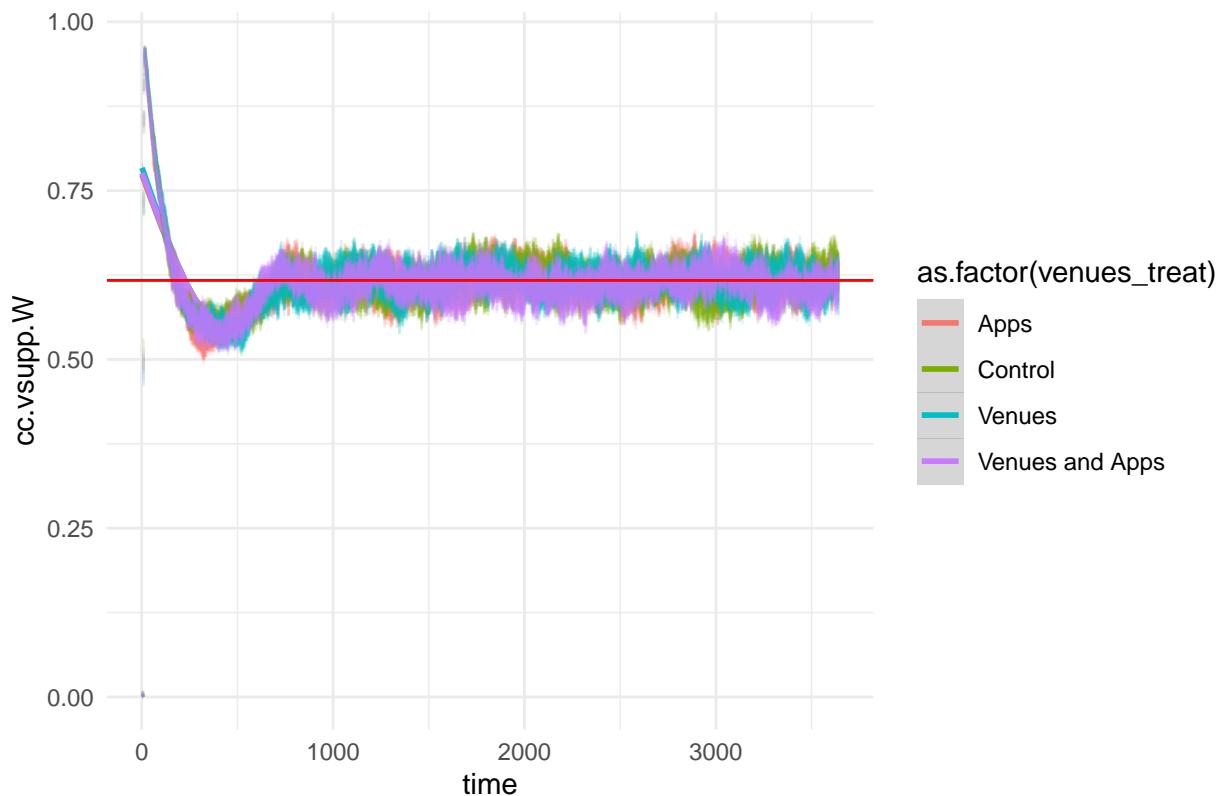
Plot 15: Proportion of HIV+ Nodes with Viral Suppression (Hispanic)



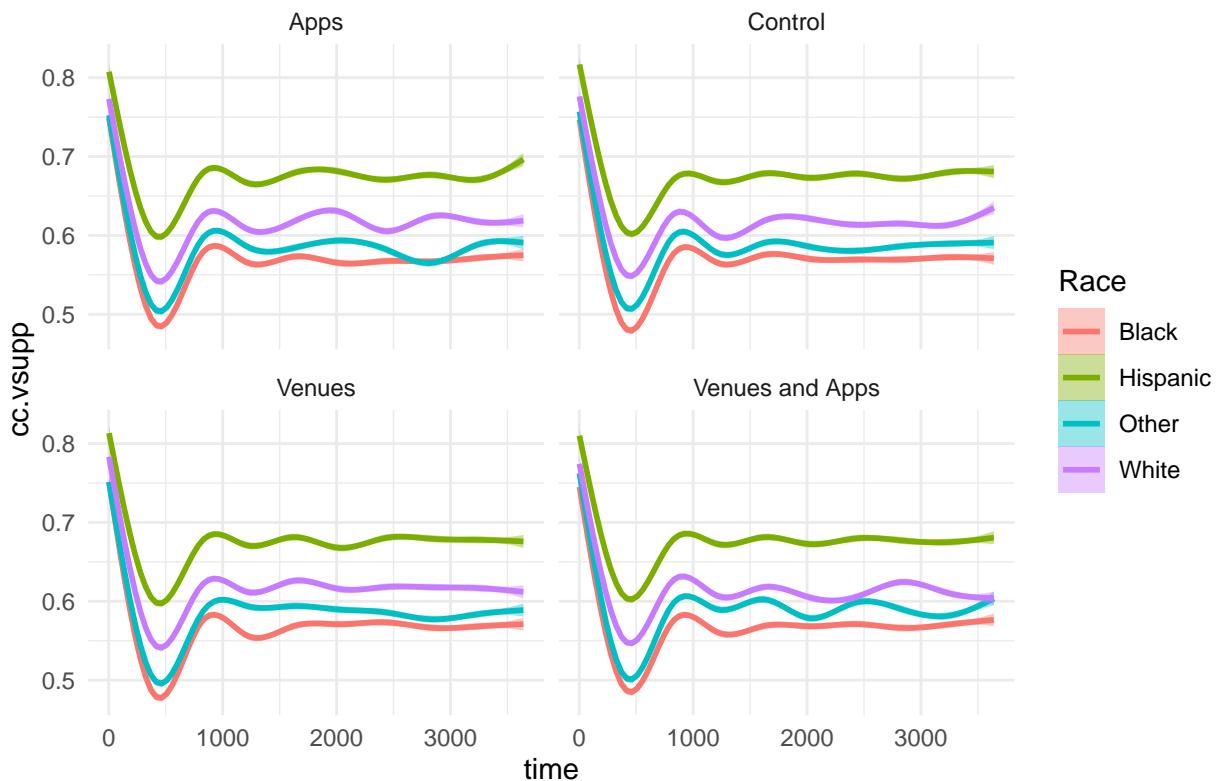
Plot 16: Proportion of HIV+ Nodes with Viral Suppression (Other)



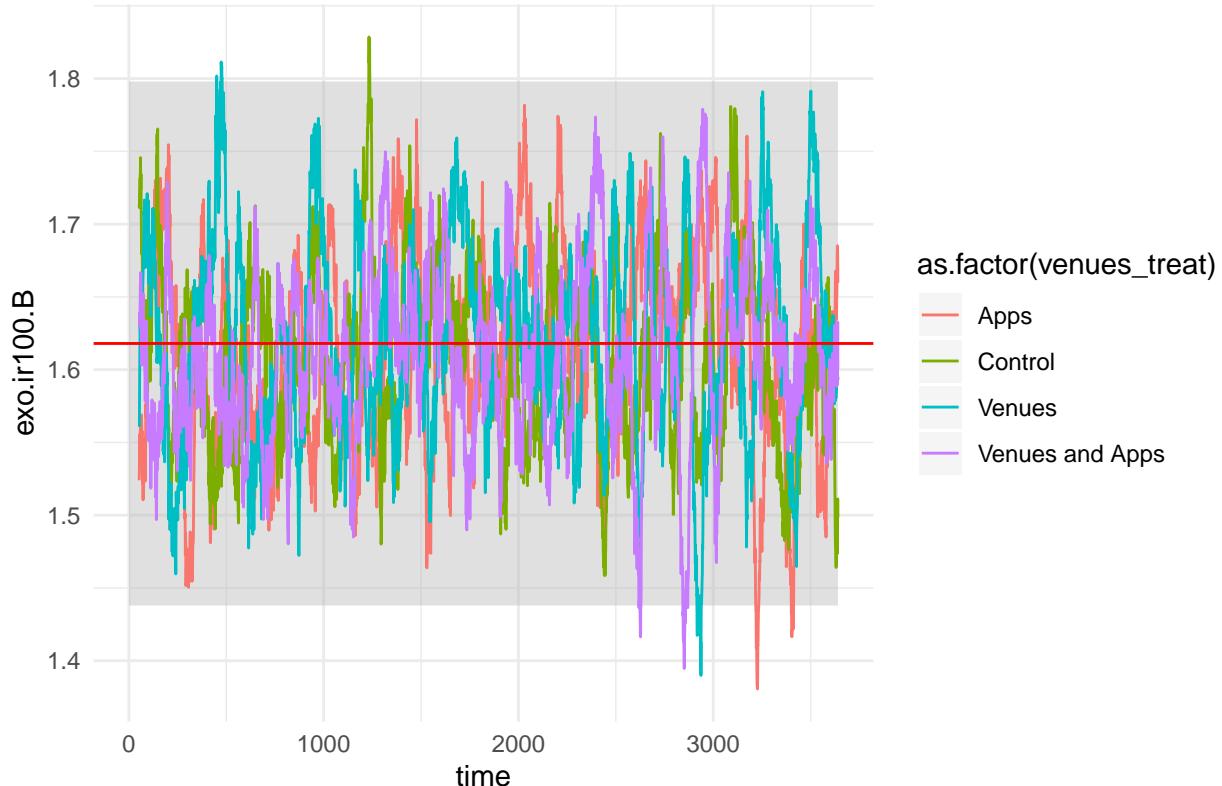
Plot 17: Proportion of HIV+ Nodes with Viral Suppression (White)



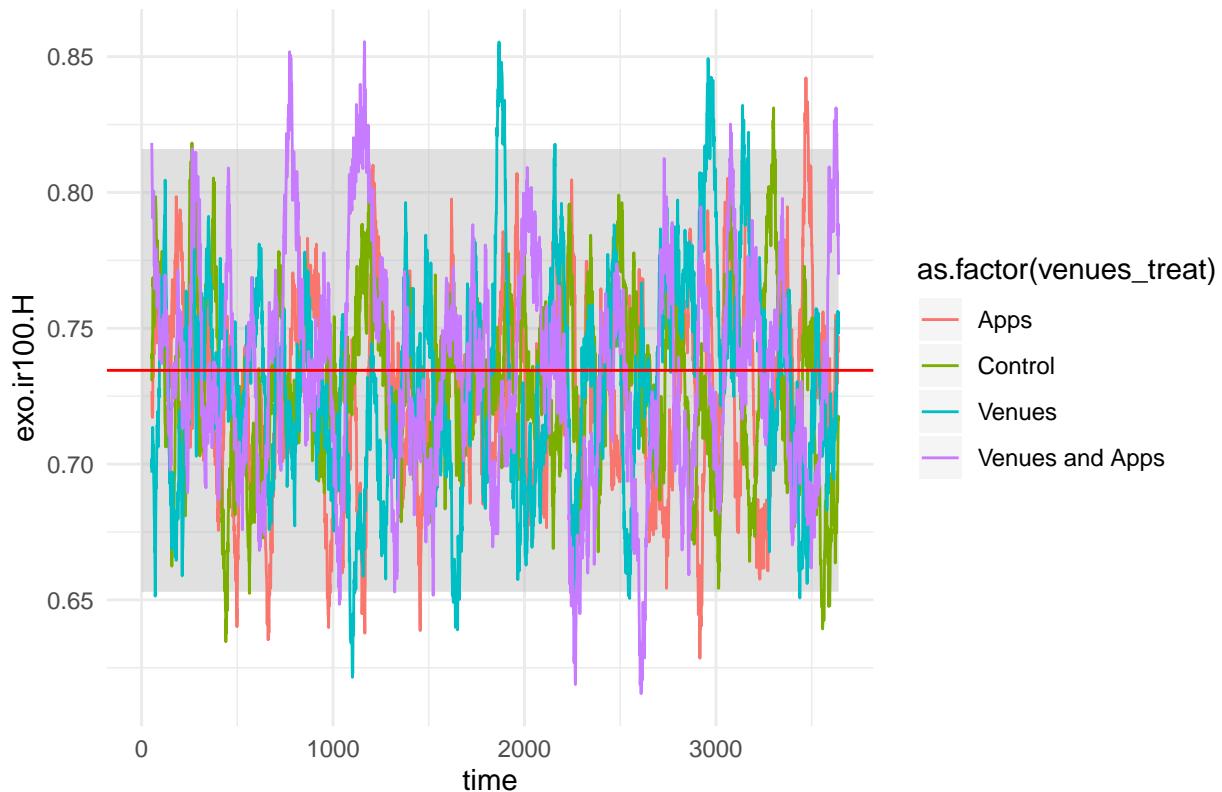
Plot 18: Proportion of HIV+ Nodes with Viral Suppression



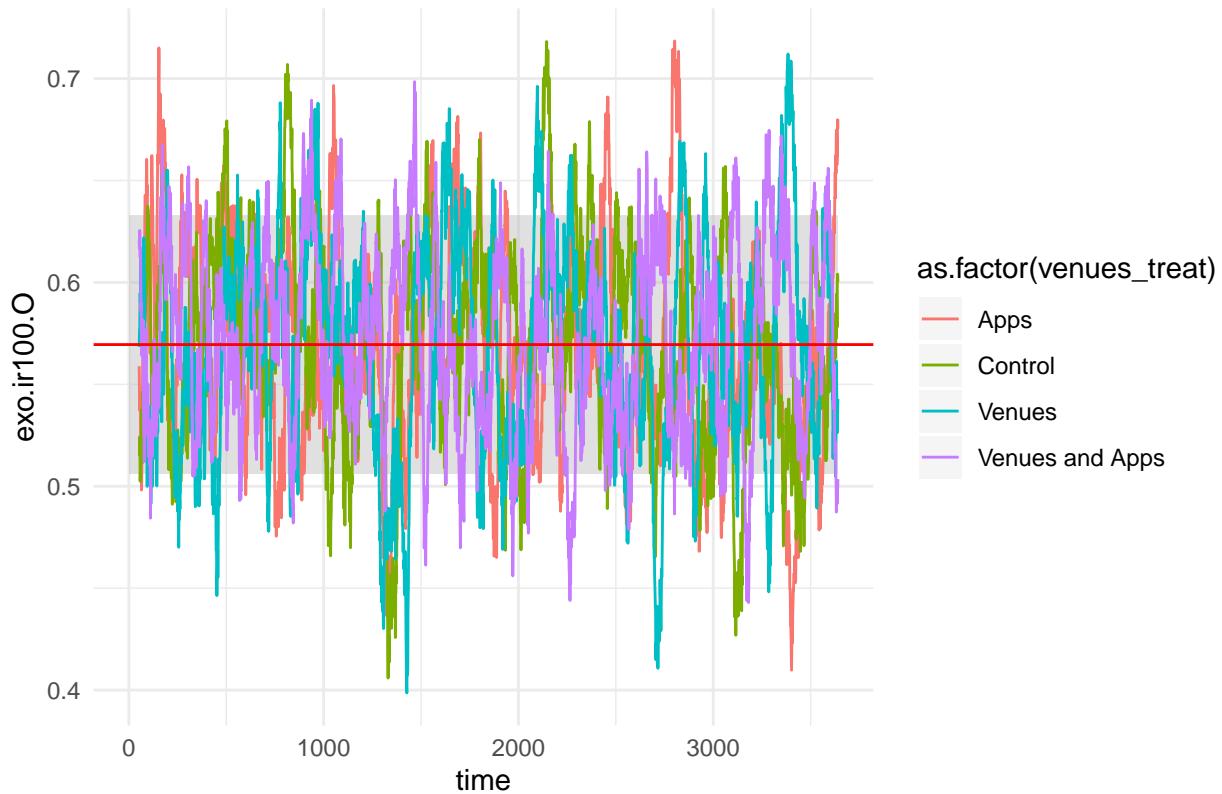
Plot 19: Exogenous Incidence Rate (Black, Annualized)



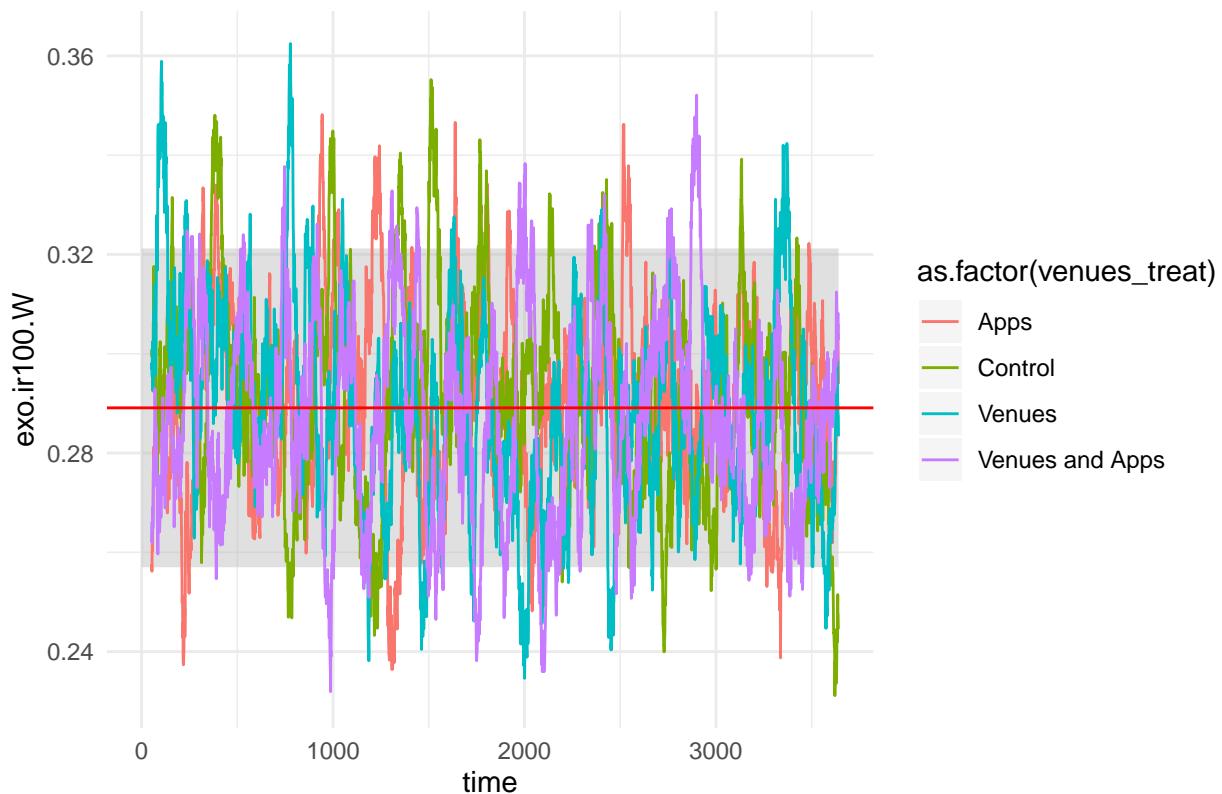
Plot 20: Exogenous Incidence Rate (Hispanic, Annualized)



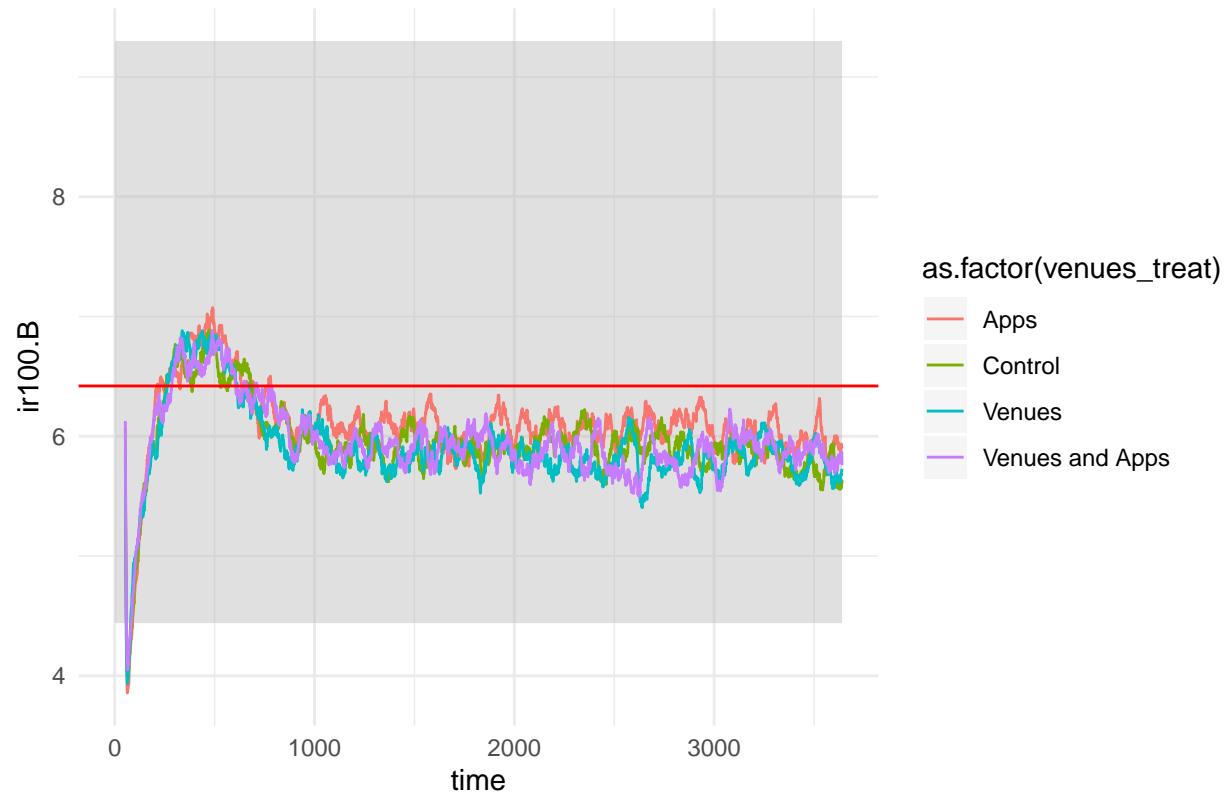
Plot 21: Exogenous Incidence Rate (Other, Annualized)



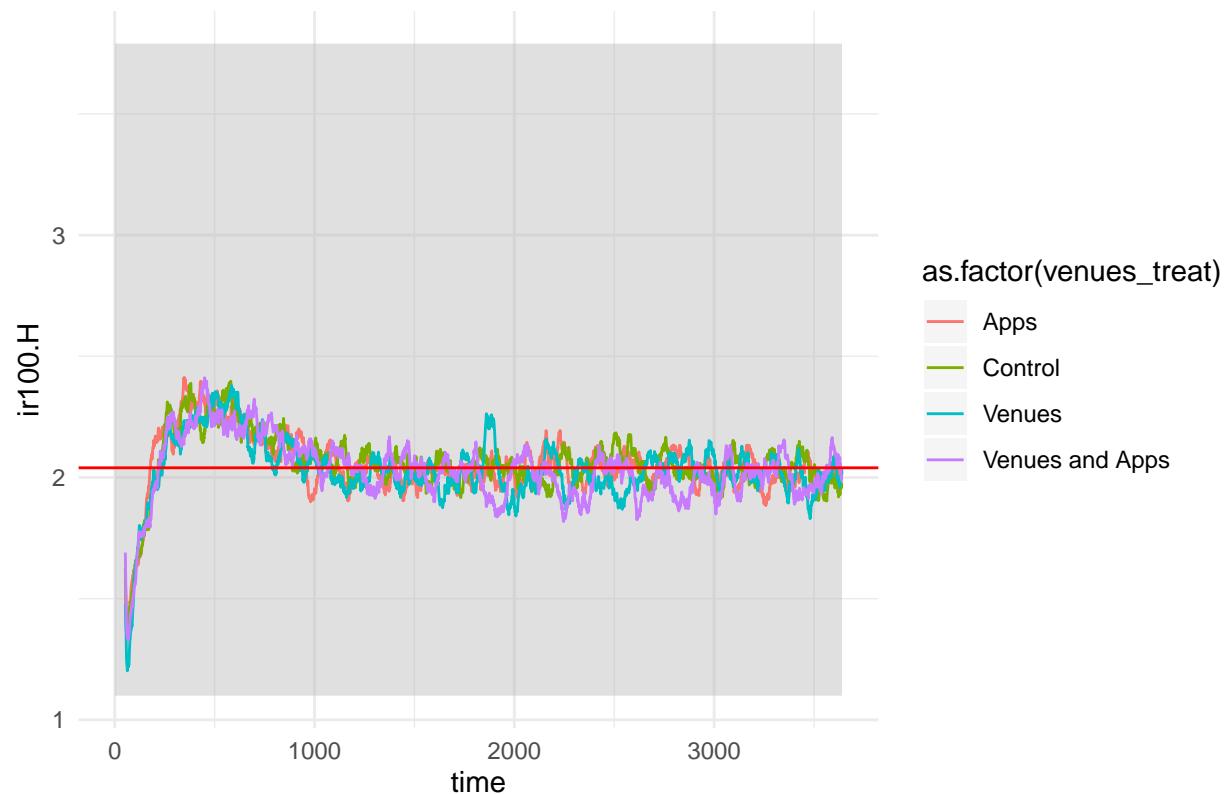
Plot 22: Exogenous Incidence Rate (White, Annualized)



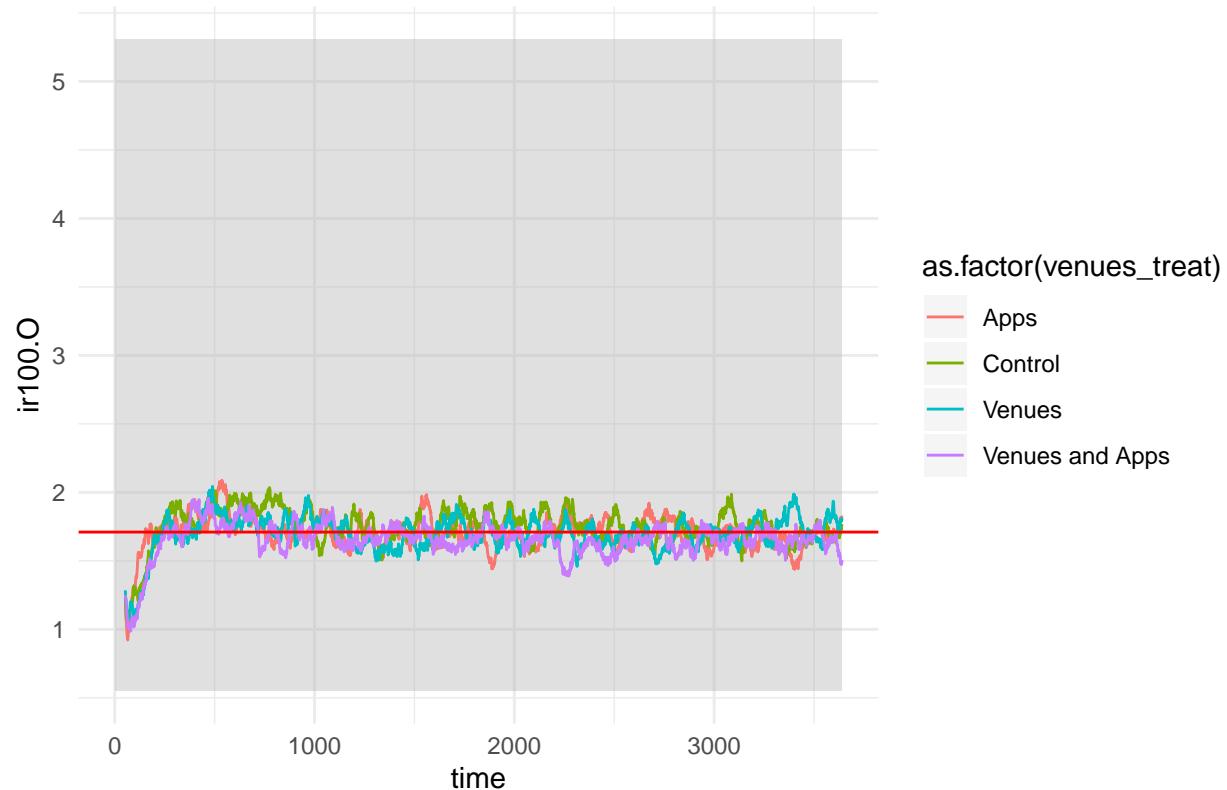
Plot 23: Total Incidence Rate (Black, Annualized)



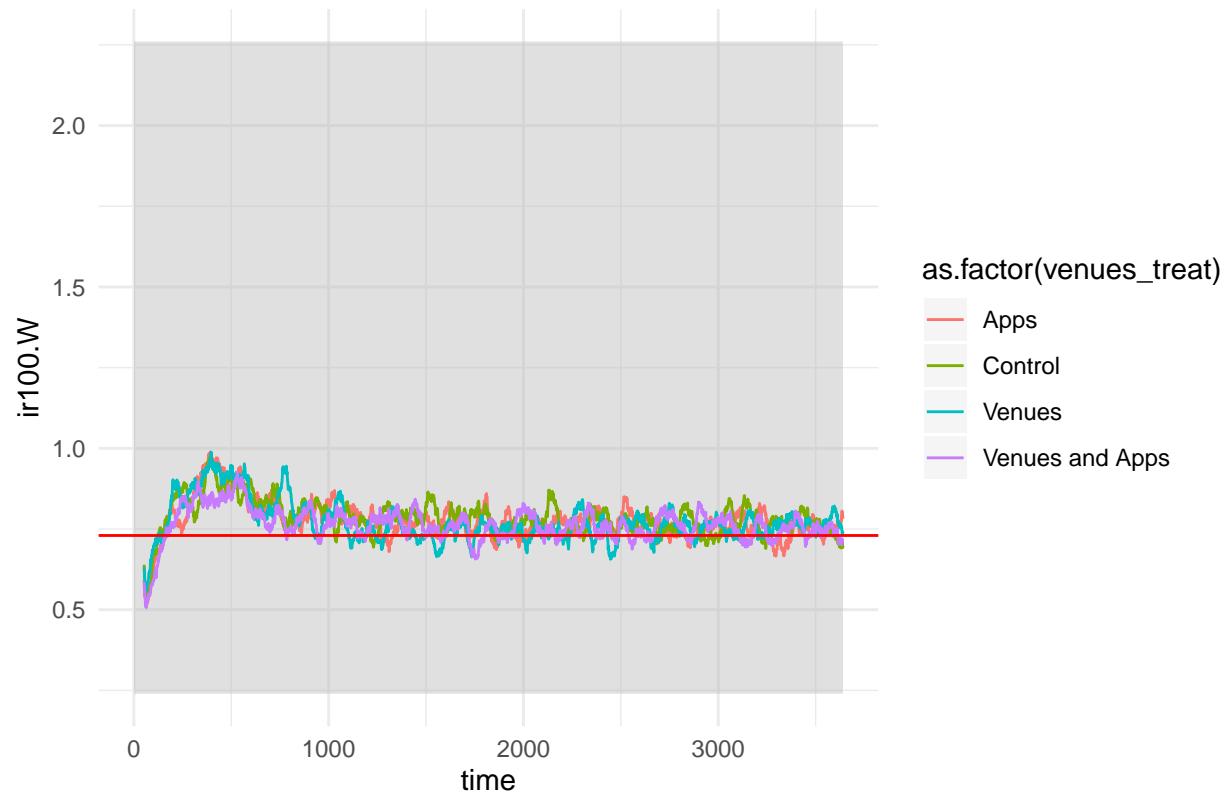
Plot 24: Total Incidence Rate (Hispanic, Annualized)



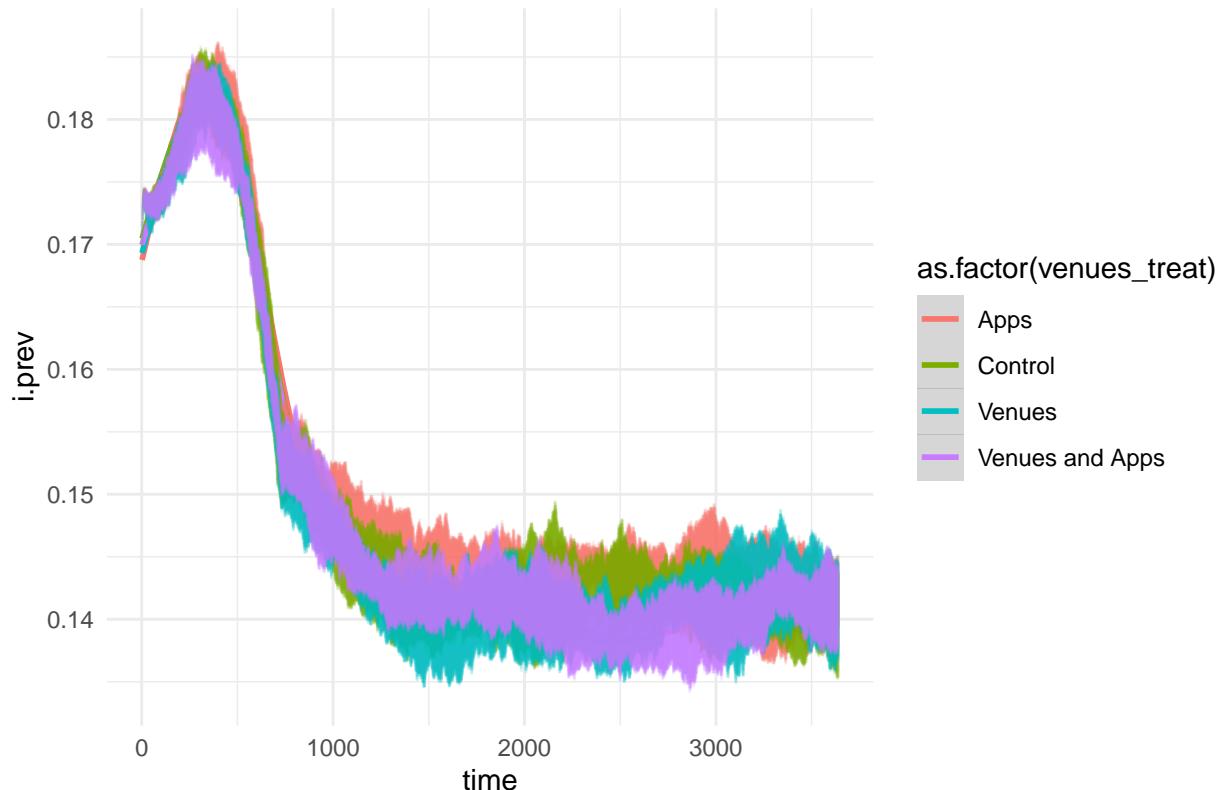
Plot 25: Total Incidence Rate (Other, Annualized)



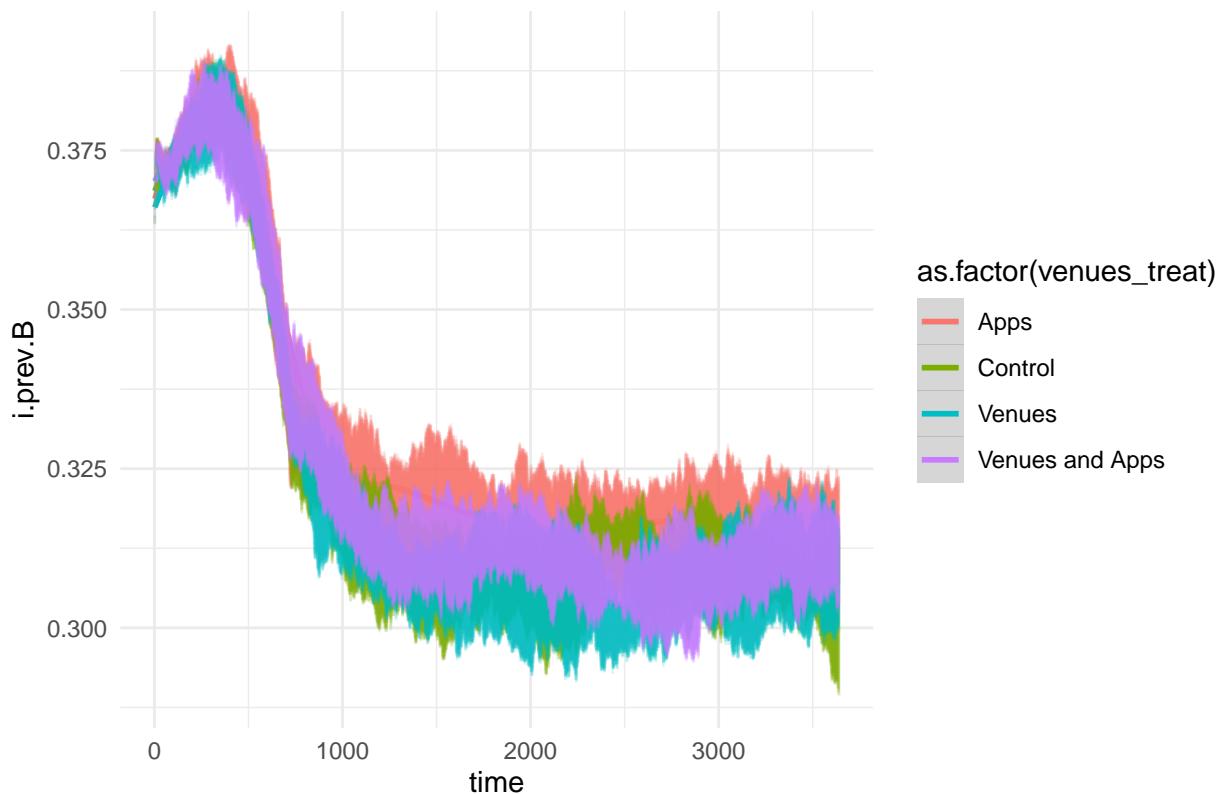
Plot 26: Total Incidence Rate (White, Annualized)



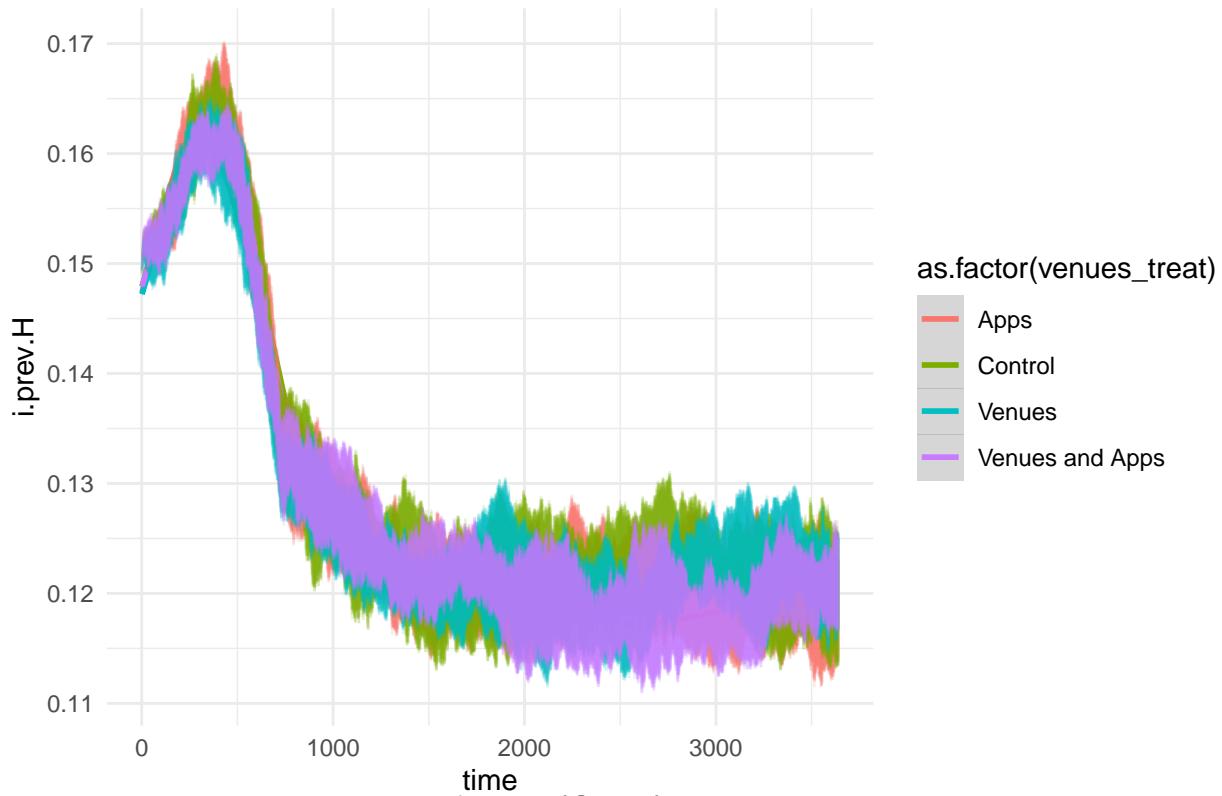
Plot 27: Prevalence, Infected



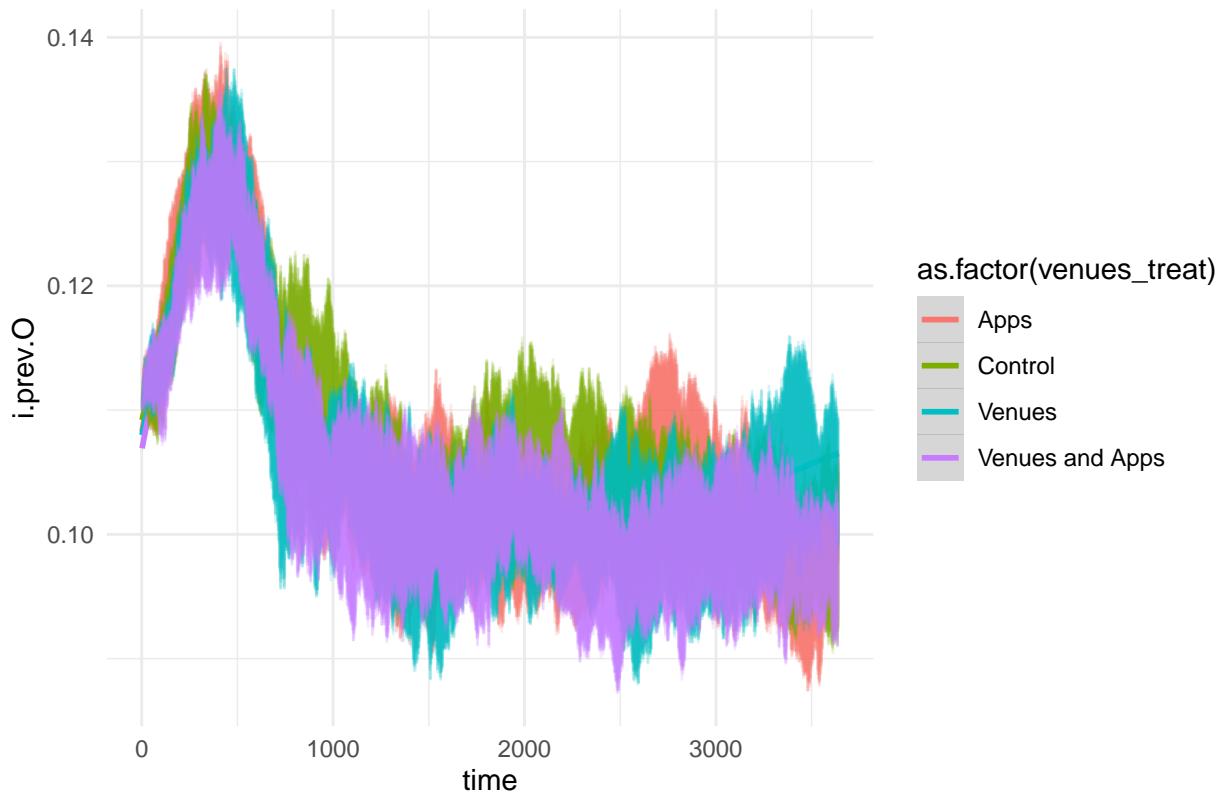
Plot 28: Prevalence, Infected (Black)



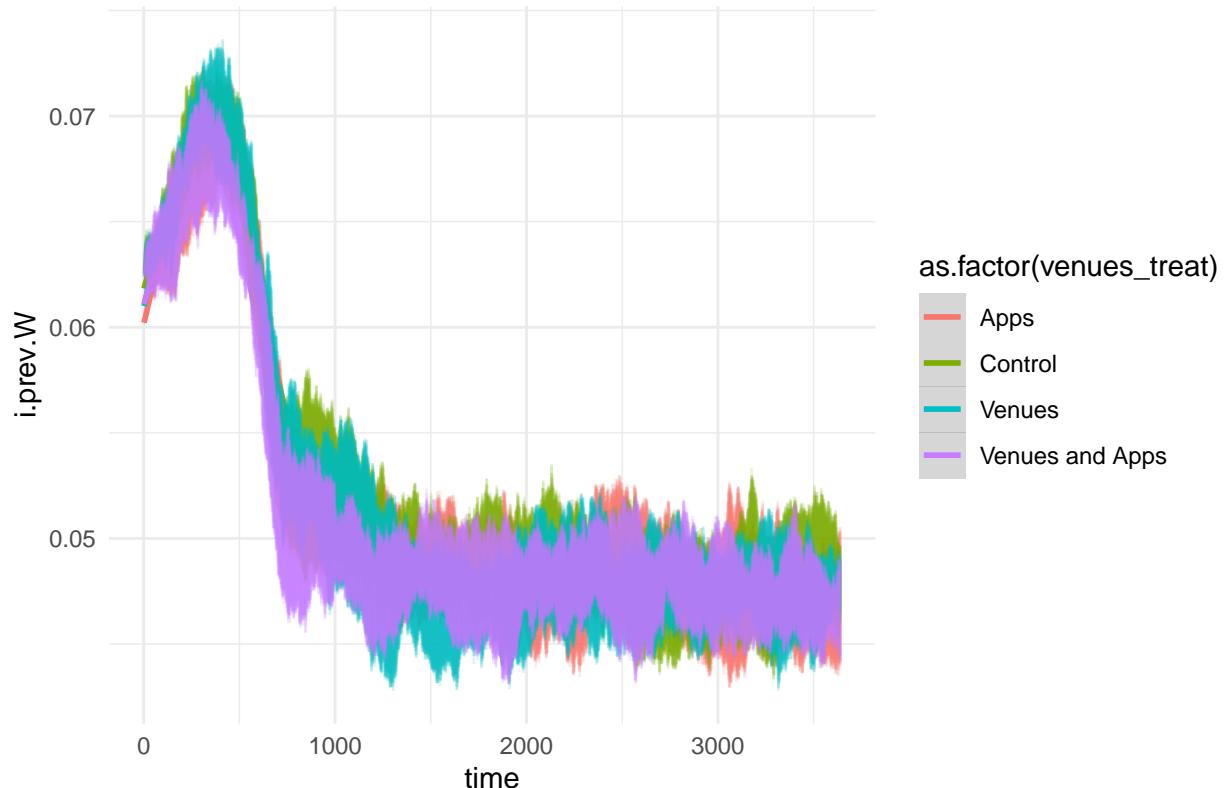
Plot 29: Prevalence, Infected (Hispanic)



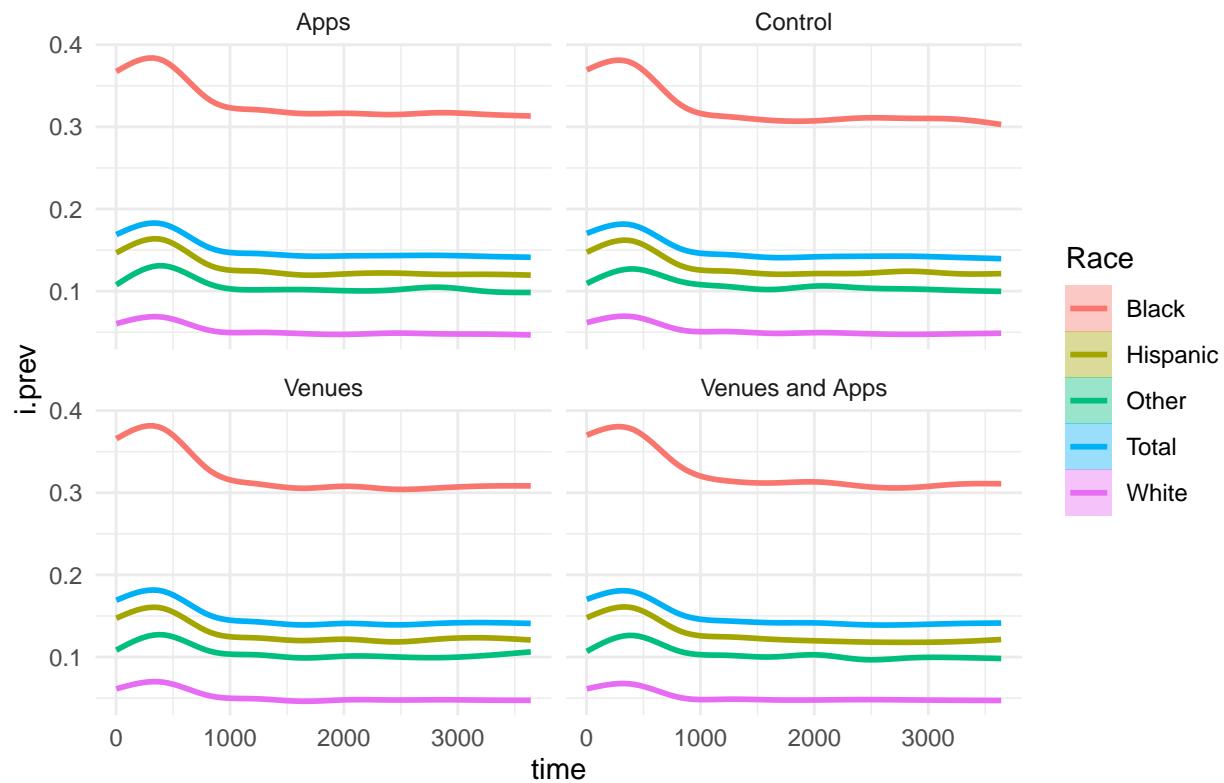
Plot 30: Prevalence, Infected (Other)



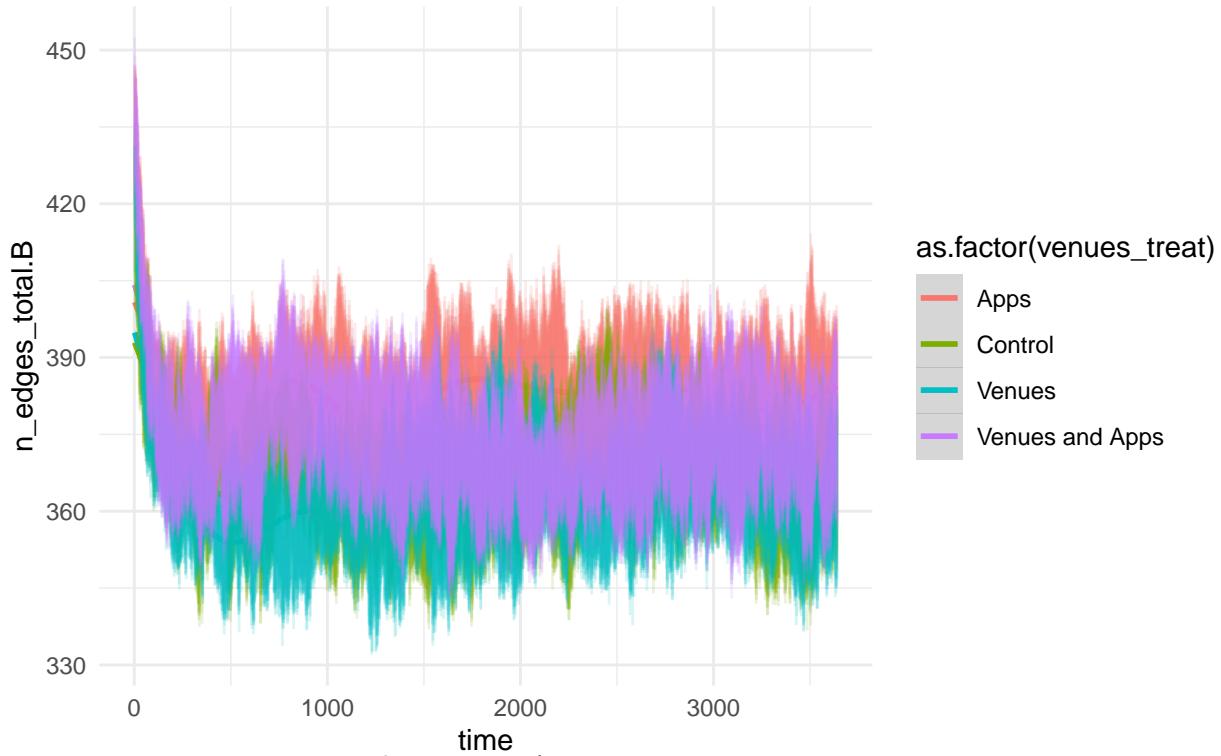
Plot 31: Prevalence, Infected (White)



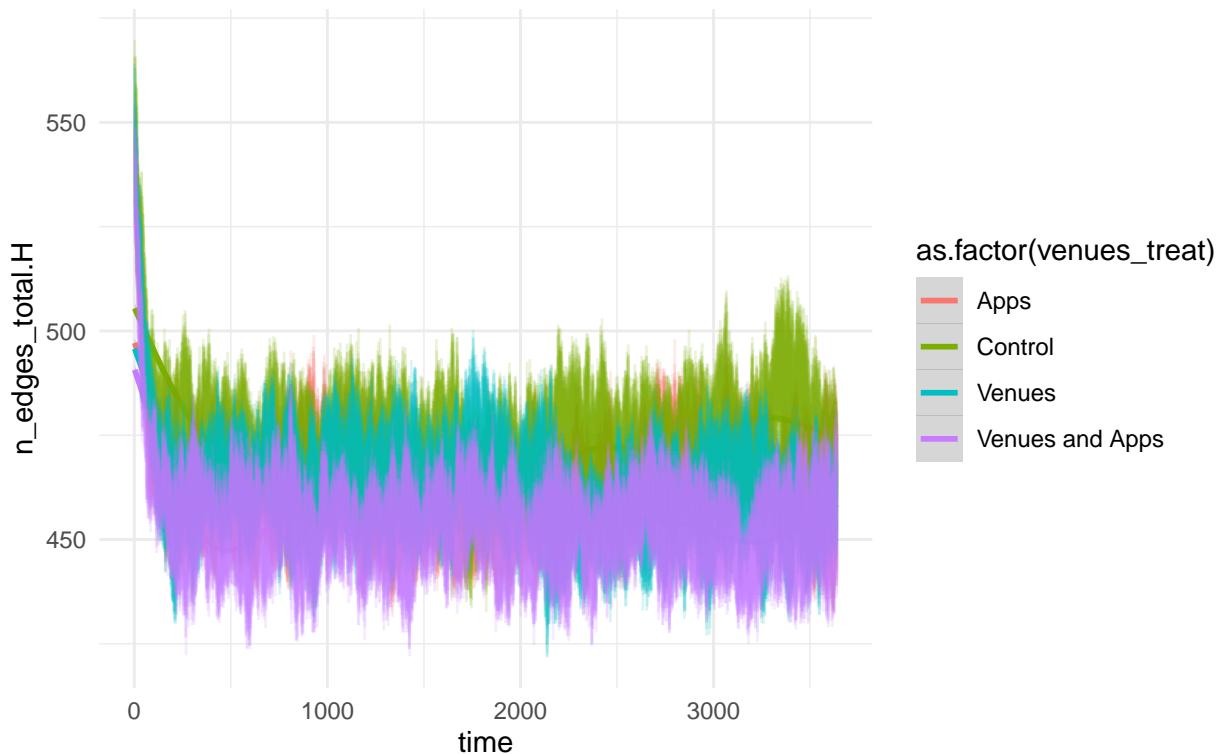
Plot 32: Prevalence, Infected



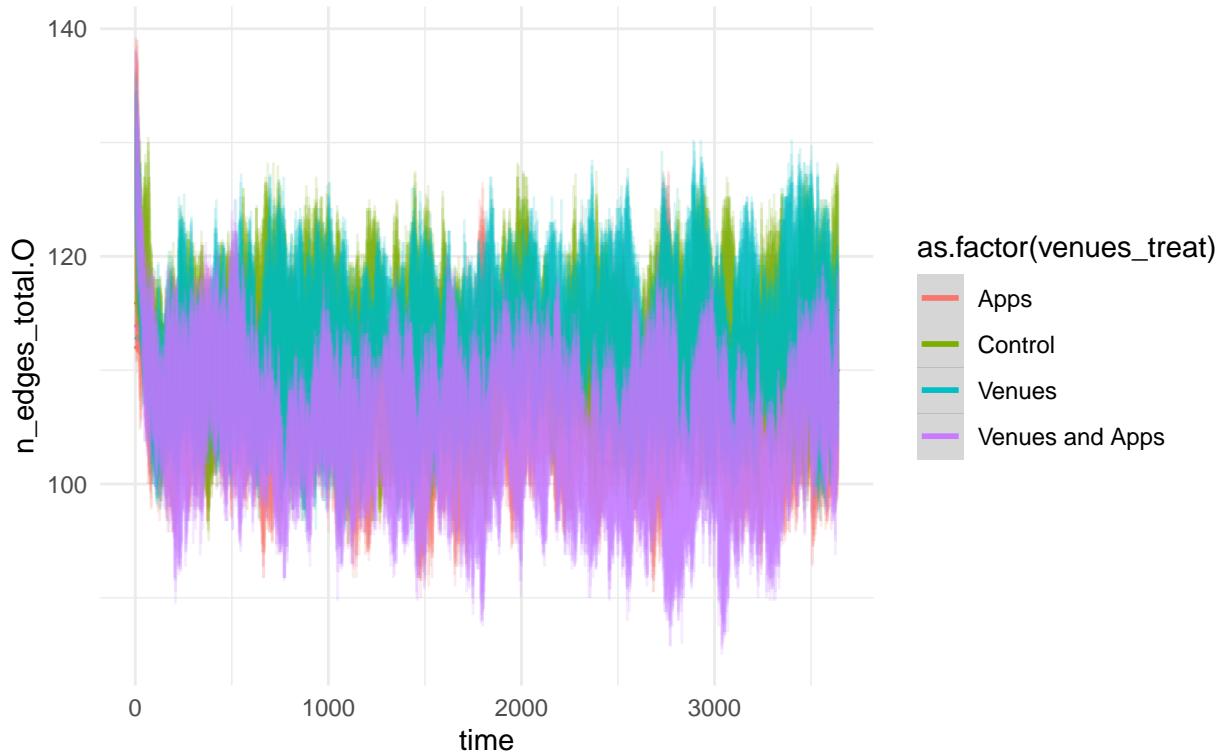
Plot 33: Number of Black/Black Partnerships
(All Networks)



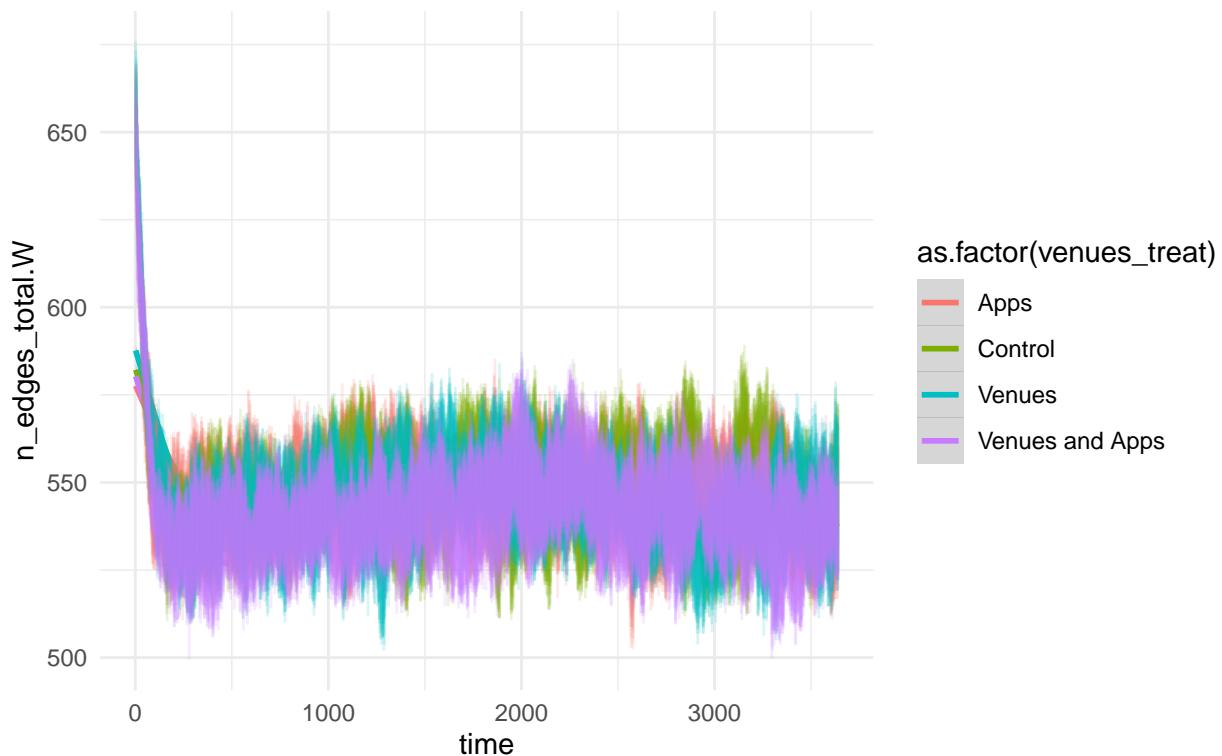
Plot 34: Number of Hispanic/Hispanic Partnerships
(All Networks)



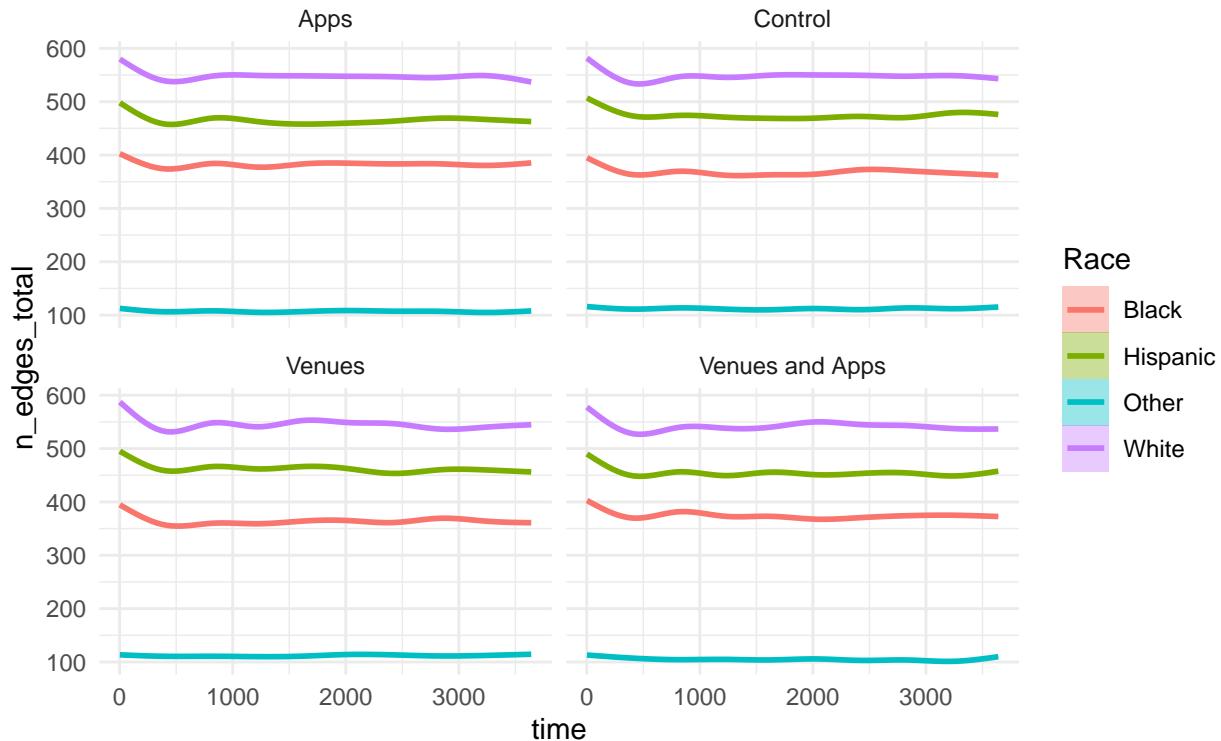
Plot 35: Number of Other/Other Partnerships
(All Networks)



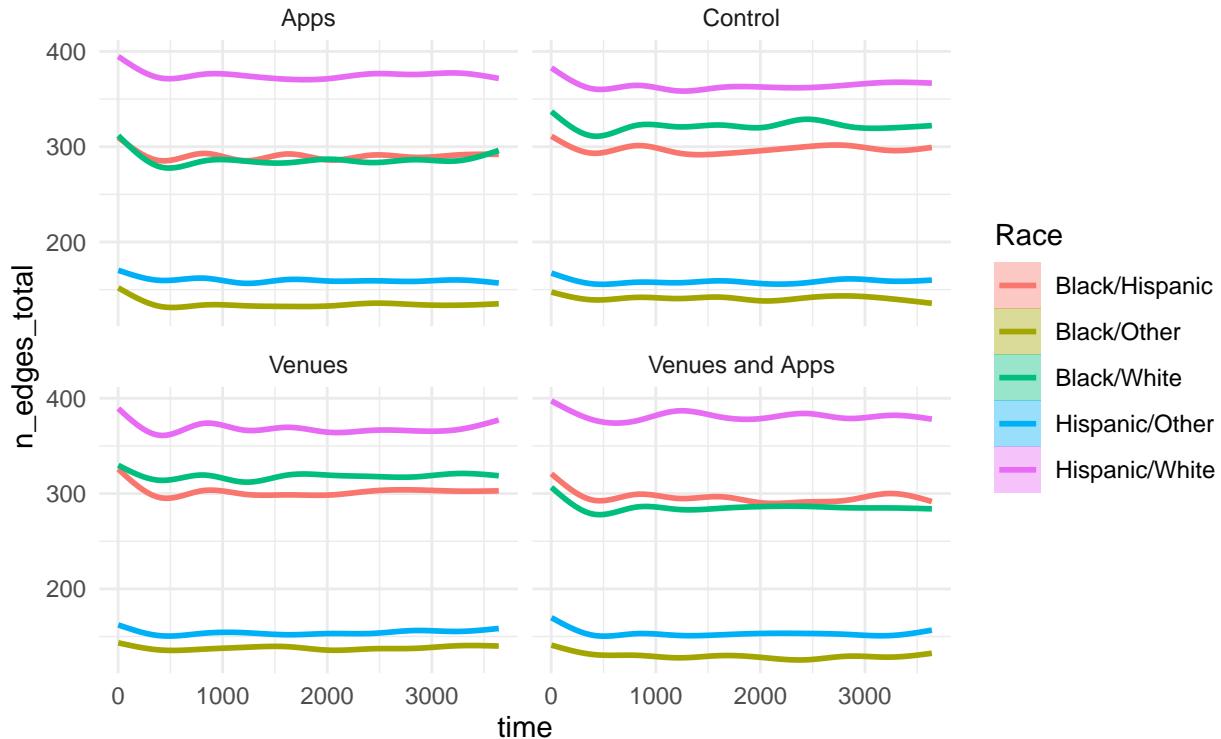
Plot 36: Number of White/White Partnerships
(All Networks)



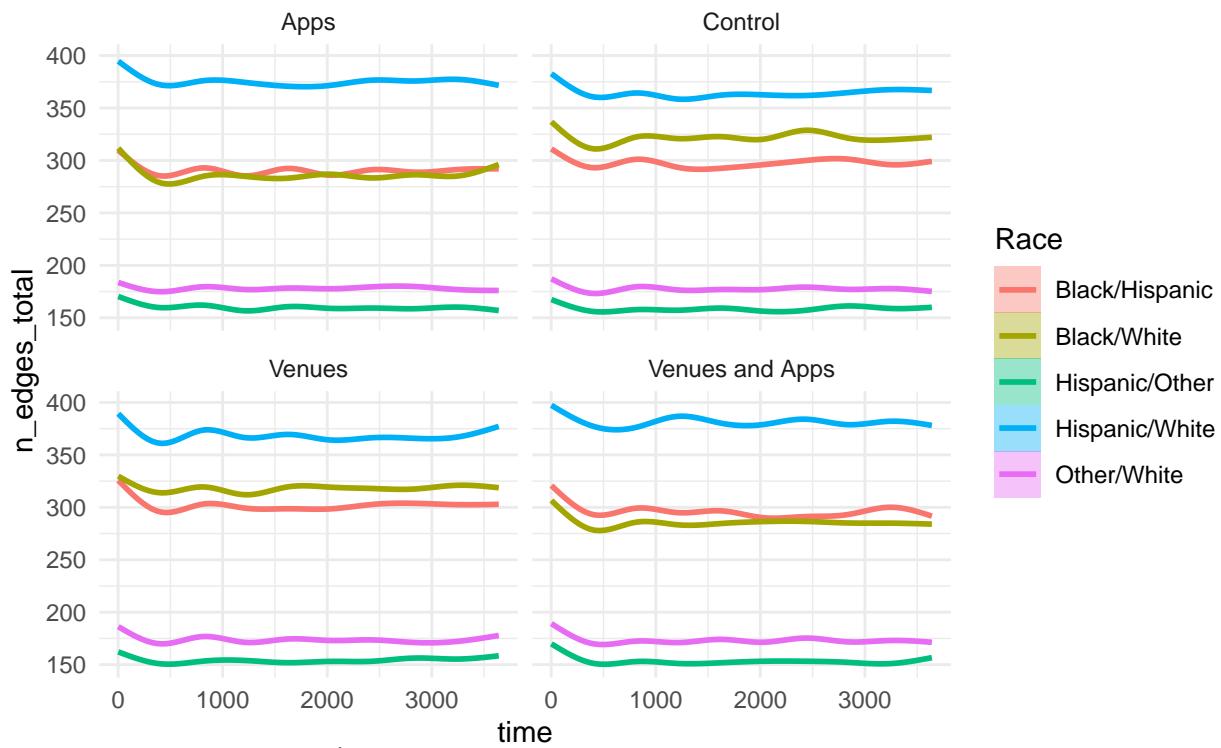
Plot 37: Number of Racially Homophilous Partnerships
(All Networks)



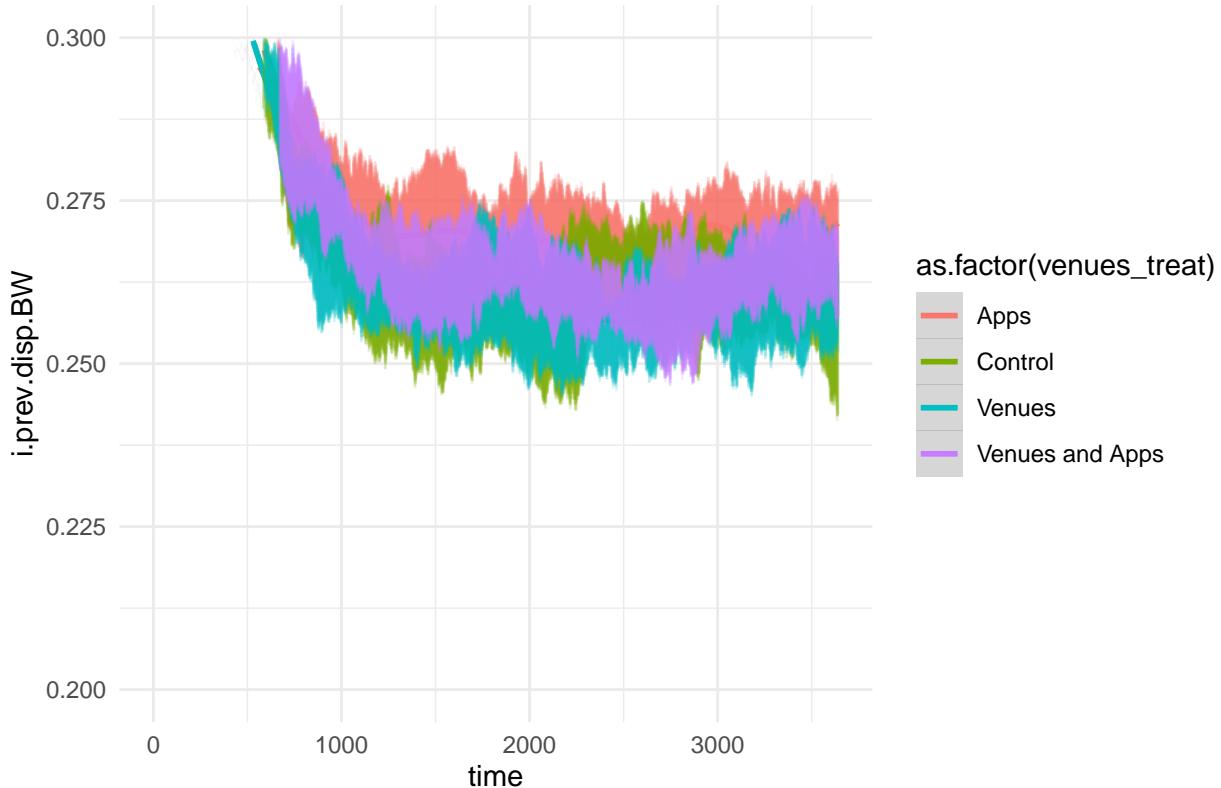
Plot 38: Number of Racially Heterophilous Partnerships
(All Networks)



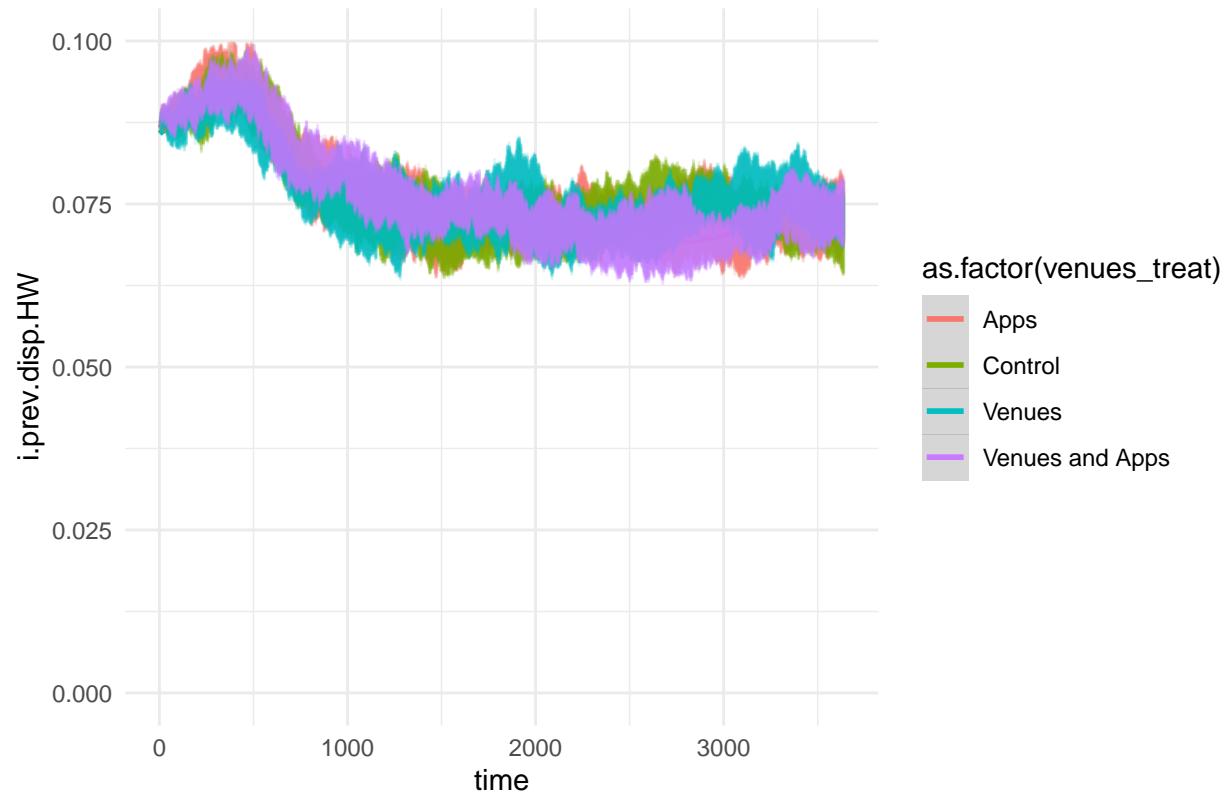
Plot 39: Number of Racially Heterophilous Partnerships
(All Networks)



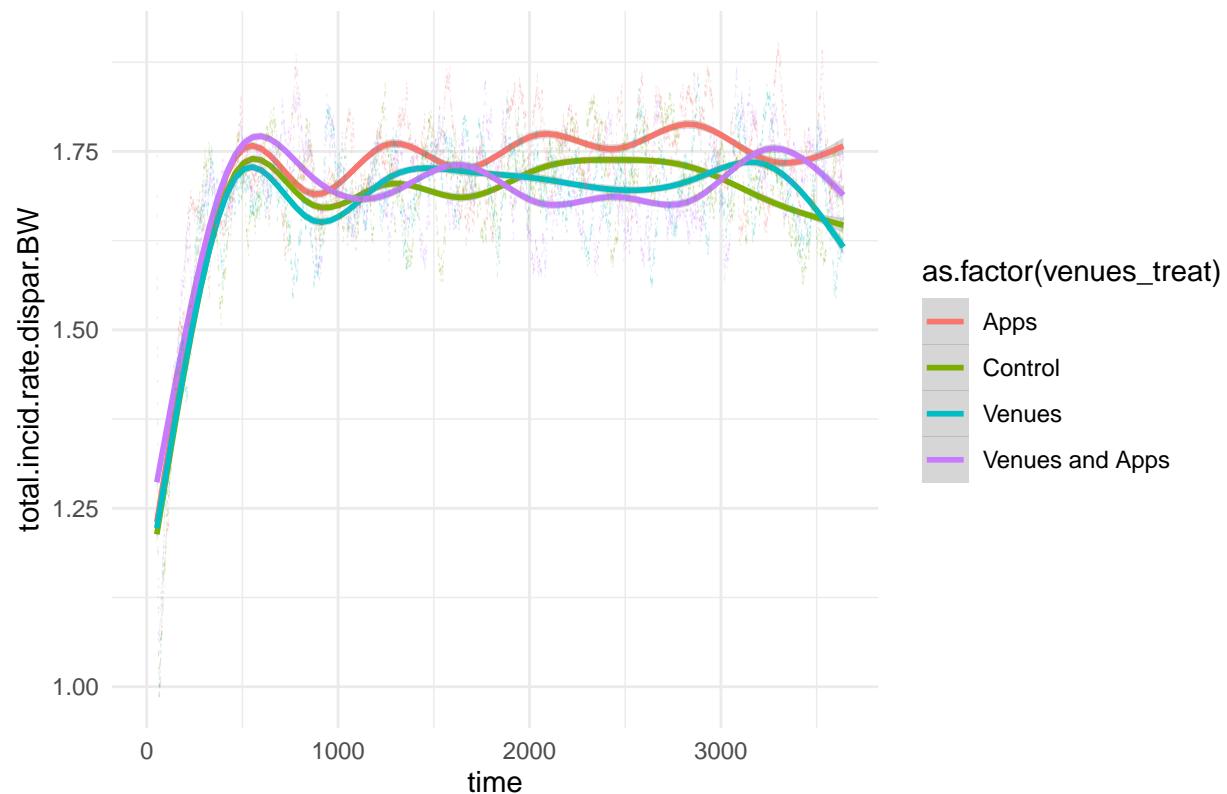
Plot 40: Black/White Disparity in HIV Prevalence



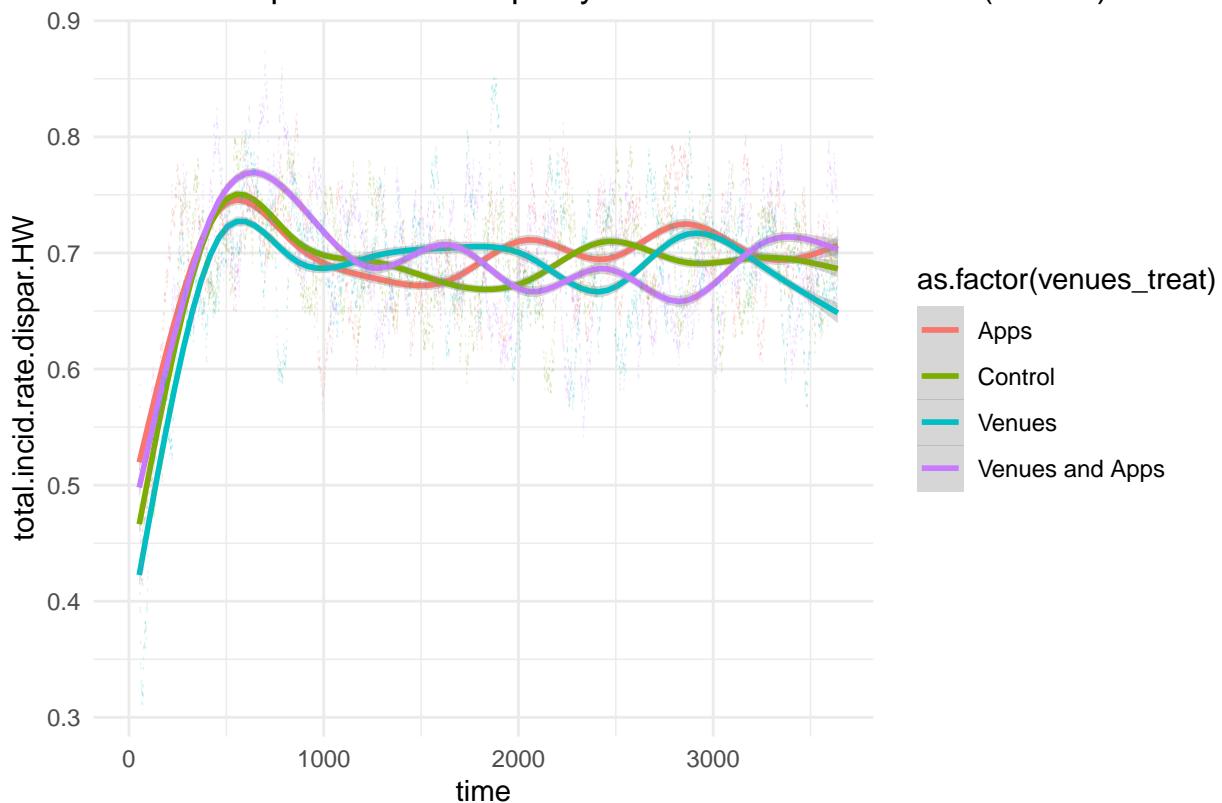
Plot 41: Hispanic/White Disparity in HIV Prevalence



Plot 42: Black/White Disparity in Annualized Incidence (x 1000)



Plot 43: Hispanic/White Disparity in Annualized Incidence (x 1000)



```
# Updated Disparity Plots
##### Prevalence
i = i+1
data = sim_targets
var = c("i.prev.disp.HW", "i.prev.disp.BW")
group = "treat"

# Create placeholder of variable we need
data2 <- data[, c("time", group, var)]
data3 <- data2 %>%
  tidyr::pivot_longer(cols = var, names_to = "Race", values_to = "val") %>%
  mutate(Race = case_when(str_detect(Race, "BW") ~ "Black/White",
                         str_detect(Race, "HW") ~ "Hispanic/White")) %>%
  rename(Treatment = treat)

## Warning: Using an external vector in selections was deprecated in tidyselect 1.1.0.
## i Please use `all_of()` or `any_of()` instead.
##   # Was:
##   data %>% select(var)
##
##   # Now:
##   data %>% select(all_of(var))
##
## See <https://tidyselect.r-lib.org/reference/faq-external-vector.html>.
## This warning is displayed once every 8 hours.
## Call `lifecycle::last_lifecycle_warnings()` to see where this warning was
```

```

## generated.

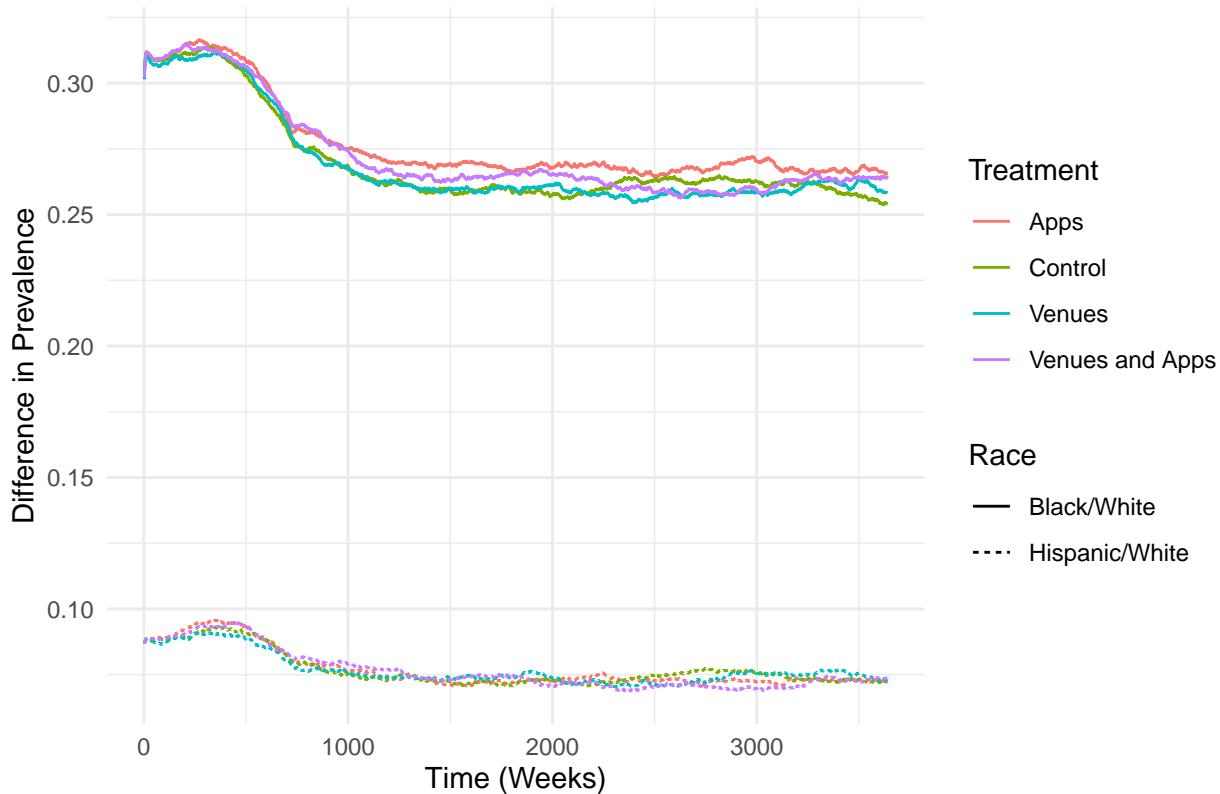
data3 %>%
  group_by(Treatment, time, Race) %>%
  summarize(this_var = mean(val)) %>%
  dplyr::ungroup() %>%
  ggplot(aes(x = time, y = this_var, color = Treatment, fill = Treatment)) +
  geom_line(aes(linetype = Race, color = Treatment)) +
  theme_minimal() +
  labs(y = "Difference in Prevalence",
       x = "Time (Weeks)") +
  ggtitle(paste("Plot ", i, ": Racial Disparities in HIV Prevalence", sep = ""))

```

'summarise()' has grouped output by 'Treatment', 'time'. You can override using
the '.groups' argument.

Warning: Removed 8 rows containing missing values ('geom_line()').

Plot 44: Racial Disparities in HIV Prevalence



```

##### Annualized Incidence Rate
i = i+1
data = annual_incid2
  var = c("total.incid.rate.dispar.HW", "total.incid.rate.dispar.BW")
  group = "treat"

```

```

# Create placeholder of variable we need
data2 <- data[, c("time", group, var)]
data3 <- data2 %>%
  tidyverse::pivot_longer(cols = var, names_to = "Race", values_to = "val") %>%
  mutate(Race = case_when(str_detect(Race, "BW") ~ "Black/White",
                          str_detect(Race, "HW") ~ "Hispanic/White")) %>%
  rename(Treatment = treat)

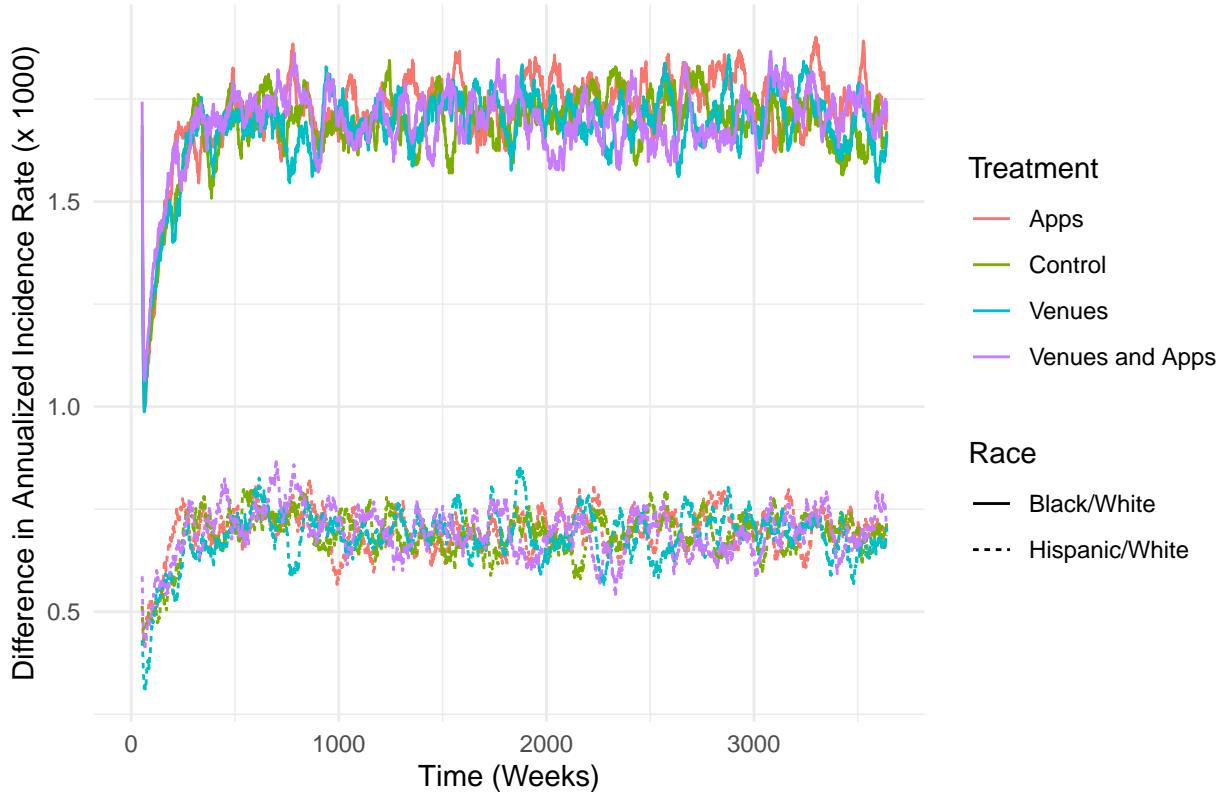
data3 %>%
  group_by(Treatment, time, Race) %>%
  summarize(this_var = mean(val)) %>%
  dplyr::ungroup() %>%
  ggplot(aes(x = time, y = this_var, color = Treatment, fill = Treatment)) +
  geom_line(aes(linetype = Race, color = Treatment)) +
  theme_minimal() +
  labs(y = "Difference in Annualized Incidence Rate (x 1000)",
       x = "Time (Weeks)") +
  ggtitle(paste("Plot ", i, ": Racial Disparities in Annualized HIV Incidence Rate", sep = ""))

```

'summarise()' has grouped output by 'Treatment', 'time'. You can override using
the '.groups' argument.

Warning: Removed 416 rows containing missing values ('geom_line()').

Plot 45: Racial Disparities in Annualized HIV Incidence Rate



```

# # Relative Incidence Plots
# annual_incid2 <- annual_incid2 %>%
#   mutate(rel.incid.BW = total.incid.B/total.incid.W,
#         rel.incid.HW = total.incid.H/total.incid.W,
#         #
#         rel.incid.rate.BW = total.incid.rate.B/total.incid.rate.W,
#         rel.incid.rate.HW = total.incid.rate.H/total.incid.rate.W)
#
# i = i+1
# data = annual_incid
#           var = c("rel.incid.HW", "rel.incid.BW")
#           group = "sim"
#
#
# # Create placeholder of variable we need
# data2 <- data[, c("time", group, var)]
# data3 <- data2 %>%
#   tidyr::pivot_longer(cols = var, names_to = "Race", values_to = "val") %>%
#   mutate(Race = case_when(str_detect(Race, "BW") ~ "Black/White",
#                           str_detect(Race, "HW") ~ "Hispanic/White")) %>%
#   rename(Treatment = sim)
#
# data3 %>%
#   group_by(Treatment, time, Race) %>%
#   summarize(this_var = mean(val)) %>%
#   dplyr::ungroup() %>%
#   ggplot(aes(x = time, y = this_var, color = Treatment, fill = Treatment)) +
#   geom_line(aes(linetype = Race, color = Treatment)) +
#   theme_minimal() +
#   labs(y = "Relative Annualized Incidence Rate",
#        x = "Time (Weeks)") +
#   ggtitle(paste("Plot ", i, ": Racial Disparities in Relative HIV Incidence", sep = ""))
#
# ##### Incidence Rate
#
# i = i+1
# data = annual_incid
#           var = c("rel.incid.rate.HW", "rel.incid.rate.BW")
#           group = "sim"
#
#
# # Create placeholder of variable we need
# data2 <- data[, c("time", group, var)]
# data3 <- data2 %>%
#   tidyr::pivot_longer(cols = var, names_to = "Race", values_to = "val") %>%
#   mutate(Race = case_when(str_detect(Race, "BW") ~ "Black/White",
#                           str_detect(Race, "HW") ~ "Hispanic/White")) %>%
#   rename(Treatment = sim)
#
# data3 %>%
#   group_by(Treatment, time, Race) %>%
#   summarize(this_var = mean(val)) %>%
#   dplyr::ungroup()

```

```

#     ggplot(aes(x = time, y = this_var, color = Treatment, fill = Treatment)) +
#     geom_line(aes(linetype = Race, color = Treatment)) +
#     theme_minimal() +
#     labs(y = "Relative Annualized Incidence Rate",
#          x = "Time (Weeks)") +
#     ggtitle(paste("Plot ", i, ": Racial Disparities in Relative HIV Incidence", sep = ""))

```

```

i = i+1
data = annual_incid
      var = c("total.incid.B", "total.incid.H", "total.incid.O", "total.incid.W")
      group = "treat"

# Create placeholder of variable we need
data2 <- data[, c("time", group, var)]
data3 <- data2 %>%
  tidyr::pivot_longer(cols = all_of(var), names_to = "Race", values_to = "val") %>%
  mutate(Race = case_when(str_detect(Race, "W$") ~ "White",
                          str_detect(Race, "B$") ~ "Black",
                          str_detect(Race, "H$") ~ "Hispanic",
                          str_detect(Race, "O$") ~ "Other",
                          TRUE ~ NA)) %>%
  rename(Treatment = treat)

data3 %>%
#   filter(Treatment == "Venues" | Treatment == "Control Model") %>%
  group_by(Treatment, time, Race) %>%
  summarize(this_var = mean(val)) %>%
  dplyr::ungroup() %>%
  ggplot(aes(x = time, y = this_var, color = Race, fill = Treatment)) +
  geom_line(aes(linetype = Treatment, color = Race)) +
  theme_minimal() +
  labs(y = "Annualized Incidence Rate (x 1000)",
       x = "Time (Weeks)") +
  ggtitle(paste("Plot ", i, ": Incidence Rate", sep = ""))

```

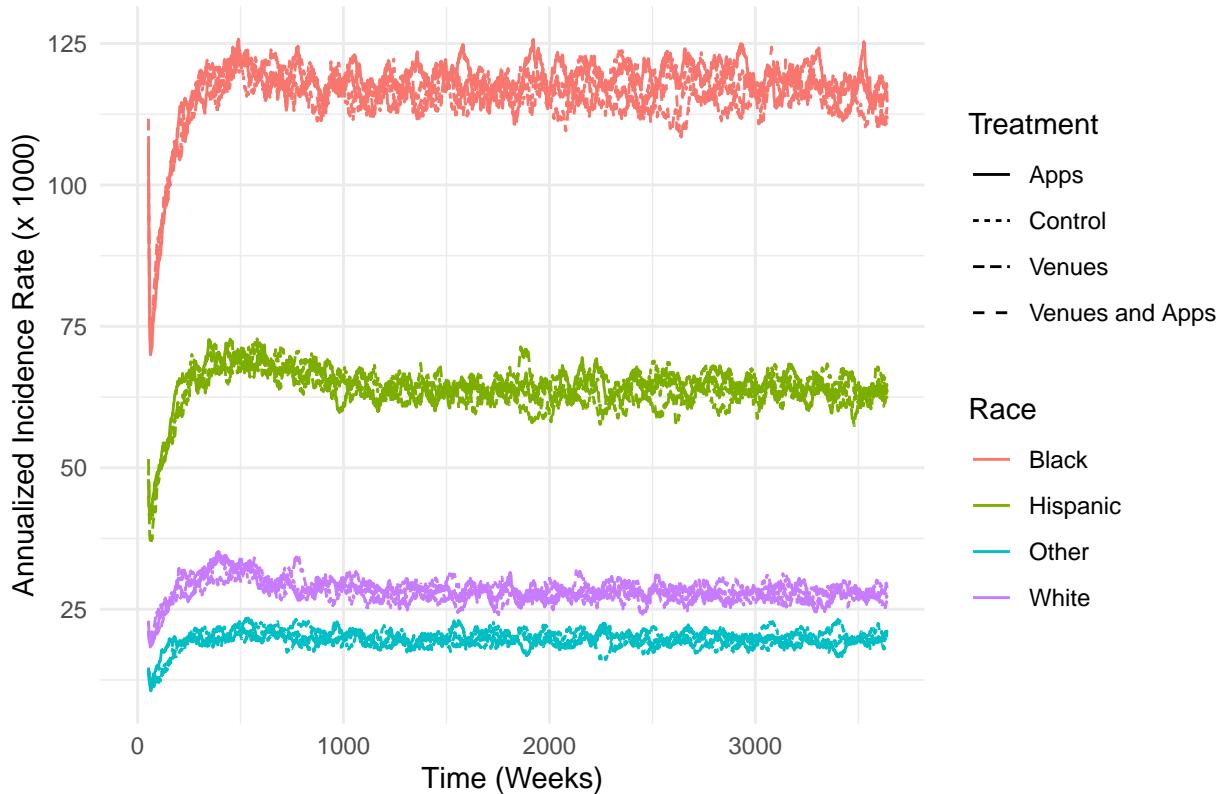
```

## `summarise()` has grouped output by 'Treatment', 'time'. You can override using
## the '.groups' argument.

## Warning: Removed 832 rows containing missing values ('geom_line()').

```

Plot 46: Incidence Rate



```
i = i+1
data = annual_incid
  var = c("incid.B", "incid.H", "incid.O", "incid.W")
  group = "treat"

# Create placeholder of variable we need
data2 <- data[, c("time", group, var)]
data3 <- data2 %>%
  tidyr::pivot_longer(cols = all_of(var), names_to = "Race", values_to = "val") %>%
  mutate(Race = case_when(str_detect(Race, "W$") ~ "White",
                          str_detect(Race, "B$") ~ "Black",
                          str_detect(Race, "H$") ~ "Hispanic",
                          str_detect(Race, "O$") ~ "Other",
                          TRUE ~ NA)) %>%
  rename(Treatment = treat)

data3 %>%
  filter(Treatment == "Venues and Apps" | Treatment == "Control") %>%
  group_by(Treatment, time, Race) %>%
  summarize(this_var = mean(val)) %>%
  dplyr::ungroup() %>%
  ggplot(aes(x = time, y = this_var, color = Race, fill = Treatment)) +
  geom_line(aes(linetype = Treatment, color = Race)) +
  theme_minimal() +
  labs(y = "Annualized Incidence Rate (x 1000)",
       x = "Time (Weeks)") +
```

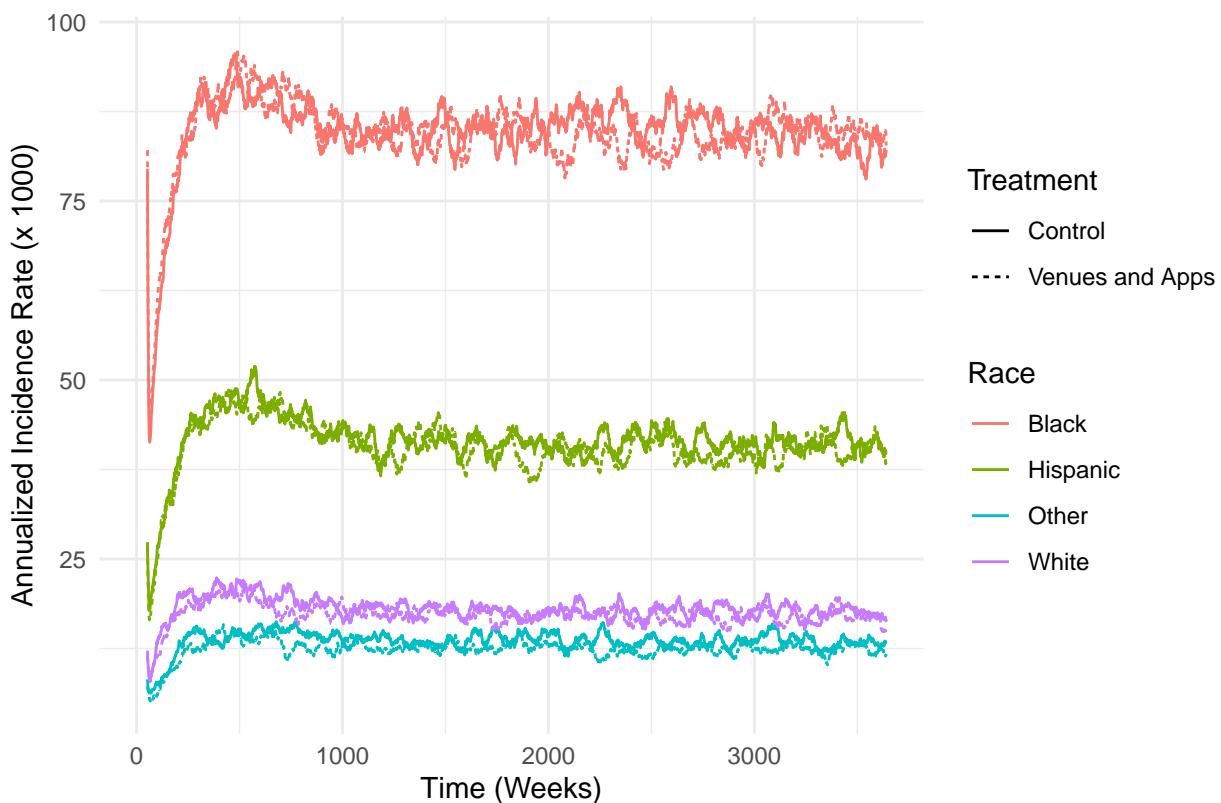
```

ggtitle(paste("Plot ", i, ": Incidence Rate", sep = ""))
## `summarise()` has grouped output by 'Treatment', 'time'. You can override using
## the '.groups' argument.

## Warning: Removed 416 rows containing missing values ('geom_line()').

```

Plot 47: Incidence Rate



```

i = i+1
data = annual_incid2 %>% dplyr::filter(time > max(time)-520) %>%
  dplyr::mutate(time = time-min(time))
var = c("ir100.B", "ir100.H", "ir100.O", "ir100.W")
group = "treat"

# Create placeholder of variable we need
data2 <- data[, c("time", group, var)]
data3 <- data2 %>%
  tidyr::pivot_longer(cols = all_of(var), names_to = "Race", values_to = "val") %>%
  mutate(Race = case_when(str_detect(Race, "W$") ~ "White",
                          str_detect(Race, "B$") ~ "Black",
                          str_detect(Race, "H$") ~ "Hispanic",
                          str_detect(Race, "O$") ~ "Other",
                          TRUE ~ NA)) %>%
  rename(Treatment = treat)

```

```

data3 %>%
  filter(Treatment == "Venues and Apps" | Treatment == "Control") %>%
  group_by(Treatment, time, Race) %>%
  summarize(this_var = mean(val)) %>%
  dplyr::ungroup() %>%
  ggplot(aes(x = time, y = this_var, color = Race, fill = Treatment)) +
  geom_line(aes(linetype = Treatment, color = Race)) +
  theme_minimal() +
  labs(y = "Annualized Incidence Rate (x 100)",
       x = "Time (Weeks)") +
  ggtitle(paste("Differences in Annualized Incidence Rate by Treatment", sep = ""))

```

`summarise()` has grouped output by 'Treatment', 'time'. You can override using
the '.groups' argument.

Differences in Annualized Incidence Rate by Treatment

