MORU Tropical Health Network

Basic R programing

11-12 Jan 2021

Lecture 3 (13:00-14:30): Graphics

Dr. Palang Chotsiri
palang@tropmedres.ac

Data exploration plots

- Using `ggplot2` library today

Advantages:

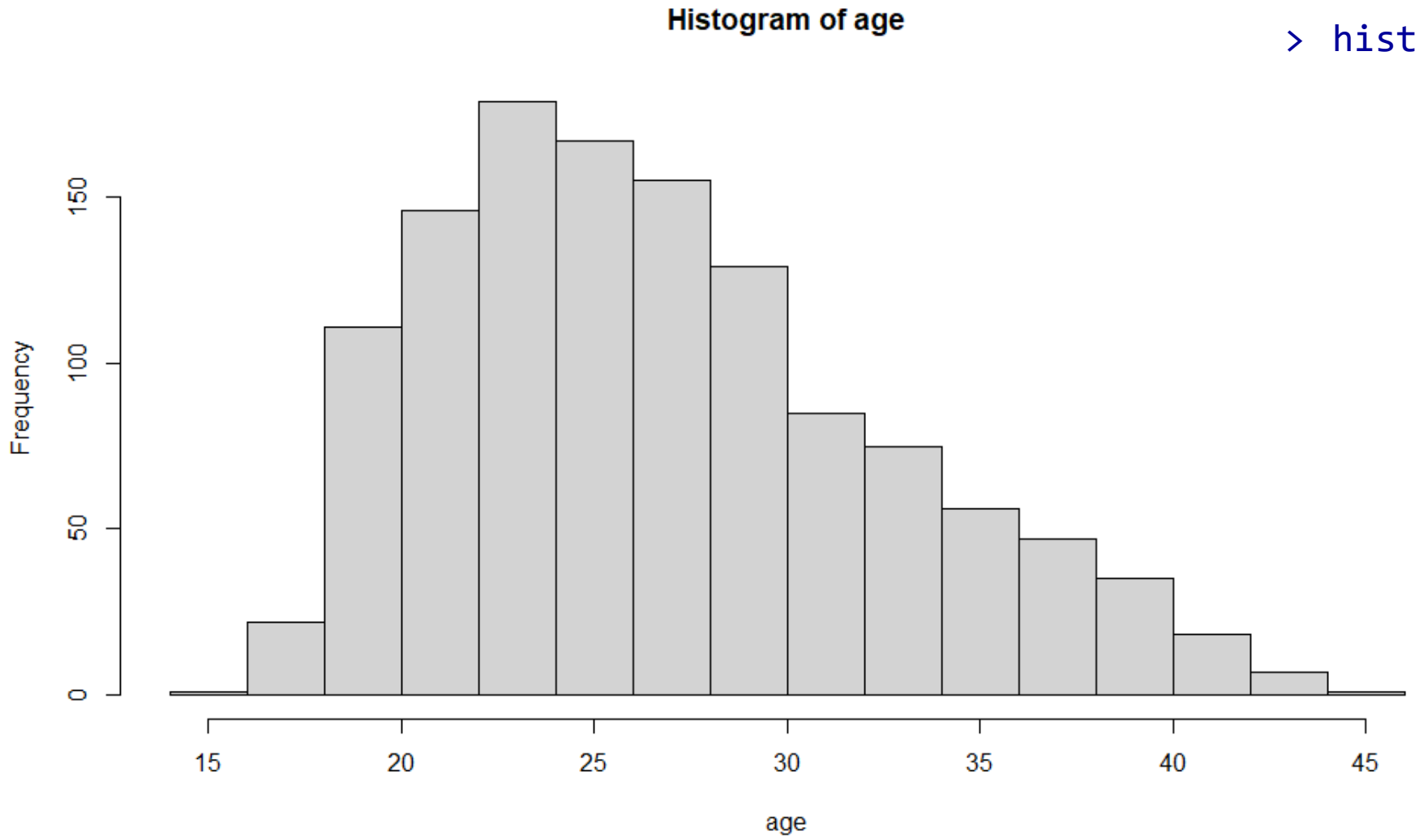
- Plot specification at a high level of abstraction
- Very flexible
- Theme system for polishing plot appearance
- Mature and complete graphics system
- Many users, active mailing list
- Lot's of online help available (StackOverflow, etc...)

Grammar of graphic

Describes all the non-data ink	Theme
Plotting space for the data	Coordinates
Statistical models & summaries	Statistics
Rows and columns of sub-plots	Facets
Shapes used to represent the data	Geometries
Scales onto which data is mapped	Aesthetics
The actual variables to be plotted	Data

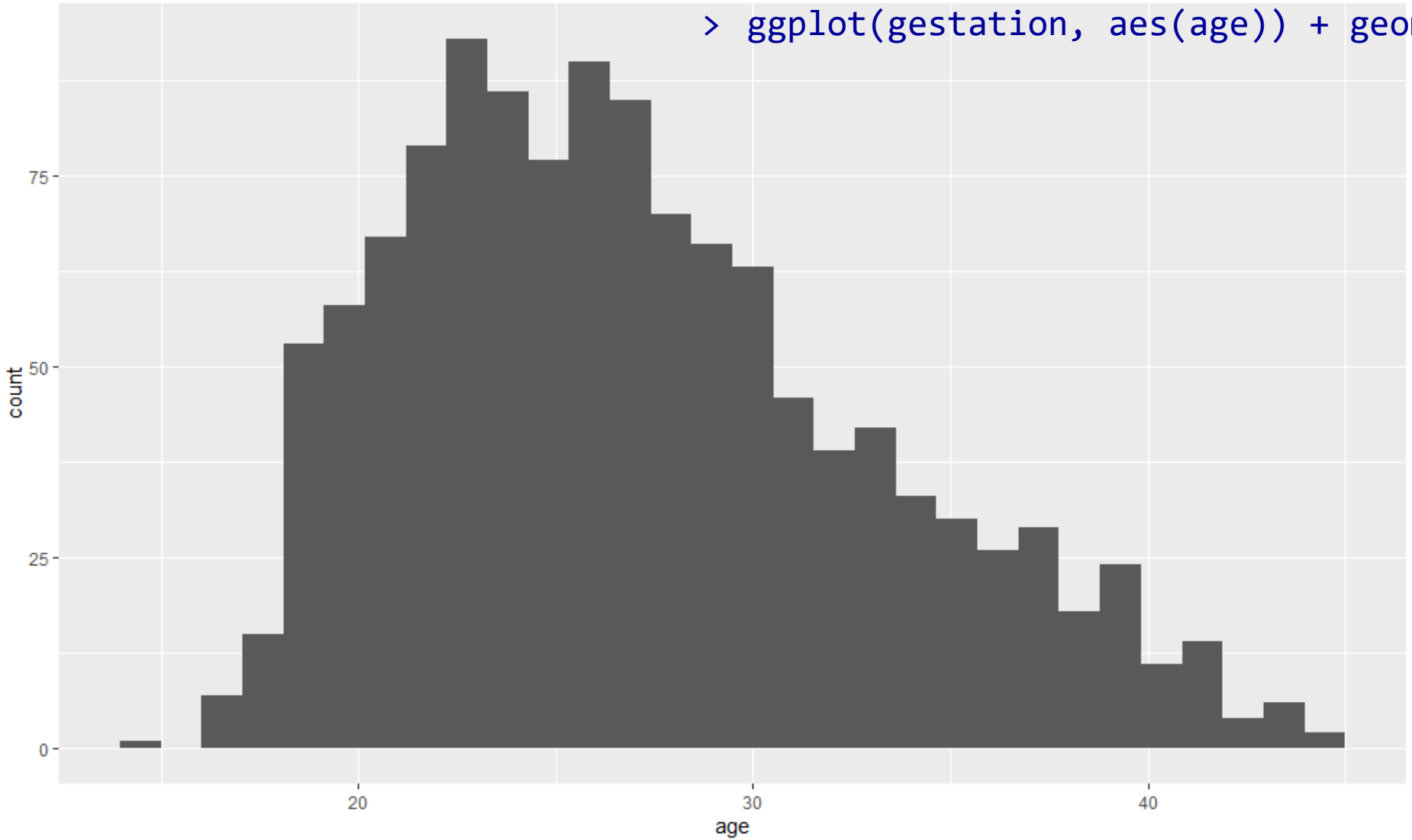
Histogram

```
> hist(age)
```

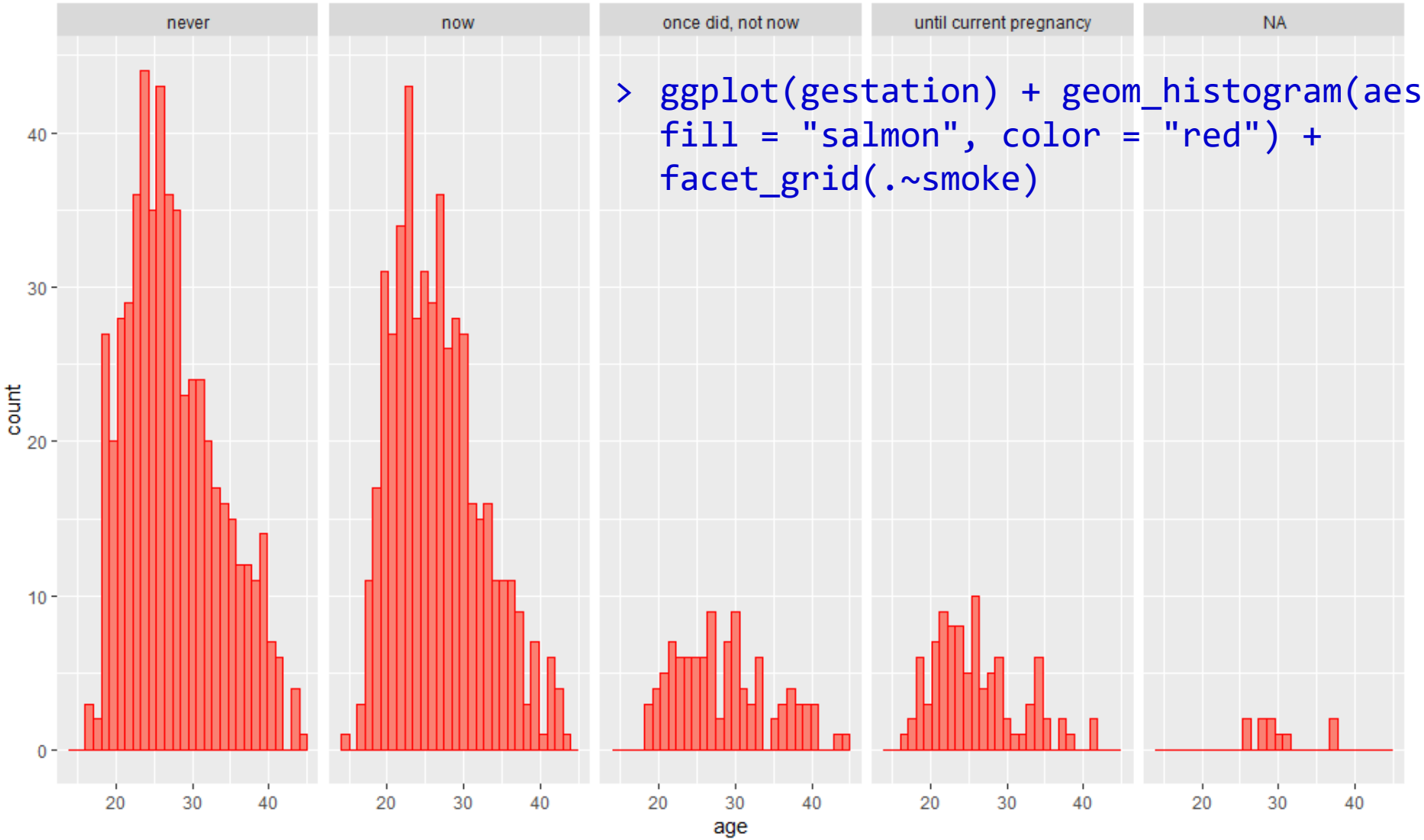


Histogram (ggplot)

```
> ggplot(gestation, aes(age)) + geom_histogram()
```

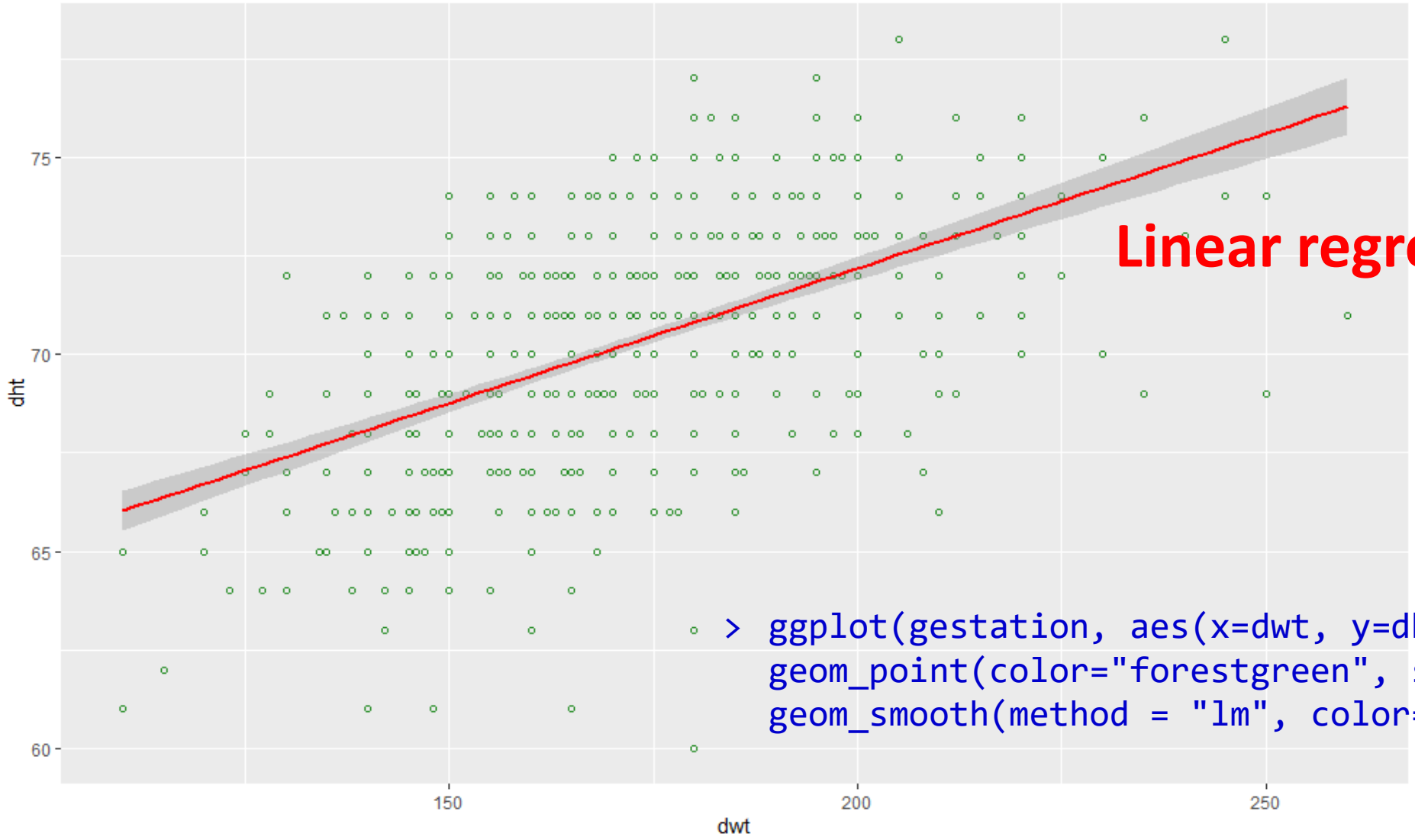


Histogram (ggplot) + facet




```
> ggplot(gestation) + geom_histogram(aes(x=age),
  fill = "salmon", color = "red") +
  facet_grid(.~smoke)
```

Points + stat



Linear regression

```
> ggplot(gestation, aes(x=dwt, y=dht)) +
  geom_point(color="forestgreen", shape=1) +
  geom_smooth(method = "lm", color="red")
```

Point + stat + scale


```
> ggplot(gestation, aes(x=dwt, y=dht)) +
  geom_point(color="forestgreen", shape=1) +
  geom_smooth(method = "lm", color="red") +
  scale_y_continuous(limits = c(65,75))
```

Point + stat + scale + theme


```
> ggplot(gestation, aes(x=dwt, y=dht)) +
  geom_point(color="forestgreen", shape=1) +
  geom_smooth(method = "lm", color="red") +
  scale_y_continuous(limits = c(65,75)) +
  theme_minimal()
```


Continue on R demo

MORU Tropical Health Network

Basic R programing

11-12 Jan 2021

Hand On Day 1 (14:45-16:00)

Dr. Palang Chotsiri
palang@tropmedres.ac

Hand On Day 1

- Instruction is the file “Hand_on_1.doc”
- We are working on the data called gbsg.csv

pid	patient identifier
age	age
meno	menopausal status (0= premenopausal, 1= postmenopausal)
size	tumor size
grade	tumor grade
nodes	number of positive lymph nodes
pgr	progesterone receptors (fmol/l)
er	estrogen receptors (fmol/l)
hormon	hormonal therapy, 0= no, 1= yes
rfstime	recurrence free survival time; days to first of recurrence, death or last follow-up
status	0= alive without recurrence, 1= recurrence or death

Hand On Day 1

- Solution: ***HandOn_day1_solution.R***

Day 1 Wrap-up

What did you learn today?