

# RAKAI REGRESSION UPDATES

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```
library(tidyverse)
library(broom)
library(finalfit)
library(MASS)
library(conflicted)
library(gtsummary)
library(gt)
library(flextable)
conflict_prefer("select", "dplyr")
conflict_prefer("filter", "dplyr")
```

## Combined Forest Plot of Univariable and Multivariable Regressions with Viraemia after Covid as Outcome

```
df_viraemia <- read_rds("df_viraemia.rds") %>%
  drop_na()

# missing_glimpse(df_viraemia)
# ff_glimpse(df_viraemia)
```

Multivariate negative binomial regression with viraemia after covid as outcome and summarise the prevalence ratios and confidence intervals into a table.

```
model_viraemia_multivariate <-df_viraemia %>%
glm.nb(viraemia_after_dum ~ any_disruption_after + any_disruption_b4 + sex +
age_cat+ mobility+community_type + art_duration, data = .)

viraemia_multivariate_df <- model_viraemia_multivariate %>%
```

```

tidy(exponentiate = TRUE, conf.int = TRUE) %>%
mutate(model = "Adjusted") %>%
select(term, model, estimate, conf.low, conf.high) %>%
mutate(across(where(is.numeric), \(x) round(x, 2))) %>%
  dplyr:: filter(term != "(Intercept)")

viraemia_multivariate_df

```

term	model	estimate	conf.low	conf.high
any_disruption_after	Adjusted	1.48	0.92	2.30
any_disruption_b4	Adjusted	1.40	0.68	2.64
sexMale	Adjusted	2.26	1.59	3.23
age_cat<30	Adjusted	5.76	3.42	9.89
age_cat30-39	Adjusted	2.73	1.72	4.46
mobilityLong-term resident	Adjusted	1.09	0.73	1.66
community_typeFishing community	Adjusted	1.16	0.81	1.67
art_duration2-5 years	Adjusted	1.45	0.72	3.32
art_duration>5 years	Adjusted	1.21	0.61	2.78

Univariate negative binomial regression with viraemia after covid as outcome and summarise the prevalence ratios and confidence intervals into a table.

```

explanatory_vars <- c("any_disruption_after", "any_disruption_b4", "sex", "age_cat", "mobility")

dependent_var <- "viraemia_after_dum"

viraemia_univariate_df <- explanatory_vars %>%
  str_c("viraemia_after_dum ~ ", .) %>%
  map(
    .f = ~glm.nb(
      formula = as.formula(.x),
      data = df_viraemia)
  ) %>%
  map(
    .f = ~tidy(.x, exponentiate = TRUE, conf.int = TRUE)
  ) %>%
  bind_rows() %>%
  mutate(across(where(is.numeric), \(x) round(x, 2)),
    model = "Unadjusted") %>%
  filter(term != "(Intercept)") %>%

```

```
select(term,model,estimate,conf.low,conf.high)
```

```
viraemia_univariate_df
```

term	model	estimate	conf.low	conf.high
any_disruption_after	Unadjusted	1.68	1.09	2.51
any_disruption_b4	Unadjusted	1.87	0.95	3.31
sexMale	Unadjusted	1.85	1.32	2.60
age_cat<30	Unadjusted	4.85	2.98	8.09
age_cat30-39	Unadjusted	2.67	1.70	4.33
mobilityLong-term resident	Unadjusted	0.87	0.59	1.30
community_typeFishing community	Unadjusted	1.50	1.06	2.14
art_duration2-5 years	Unadjusted	1.37	0.70	3.12
art_duration>5 years	Unadjusted	0.84	0.43	1.88

```
# combine univariate and multivariate model dataframes into one dataframe
```

```
viraemia_forest_df <- bind_rows(viraemia_univariate_df,viraemia_multivariate_df)%>% mutate(
  term == "any_disruption_after" ~ "ART Disruption After (Yes)",
  term == "any_disruption_b4" ~ "ART Disruption Before (Yes)",
  term == "sexMale" ~ "Sex (Male vs Female)",
  term == "age_cat<30" ~ "Age: <30 vs 40-49",
  term == "age_cat30-39" ~ "Age: 30-39 vs 40-49",
  term == "mobilityLong-term resident" ~ "Mobility (Long-term Resident)",
  term == "community_typeFishing community" ~ "Community Type (Fishing)",
  term == "art_duration2-5 years" ~ "ART Duration: 2-5 years",
  term == "art_duration>5 years" ~ "ART Duration: >5 years",
  term == "viraemia_b4_dum" ~ "Viraemia before Covid",
  TRUE ~ term
)) %>%
  arrange(desc(estimate))
```

```
viraemia_forest_df
```

term	model	estimate	conf.low	conf.high
Age: <30 vs 40-49	Adjusted	5.76	3.42	9.89
Age: <30 vs 40-49	Unadjusted	4.85	2.98	8.09
Age: 30-39 vs 40-49	Adjusted	2.73	1.72	4.46
Age: 30-39 vs 40-49	Unadjusted	2.67	1.70	4.33

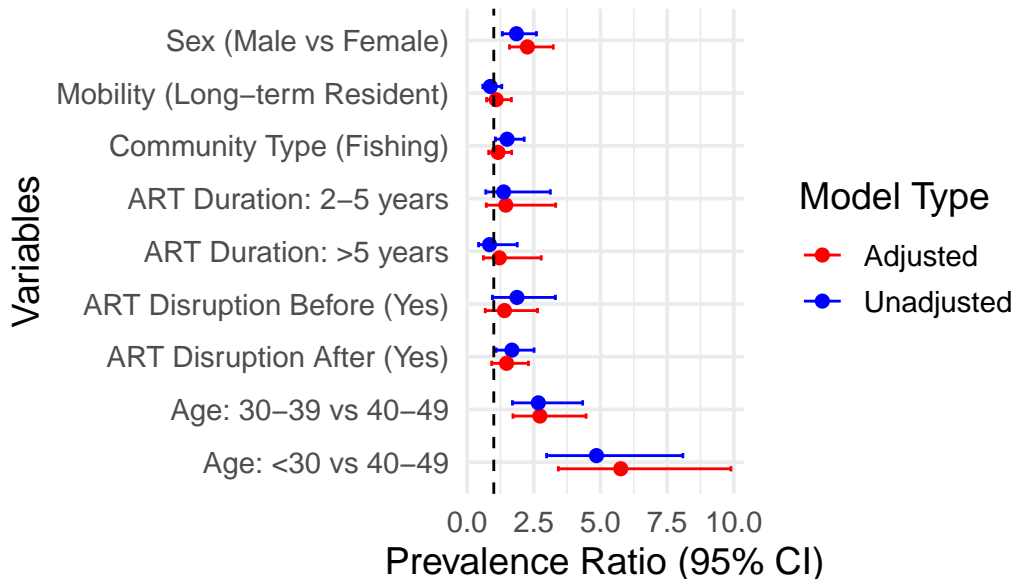
term	model	estimate	conf.low	conf.high
Sex (Male vs Female)	Adjusted	2.26	1.59	3.23
ART Disruption Before (Yes)	Unadjusted	1.87	0.95	3.31
Sex (Male vs Female)	Unadjusted	1.85	1.32	2.60
ART Disruption After (Yes)	Unadjusted	1.68	1.09	2.51
Community Type (Fishing)	Unadjusted	1.50	1.06	2.14
ART Disruption After (Yes)	Adjusted	1.48	0.92	2.30
ART Duration: 2-5 years	Adjusted	1.45	0.72	3.32
ART Disruption Before (Yes)	Adjusted	1.40	0.68	2.64
ART Duration: 2-5 years	Unadjusted	1.37	0.70	3.12
ART Duration: >5 years	Adjusted	1.21	0.61	2.78
Community Type (Fishing)	Adjusted	1.16	0.81	1.67
Mobility (Long-term Resident)	Adjusted	1.09	0.73	1.66
Mobility (Long-term Resident)	Unadjusted	0.87	0.59	1.30
ART Duration: >5 years	Unadjusted	0.84	0.43	1.88

```

ggplot(viraemia_forest_df, aes(x = term, y = estimate, color = model)) +
  geom_point(position = position_dodge(width = 0.5), size = 2) +
  geom_errorbar(aes(ymin = conf.low, ymax = conf.high),
                position = position_dodge(width = 0.5), width = 0.2) +
  geom_hline(yintercept = 1, linetype = "dashed", color = "black") +
  coord_flip() + # Flip coordinates for better readability
  scale_color_manual(values = c("Unadjusted" = "blue", "Adjusted" = "red")) +
  labs(title = "Forest Plot of Prevalence Ratios",
       x = "Variables",
       y = "Prevalence Ratio (95% CI)",
       color = "Model Type") +
  theme_minimal(base_size = 14)

```

## Forest Plot of Prevalence Rat



## Stratification by Sex

```
model_viraemia_sex <- df_viraemia %>%
  group_by(sex) %>%
  nest() %>%
  mutate(
    model = map(data, ~ glm.nb(viraemia_after_dum ~ any_disruption_after +
      any_disruption_b4 + age_cat + mobility +
      community_type + art_duration,
      data = .x)),
    results = map(model, ~ tidy(.x, exponentiate = TRUE, conf.int = TRUE))
  ) %>%
  unnest(cols = results) %>%
  select(sex, term, estimate, conf.low, conf.high) %>%
  mutate(across(where(is.numeric), \(x) round(x, 2))) %>%
  dplyr:: filter(term != "(Intercept)")
```

```
sex_forest_df <- model_viraemia_sex %>%
  mutate(term = case_when(
    term == "any_disruption_after" ~ "ART Disruption After (Yes)",
    term == "any_disruption_b4" ~ "ART Disruption Before (Yes)",
```

```

term == "sexMale" ~ "Sex (Male vs Female)",
term == "age_cat<30" ~ "Age: <30 vs 40-49",
term == "age_cat30-39" ~ "Age: 30-39 vs 40-49",
term == "mobilityLong-term resident" ~ "Mobility (Long-term Resident)",
term == "community_typeFishing community" ~ "Community Type (Fishing)",
term == "art_duration2-5 years" ~ "ART Duration: 2-5 years",
term == "art_duration>5 years" ~ "ART Duration: >5 years",
term == "viraemia_b4_dum" ~ "Viraemia before Covid",
TRUE ~ term
)) %>%
  arrange(desc(estimate))

sex_forest_df

```

sex	term	estimate	conf.low	conf.high
Female	Age: <30 vs 40-49	5.91	2.73	14.24
Male	Age: <30 vs 40-49	4.84	2.18	10.48
Male	Age: 30-39 vs 40-49	3.10	1.76	5.75
Male	ART Duration: >5 years	2.40	0.71	14.99
Female	Age: 30-39 vs 40-49	2.35	1.10	5.60
Male	ART Duration: 2-5 years	2.26	0.66	14.20
Male	ART Disruption After (Yes)	1.83	0.91	3.43
Male	Mobility (Long-term Resident)	1.78	0.90	4.08
Male	ART Disruption Before (Yes)	1.46	0.52	3.53
Female	Community Type (Fishing)	1.30	0.79	2.17
Female	ART Disruption After (Yes)	1.24	0.63	2.28
Female	ART Disruption Before (Yes)	1.22	0.40	2.96
Female	ART Duration: 2-5 years	1.21	0.53	3.27
Male	Community Type (Fishing)	0.92	0.55	1.59
Female	Mobility (Long-term Resident)	0.85	0.50	1.45
Female	ART Duration: >5 years	0.80	0.35	2.15

```

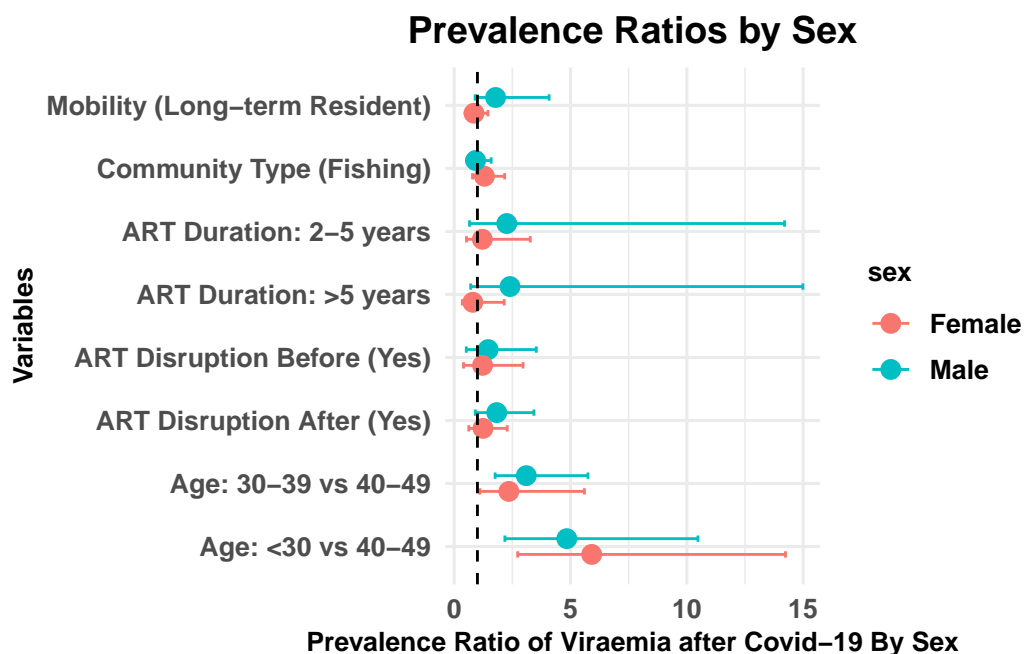
ggplot(sex_forest_df, aes(x = term, y = estimate, color = sex)) +
  geom_point(position = position_dodge(width = 0.5), size = 3) +
  geom_errorbar(aes(ymin = conf.low, ymax = conf.high),
               position = position_dodge(width = 0.5), width = 0.2) +
  geom_hline(yintercept = 1, linetype = "dashed", color = "black") +
  coord_flip() +
  labs(
    title = "Prevalence Ratios by Sex",

```

```

x = "Variables",
y = "Prevalence Ratio of Viraemia after Covid-19 By Sex"
) +
theme_minimal(base_size = 12) +
theme(
  plot.title = element_text(face = "bold", size = 14, hjust = 0.5),
  axis.text = element_text(face = "bold", size = 10),
  axis.title = element_text(face = "bold", size = 10),
  legend.text = element_text(face = "bold", size = 10),
  legend.title = element_text(face = "bold", size = 10)
)

```



### Univariable and Multivariable Regressions with ART Disruption as Outcome

Multivariate negative binomial regression with any ART disruption after covid as outcome and summarise the prevalence ratios and confidence intervals into a table.

```

model_disruption_multivariate <- df_viraemia %>%
  glm.nb(any_disruption_after ~ any_disruption_b4 + sex +
    age_cat+ mobility+community_type + art_duration + viraemia_b4_dum, data = .)

```

```

disruption_multivariate_df <- model_disruption_multivariate %>%
  tidy(exponentiate = TRUE, conf.int = TRUE) %>%
  mutate(model = "Adjusted") %>%
  select(term, model, estimate, conf.low, conf.high) %>%
mutate(across(where(is.numeric), \(x) round(x, 2))) %>%
  dplyr:: filter(term != "(Intercept)")

```

disruption\_multivariate\_df

term	model	estimate	conf.low	conf.high
any_disruption_b4	Adjusted	5.61	4.34	7.16
sexMale	Adjusted	0.76	0.60	0.95
age_cat<30	Adjusted	1.03	0.75	1.42
age_cat30-39	Adjusted	1.17	0.93	1.49
mobilityLong-term resident	Adjusted	0.73	0.58	0.92
community_typeFishing community	Adjusted	1.55	1.24	1.93
art_duration2-5 years	Adjusted	0.75	0.50	1.15
art_duration>5 years	Adjusted	0.66	0.45	1.00
viraemia_b4_dum	Adjusted	1.29	0.85	1.88

Univariate negative binomial regression with any ART disruption after covid as outcome and summarise the prevalence ratios and confidence intervals into a table.

```

explanatory_vars <- c("any_disruption_b4", "sex", "age_cat", "mobility", "community_type", "art_
dependent_var <- "art_disruption_after"

```

```

disruption_univariate_df <- explanatory_vars %>%
  str_c("any_disruption_after ~ ", .) %>%
  map(
    .f = ~glm.nb(
      formula = as.formula(.x),
      data = df_viraemia)
  ) %>%
  map(
    .f = ~tidy(.x, exponentiate = TRUE, conf.int = TRUE)
  ) %>%
  bind_rows() %>%

```



```
mutate(across(where(is.numeric), \(x) round(x,2)),
       model = "Unadjusted") %>%
filter(term != "(Intercept)") %>%
select(term,model,estimate,conf.low,conf.high)
```

disruption\_univariate\_df

term	model	estimate	conf.low	conf.high
any_disruption_b4	Unadjusted	6.09	4.75	7.72
sexMale	Unadjusted	0.79	0.63	0.98
age_cat<30	Unadjusted	1.56	1.16	2.08
age_cat30-39	Unadjusted	1.42	1.13	1.79
mobilityLong-term resident	Unadjusted	0.57	0.46	0.71
community_typeFishing community	Unadjusted	1.61	1.30	2.00
art_duration2-5 years	Unadjusted	0.83	0.56	1.27
art_duration>5 years	Unadjusted	0.73	0.50	1.09
viraemia_b4_dum	Unadjusted	1.58	1.05	2.28

```
disruption_forest_df <- bind_rows(disruption_univariate_df,disruption_multivariate_df)%>%
mutate(term = case_when(
  term == "any_disruption_after" ~ "ART Disruption After (Yes)",
  term == "any_disruption_b4" ~ "ART Disruption Before (Yes)",
  term == "sexMale" ~ "Sex (Male vs Female)",
  term == "age_cat<30" ~ "Age: <30 vs 40-49",
  term == "age_cat30-39" ~ "Age: 30-39 vs 40-49",
  term == "mobilityLong-term resident" ~ "Mobility (Long-term Resident)",
  term == "community_typeFishing community" ~ "Community Type (Fishing)",
  term == "art_duration2-5 years" ~ "ART Duration: 2-5 years",
  term == "art_duration>5 years" ~ "ART Duration: >5 years",
  term == "viraemia_b4_dum" ~ "Viraemia before Covid",
  TRUE ~ term
)) %>%
arrange(desc(estimate))
```

disruption\_forest\_df

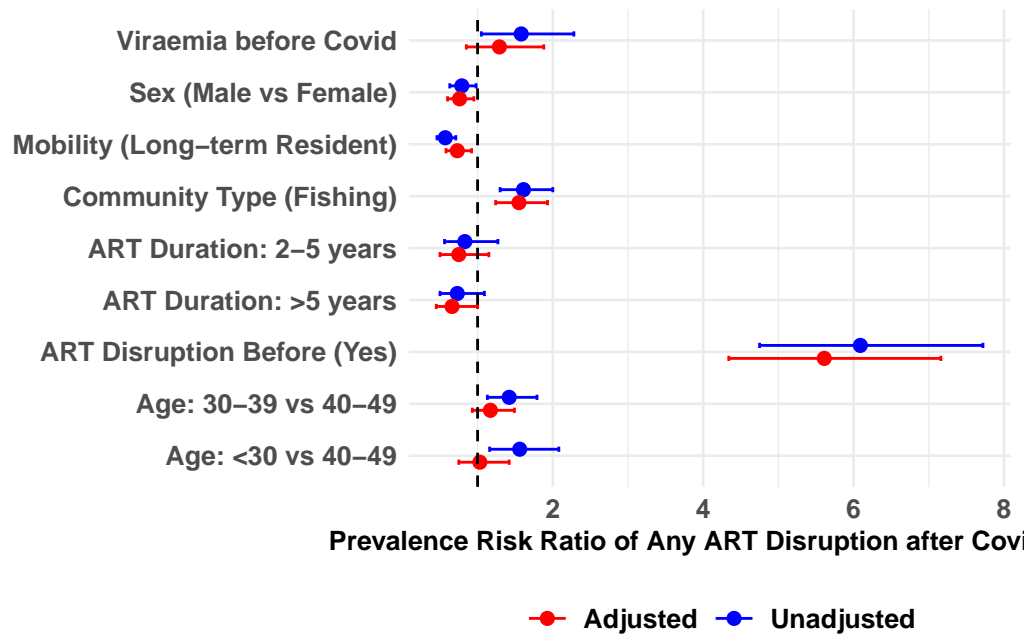
term	model	estimate	conf.low	conf.high
ART Disruption Before (Yes)	Unadjusted	6.09	4.75	7.72
ART Disruption Before (Yes)	Adjusted	5.61	4.34	7.16

term	model	estimate	conf.low	conf.high
Community Type (Fishing)	Unadjusted	1.61	1.30	2.00
Viraemia before Covid	Unadjusted	1.58	1.05	2.28
Age: <30 vs 40-49	Unadjusted	1.56	1.16	2.08
Community Type (Fishing)	Adjusted	1.55	1.24	1.93
Age: 30-39 vs 40-49	Unadjusted	1.42	1.13	1.79
Viraemia before Covid	Adjusted	1.29	0.85	1.88
Age: 30-39 vs 40-49	Adjusted	1.17	0.93	1.49
Age: <30 vs 40-49	Adjusted	1.03	0.75	1.42
ART Duration: 2-5 years	Unadjusted	0.83	0.56	1.27
Sex (Male vs Female)	Unadjusted	0.79	0.63	0.98
Sex (Male vs Female)	Adjusted	0.76	0.60	0.95
ART Duration: 2-5 years	Adjusted	0.75	0.50	1.15
ART Duration: >5 years	Unadjusted	0.73	0.50	1.09
Mobility (Long-term Resident)	Adjusted	0.73	0.58	0.92
ART Duration: >5 years	Adjusted	0.66	0.45	1.00
Mobility (Long-term Resident)	Unadjusted	0.57	0.46	0.71

```

ggplot(disruption_forest_df, aes(x = term, y = estimate, color = model)) +
  geom_point(position = position_dodge(width = 0.5), size = 2) +
  geom_errorbar(aes(ymin = conf.low, ymax = conf.high),
                position = position_dodge(width = 0.5), width = 0.2) +
  geom_hline(yintercept = 1, linetype = "dashed", color = "black") +
  coord_flip() +
  scale_color_manual(values = c("Unadjusted" = "blue", "Adjusted" = "red")) +
  labs(
    # title = "Forest Plot of Prevalence Ratios",
    x = " ",
    y = "Prevalence Risk Ratio of Any ART Disruption after Covid-19",
    color = " "
  ) +
  theme_minimal(base_size = 10) +
  theme(
    legend.position = "bottom",
    axis.text = element_text(face = "bold", size = 10),
    axis.title = element_text(face = "bold", size = 10),
    legend.text = element_text(face = "bold", size = 10),
    legend.title = element_text(face = "bold", size = 10)
  )

```



## Forest plots

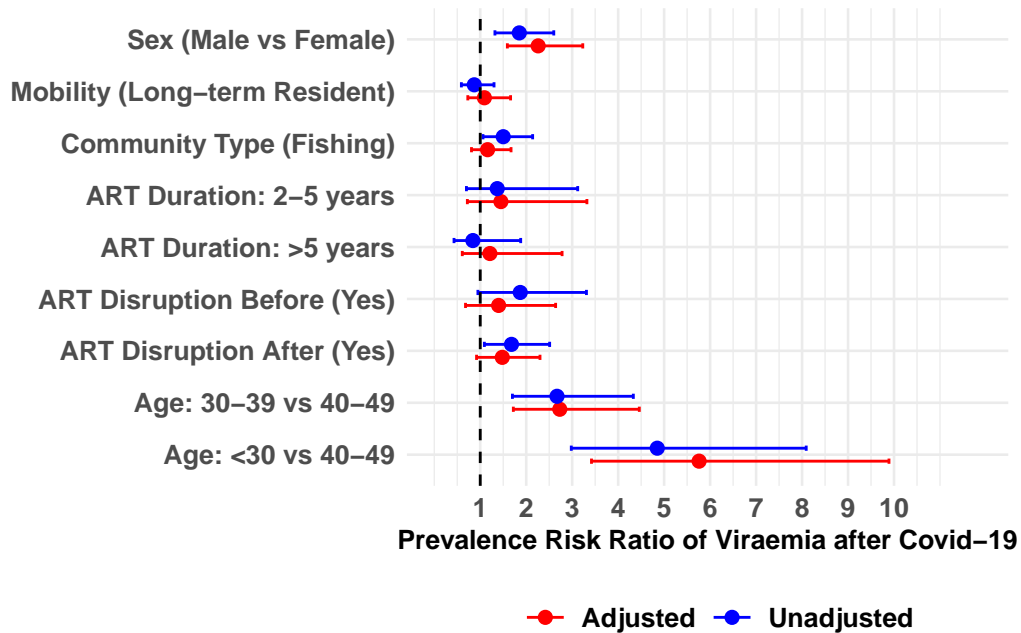
### Prevalence Risk Ratio of Viraemia after Covid-19

```
ggplot(viraemia_forest_df, aes(x = term, y = estimate, color = model)) +
  geom_point(position = position_dodge(width = 0.5), size = 2) +
  geom_errorbar(aes(ymin = conf.low, ymax = conf.high),
               position = position_dodge(width = 0.5), width = 0.2) +
  geom_hline(yintercept = 1, linetype = "dashed", color = "black") +
  coord_flip() +
  scale_y_continuous(breaks = c(1:max(viraemia_forest_df$conf.high + 1)),
                    limits = c(0, max(viraemia_forest_df$conf.high) + 2)) +
  scale_color_manual(values = c("Unadjusted" = "blue", "Adjusted" = "red")) +
  labs(
    # title = "Forest Plot of Prevalence Ratios",
    x = " ",
    y = "Prevalence Risk Ratio of Viraemia after Covid-19",
    color = " "
  ) +
  theme_minimal(base_size = 10) +
  theme(
    legend.position = "bottom",
```

```

axis.text = element_text(face = "bold", size = 10),
axis.title = element_text(face = "bold", size = 10),
legend.text = element_text(face = "bold", size = 10),
legend.title = element_text(face = "bold", size = 10)
)

```



### Prevalence Risk Ratio of Any ART Disruption After Covid-19

```

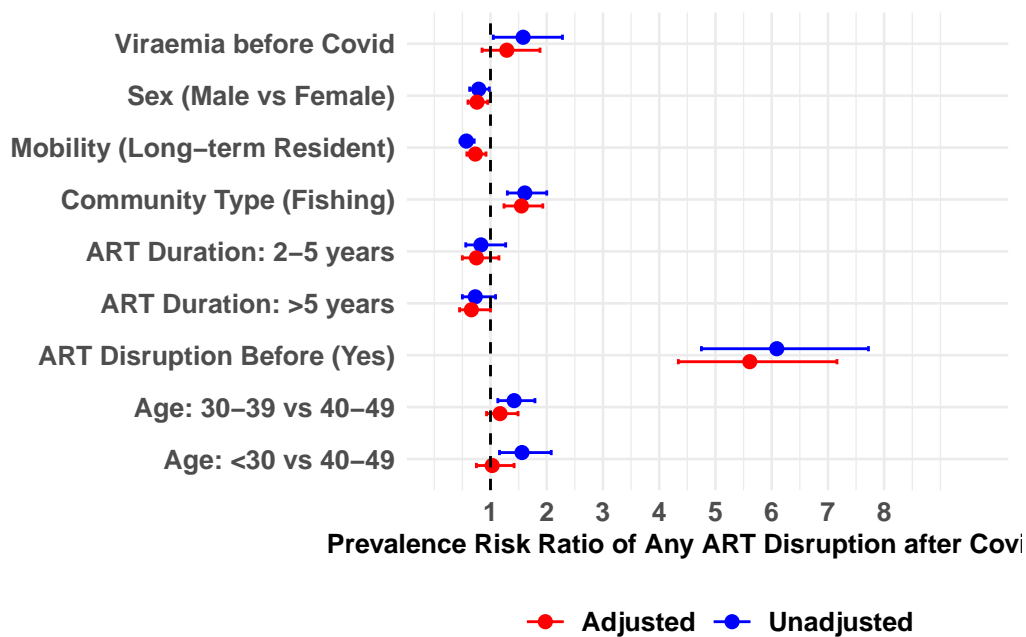
ggplot(disruption_forest_df, aes(x = term, y = estimate, color = model)) +
  geom_point(position = position_dodge(width = 0.5), size = 2) +
  geom_errorbar(aes(ymin = conf.low, ymax = conf.high),
               position = position_dodge(width = 0.5), width = 0.2) +
  geom_hline(yintercept = 1, linetype = "dashed", color = "black") +
  coord_flip() +
  scale_y_continuous(breaks = c(1:max(disruption_forest_df$conf.high + 1)),
                    limits = c(0, max(disruption_forest_df$conf.high) + 2)) +
  scale_color_manual(values = c("Unadjusted" = "blue", "Adjusted" = "red")) +
  labs(
    # title = "Forest Plot of Prevalence Ratios",
    x = " ",
    y = "Prevalence Risk Ratio of Any ART Disruption after Covid-19",
  )

```

```

    color = " "
  ) +
  theme_minimal(base_size = 10) +
  theme(
    legend.position = "bottom",
    axis.text = element_text(face = "bold", size = 10),
    axis.title = element_text(face = "bold", size = 10),
    legend.text = element_text(face = "bold", size = 10),
    legend.title = element_text(face = "bold", size = 10)
  )

```



### Prevalence Risk Ratio of Viraemia after Covid-19 By Sex

```

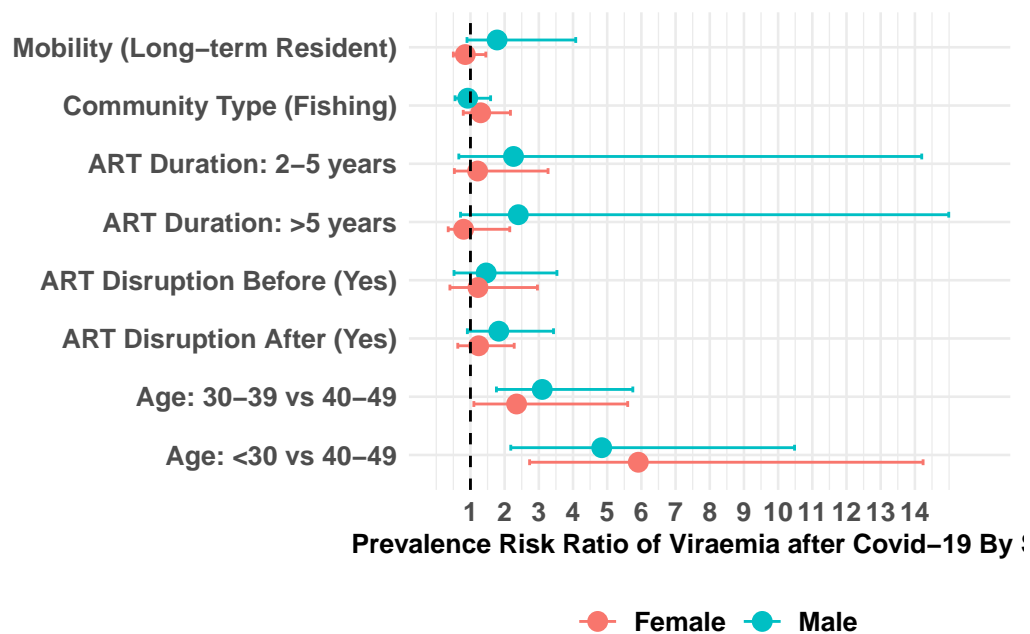
ggplot(sex_forest_df, aes(x = term, y = estimate, color = sex)) +
  geom_point(position = position_dodge(width = 0.5), size = 3) +
  geom_errorbar(aes(ymin = conf.low, ymax = conf.high),
    position = position_dodge(width = 0.5), width = 0.2) +
  geom_hline(yintercept = 1, linetype = "dashed", color = "black") +
  coord_flip() +
  scale_y_continuous(breaks = c(1:max(sex_forest_df$conf.high)),
    limits = c(0, max(sex_forest_df$conf.high) + 1)) +
  labs(

```

```

#title = "Prevalence Ratios by Sex",
x = "",
y = "Prevalence Risk Ratio of Viraemia after Covid-19 By Sex",
color = ""
) +
theme_minimal(base_size = 10) +
theme(
  legend.position = "bottom",
  plot.title = element_text(face = "bold", size = 14, hjust = 0.5),
  axis.text = element_text(face = "bold", size = 10),
  axis.title = element_text(face = "bold", size = 10),
  legend.text = element_text(face = "bold", size = 10),
  legend.title = element_text(face = "bold", size = 10)
)

```



## Regression Tables

### Any ART Disruption Post-Covid

Variable	ART DISRUPTION POST COVID		PREVALENCE RISK RATIOS	
	No N = 2,409 <sup>1</sup>	Yes N = 375 <sup>1</sup>	PRR (95% CI) <sup>2</sup>	AdjPRR (95% CI) <sup>2</sup>
<b>ART Disruption pre-covid</b>	<b>42 (1.7%)</b>	<b>84 (22%)</b>	<b>6.09 (4.75-7.72)</b>	<b>5.61 (4.34-7.16)</b>
<b>Viraemia pre-covid</b>	<b>107 (4.4%)</b>	<b>28 (7.5%)</b>	<b>1.58 (1.05-2.28)</b>	<b>1.29 (0.85-1.88)</b>
<b>Sex</b>				
<i>Female</i>	1,520 (63%)	259 (69%)	—	—
<b>Male</b>	<b>889 (37%)</b>	<b>116 (31%)</b>	<b>0.79 (0.63-0.98)</b>	<b>0.76 (0.60-0.95)</b>
<b>Age Group</b>				
<i>40-49</i>	1,026 (43%)	122 (33%)	—	—
<i>&lt;30</i>	362 (15%)	72 (19%)	1.56 (1.16-2.08)	1.03 (0.75-1.42)
<i>30-39</i>	1,021 (42%)	181 (48%)	1.42 (1.13-1.79)	1.17 (0.93-1.49)
<b>Mobility</b>				
<i>In-migrant</i>	502 (21%)	127 (34%)	—	—
<b>Long-term resident</b>	<b>1,907 (79%)</b>	<b>248 (66%)</b>	<b>0.57 (0.46-0.71)</b>	<b>0.73 (0.58-0.92)</b>
<b>Community type</b>				
<i>Inland community</i>	1,132 (47%)	127(34%)	—	—
<b>Fishing community</b>	<b>1,277 (53%)</b>	<b>248 (66%)</b>	<b>1.61 (1.30-2.00)</b>	<b>1.55 (1.24-1.93)</b>
<b>Time on ART</b>				
<i>&lt;2 years</i>	138 (5.7%)	29 (7.7%)	—	—
<i>2-5 years</i>	742 (31%)	125 (33%)	0.83 (0.56-1.27)	0.75 (0.50-1.15)
<i>&gt;5 years</i>	1,529 (63%)	221 (59%)	0.73 (0.50-1.09)	0.66 (0.45-1.00)
<sup>1</sup> n(%)				
<sup>2</sup> PRR= Prevalence Risk Ratio, CI= Confidence Interval				

## Viraemia Post-Covid

Variable	VIRAEMIA POST COVID		PREVALENCE RISK RATIOS	
	No N = 2,650 <sup>1</sup>	Yes N = 135 <sup>1</sup>	PRR (95% CI) <sup>2</sup>	AdjPRR (95% CI) <sup>2</sup>
<b>Any ART Disruption post-covid</b>				
No	2,303 (95.6%)	107 (4.4%)	—	—
Yes	347 (93%)	28 (7.5%)	1.68 (1.09-2.51)	1.48 (0.92-2.30)
<b>Any ART Disruption pre-covid</b>				
No	2,535 (95.3%)	124 (4.7%)	—	—
Yes	115 (91%)	11 (8.7%)	1.87 (0.95-3.31)	1.40 (0.68-2.64)
<b>Sex</b>				
Female	1,714 (96%)	66 (3.7%)	—	—
Male	936 (93%)	69 (6.9%)	1.85 (1.32-2.60)	2.27 (1.59-3.23)
<b>Age Group</b>				
<30	390 (90%)	44 (10%)	—	—
30-39	1,136 (94%)	67 (5.6%)	0.55 (0.38-0.81)	0.47 (0.32-0.71)
40-49	1,124 (98%)	24 (2.1%)	0.21 (0.12-0.34)	0.17 (0.10-0.29)
<b>Mobility</b>				
In-migrant	596 (95%)	34 (5.4%)	—	—
Long-term resident	2,054 (95%)	101 (4.7%)	0.87 (0.60-1.30)	1.09 (0.73-1.66)
<b>Community type</b>				
Inland community	1,212 (96%)	48 (3.8%)	—	—
Fishing community	1,438 (94%)	87 (5.7%)	1.50 (1.06-2.15)	1.16 (0.81-1.68)
<b>Time on ART</b>				
<2 years	160 (95%)	8 (4.8%)	—	—
2-5 years	810 (93%)	57 (6.6%)	1.38 (0.70-3.13)	1.45 (0.72-3.33)
>5 years	1,680 (96%)	70 (4.0%)	0.84 (0.43-1.89)	1.22 (0.61-2.79)
<sup>1</sup> n(%)				
<sup>2</sup> PRR= Prevalence Risk Ratio, CI= Confidence Interval				

## Viraemia Sex Stratification

```
sex_viraemia_table <- sex_forest_df %>%
  arrange(term, sex) %>%
  mutate(
    PRR_CI = paste0(estimate, " (", conf.low, " - ", conf.high, ")")
  )
```



## Prevalence Risk Ratios by Sex

Variable	Female PRR (95% CI)	Male PRR (95% CI)
ART Disruption After (Yes)	1.24 (0.63 - 2.28)	1.83 (0.91 - 3.43)
ART Disruption Before (Yes)	1.22 (0.4 - 2.96)	1.46 (0.52 - 3.53)
ART Duration: 2-5 years	1.21 (0.53 - 3.27)	2.26 (0.66 - 14.2)
ART Duration: >5 years	0.8 (0.35 - 2.15)	2.4 (0.71 - 14.99)
Age: 30-39 vs 40-49	2.35 (1.1 - 5.6)	3.1 (1.76 - 5.75)
Age: <30 vs 40-49	5.91 (2.73 - 14.24)	4.84 (2.18 - 10.48)
Community Type (Fishing)	1.3 (0.79 - 2.17)	0.92 (0.55 - 1.59)
Mobility (Long-term Resident)	0.85 (0.5 - 1.45)	1.78 (0.9 - 4.08)

```

) %>%
select(term, sex, PRR_CI) %>%
pivot_wider(names_from = sex, values_from = PRR_CI)

sex_viraemia_table %>%
gt() %>%
tab_header(
  title = "Prevalence Risk Ratios by Sex",
  #subtitle = "Comparison of Univariate Negative Binomial Models"
) %>%
cols_label(
  term = "Variable",
  Female = "Female PRR (95% CI)",
  Male = "Male PRR (95% CI)"
) %>%
tab_options(table.font.names = "Times New Roman") %>%
fmt_number(columns = 2:3, decimals = 2) %>%
opt_table_lines()

```

`sex_viraemia_table`

term	Female	Male
ART Disruption After (Yes)	1.24 (0.63 - 2.28)	1.83 (0.91 - 3.43)
ART Disruption Before (Yes)	1.22 (0.4 - 2.96)	1.46 (0.52 - 3.53)
ART Duration: 2-5 years	1.21 (0.53 - 3.27)	2.26 (0.66 - 14.2)
ART Duration: >5 years	0.8 (0.35 - 2.15)	2.4 (0.71 - 14.99)

term	Female	Male
Age: 30-39 vs 40-49	2.35 (1.1 - 5.6)	3.1 (1.76 - 5.75)
Age: <30 vs 40-49	5.91 (2.73 - 14.24)	4.84 (2.18 - 10.48)
Community Type (Fishing)	1.3 (0.79 - 2.17)	0.92 (0.55 - 1.59)
Mobility (Long-term Resident)	0.85 (0.5 - 1.45)	1.78 (0.9 - 4.08)

Characteristic	Female (N = 1,779)	Male (N = 1,005)	Female PRR (95% CI)	Male PRR (95% CI)
<b>Any ART Disruption Pre-COVID</b>	80 (4.5%)	46 (4.6%)	—	—
<b>Any ART Disruption</b>	259 (15%)	116 (12%)	1.24 (0.63 - 2.28)	1.83 (0.91 - 3.43)
<b>Age Group</b>				
40-49	648 (36%)	500 (50%)	—	—
<30	344 (19%)	90 (9.0%)	5.91 (2.73 - 14.24)	4.84 (2.18 - 10.48)
30-39	787 (44%)	415 (41%)	2.35 (1.1 - 5.6)	3.1 (1.76 - 5.75)
<b>Migration</b>				
In-migrant	457 (26%)	172 (17%)	—	—
Long-term resident	1,322 (74%)	833 (83%)	0.85 (0.5 - 1.45)	1.78 (0.9 - 4.08)
<b>Community Type</b>				
Inland Community	923 (52%)	336 (33%)	—	—
Fishing Community	856 (48%)	669 (67%)	1.30 (0.79 - 2.17)	0.92 (0.55 - 1.59)
<b>Time on ART</b>				
<2 years	116 (6.5%)	51 (5.1%)	—	—
2-5 years	519 (29%)	348 (35%)	1.21 (0.53 - 3.27)	2.26 (0.66 - 14.2)
>5 years	1,144 (64%)	606 (60%)	0.80 (0.35 - 2.15)	2.4 (0.71 - 14.99)
<b>Viraemia</b>				
Viraemia (Yes)	66 (3.7%)	69 (6.9%)	—	—