

# Sanity checks

## Sanity check data graphically

```
df <- read.data()

## These retrospective studies are losing eyes per period - not impossible, but unusual:
## Mathalone et al. (2005)
## Leelachaikul et al. (2005)
## Shoji et al. (2007)
## Liu et al. (2011)
## Arthur et al. (2014)
## Tetz et al. (2015)

## These retrospective studies are gaining eyes per period:
## Damji et al. (2006)
## Samuelson et al. (2011)*

N.B.:

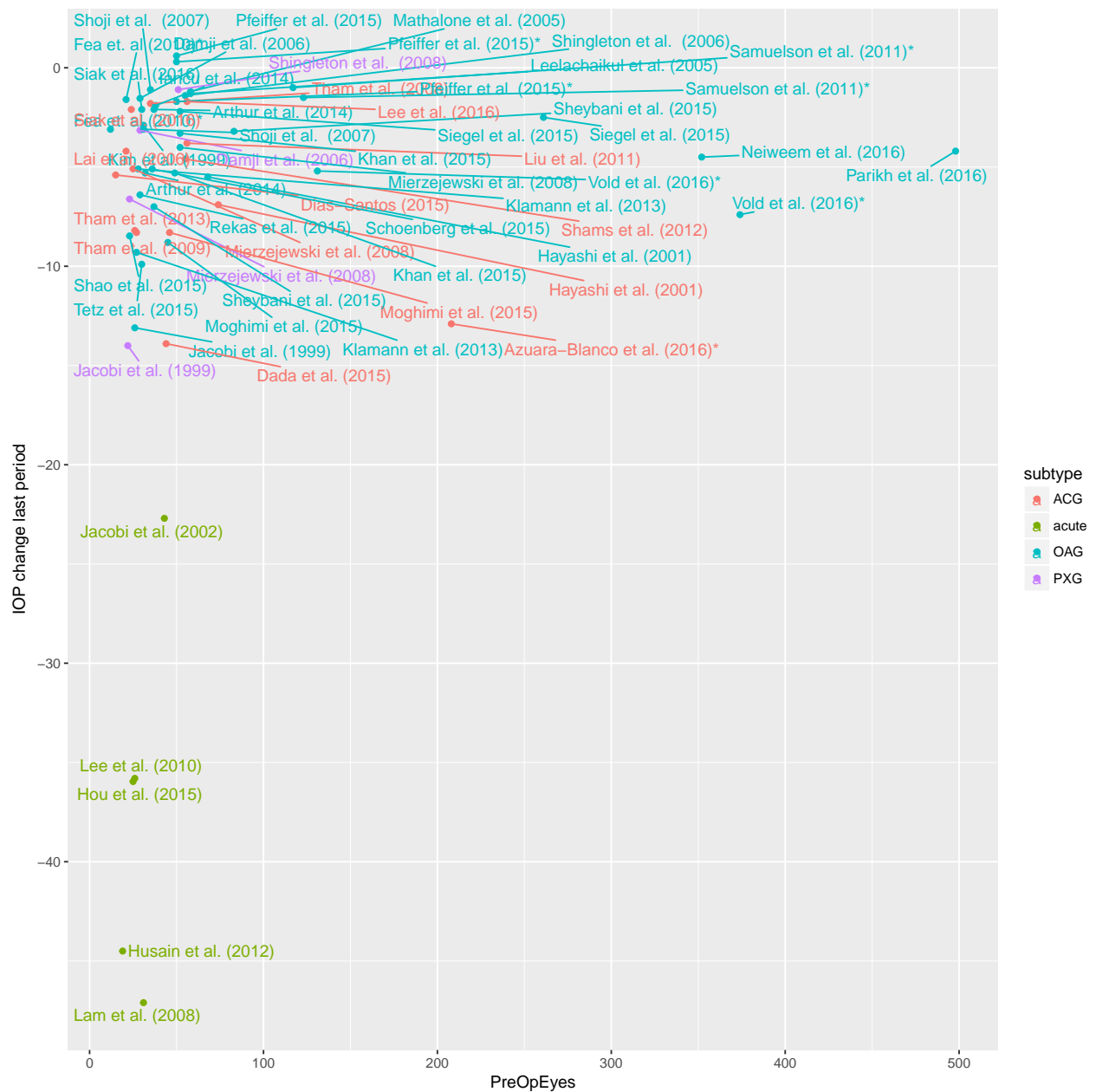

- Shoji is fine.
- Mathalone is fine.
- Liu is fine.

```

## Summary plot.

```
ggplot(df, aes(x = PreOpEyes, y =
  ifelse(!is.na>LastPeriodIOPMean) & !is.na(PreOpIOPMean),
  LastPeriodIOPMean - PreOpIOPMean,
  ifelse(!is.na>LastPeriodAbsIOPChangeMean),
  LastPeriodAbsIOPChangeMean,
  ifelse(!is.na>OneYAbsIOPChangeMean),
  OneYAbsIOPChangeMean,
  OneYIOPMean - PreOpIOPMean
  )))
  , label = study.name, color = subtype)) +
geom_point() + ylab('IOP change last period') + geom_text_repel()

## Warning: Removed 6 rows containing missing values (geom_point).
## Warning: Removed 6 rows containing missing values (geom_text_repel).
```

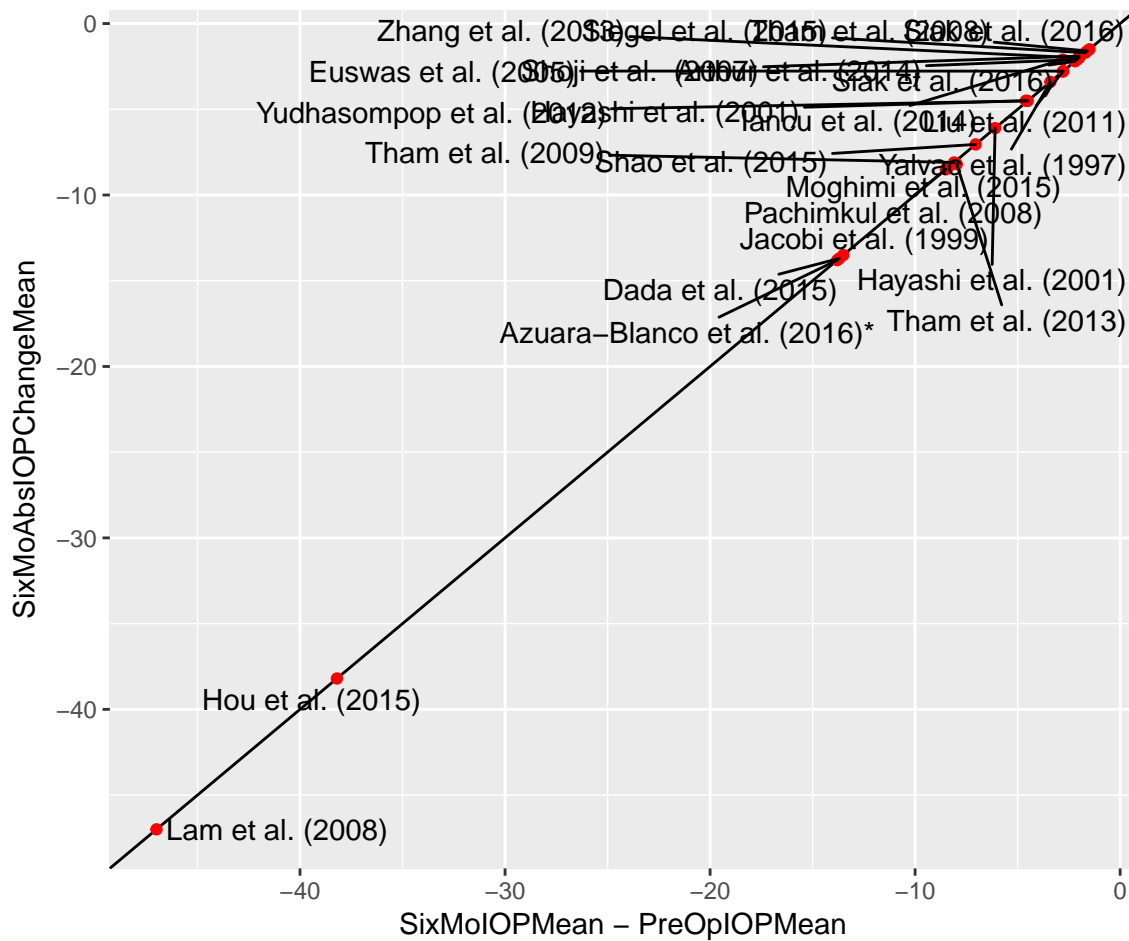


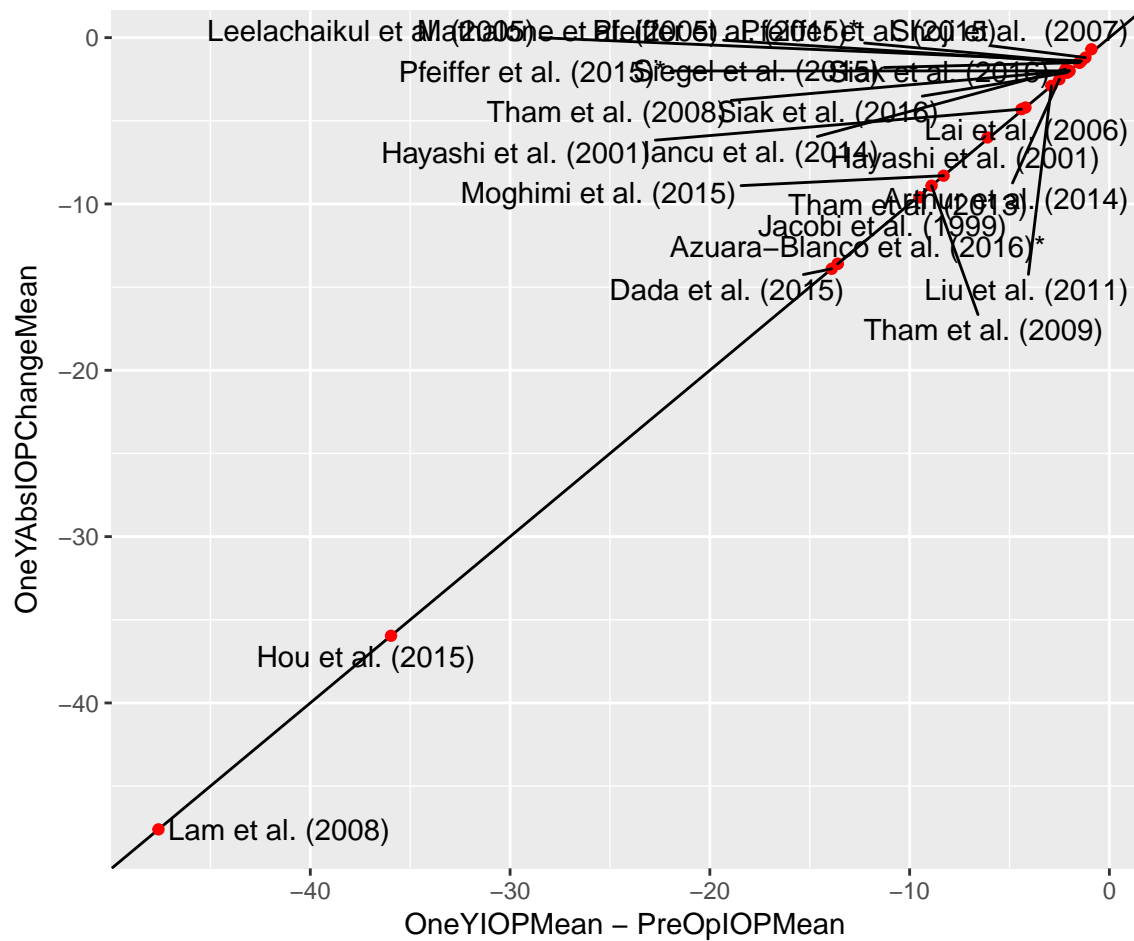
Check that changes add up.

```
ggplot(df, aes(x = SixMoIOPMean - PreOpIOPMean, y = SixMoAbsIOPChangeMean, label = study.name)) +
  geom_abline() +
  geom_point(color="red") +
  geom_text_repel()
```

```
## Warning: Removed 43 rows containing missing values (geom_point).
```

```
## Warning: Removed 43 rows containing missing values (geom_text_repel).
```

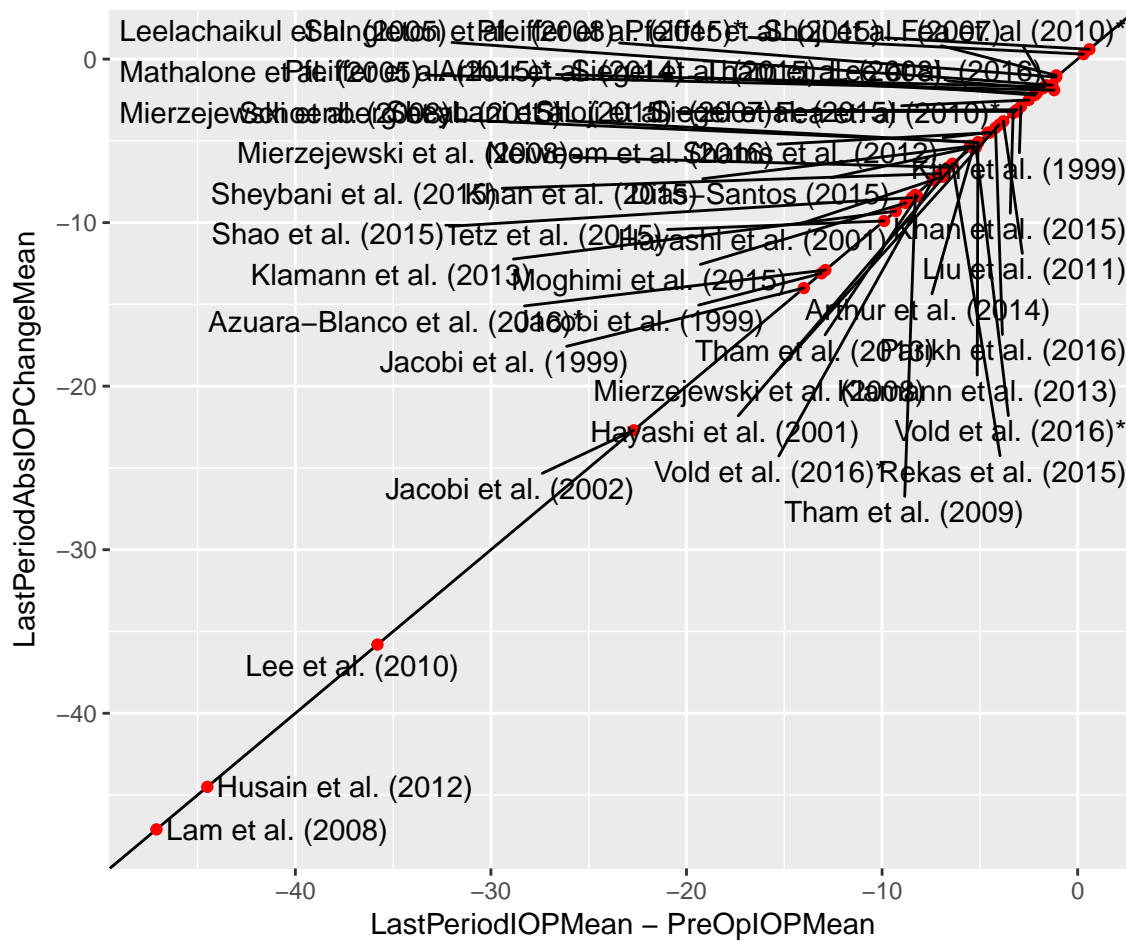




```
ggplot(df, aes(x = LastPeriodIOPMean - PreOpIOPMean, y = LastPeriodAbsIOPChangeMean, label = study.name)) +
  geom_abline() +
  geom_point(color="red") +
  geom_text_repel()
```

```
## Warning: Removed 18 rows containing missing values (geom_point).
```

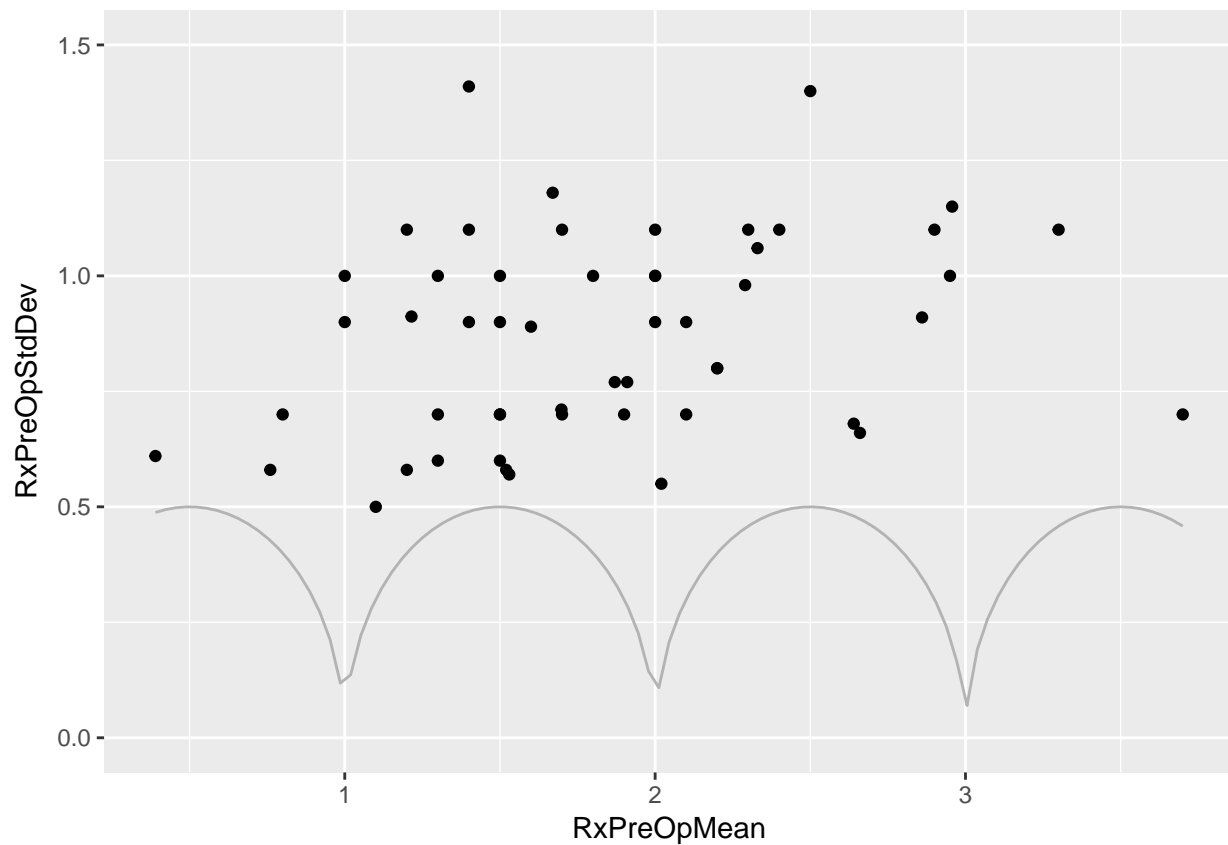
```
## Warning: Removed 18 rows containing missing values (geom_text_repel).
```



Check the relationship between RxPreOpMean and s.d.

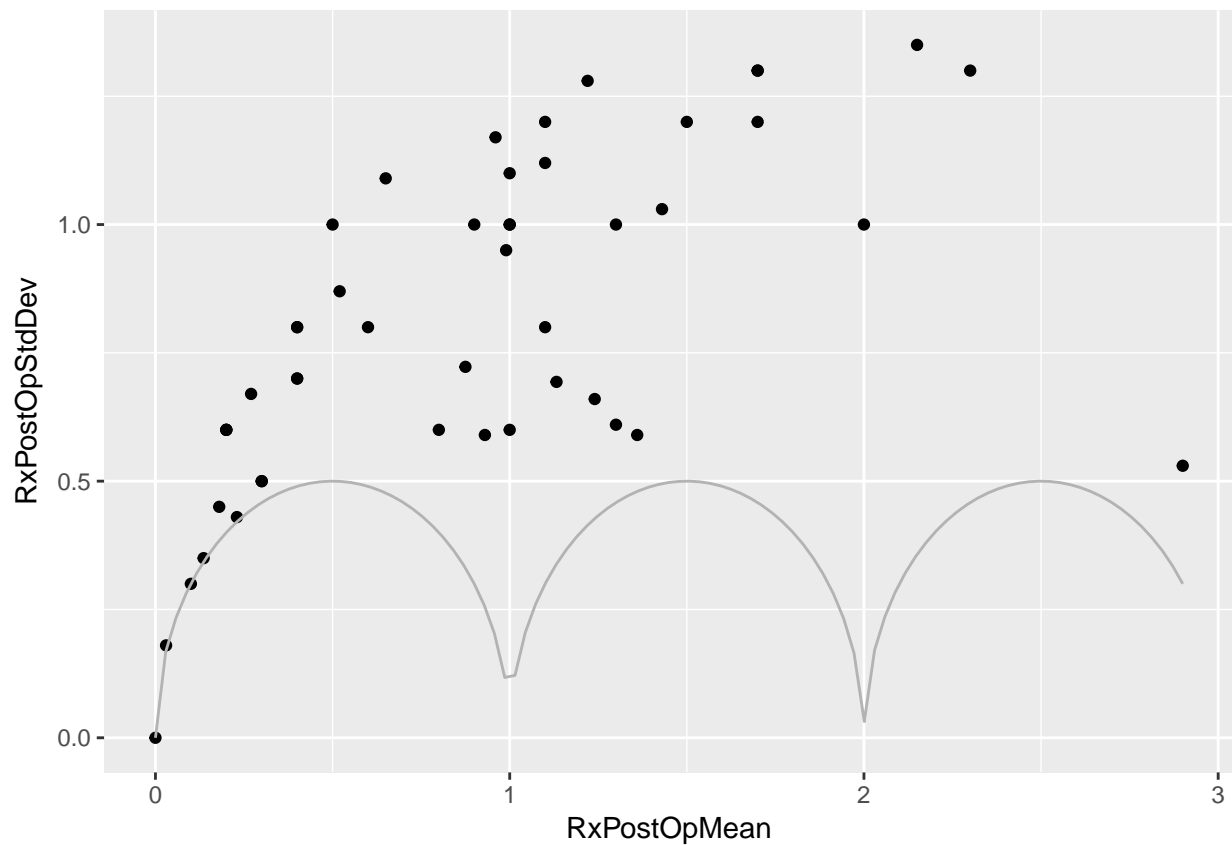
```
ggplot(df, aes(x = RxPreOpMean, y = RxPreOpStdDev)) +
  geom_point() +
  coord_cartesian(y=c(0, 1.5)) +
  stat_function(fun = function(x) sqrt((x - floor(x)) * (1 - (x - floor(x))))), color="gray70")
```

## Warning: Removed 14 rows containing missing values (geom\_point).



```
ggplot(df, aes(x = RxPostOpMean, y = RxPostOpStdDev)) + geom_point() +
  stat_function(fun = function(x) sqrt((x - floor(x)) * (1 - (x - floor(x))))), color="gray70")
```

```
## Warning: Removed 19 rows containing missing values (geom_point).
```

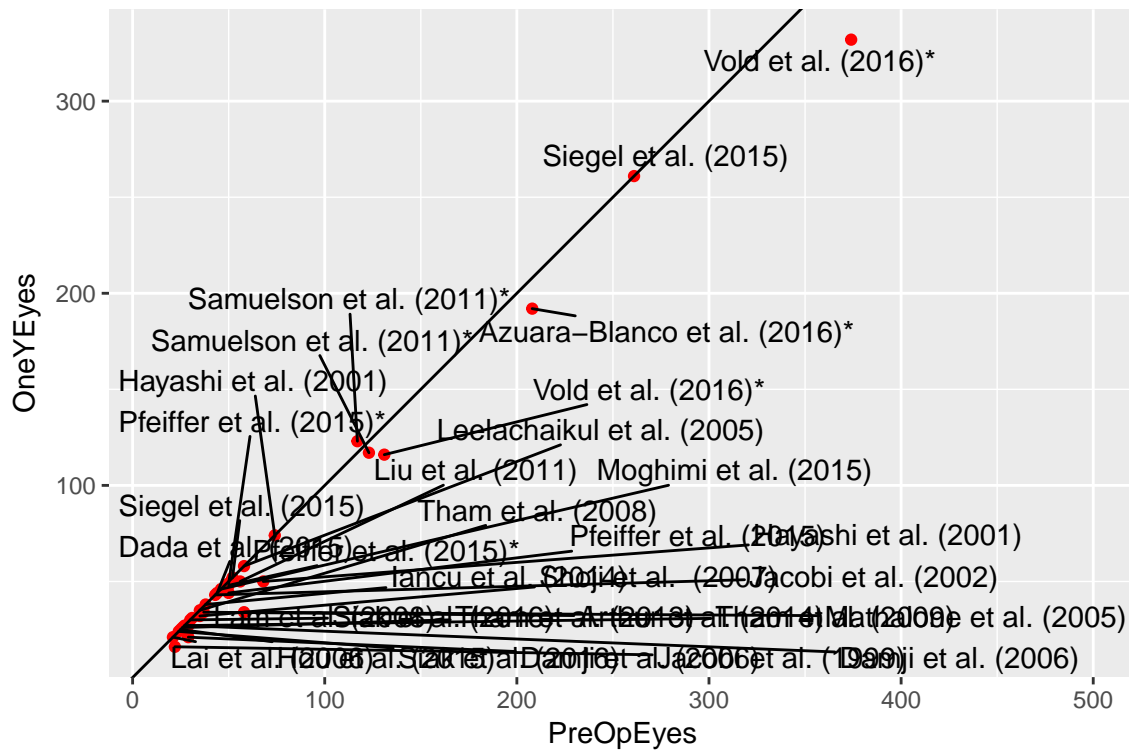


Examine loss at one year.

```
ggplot(df, aes(x=PreOpEyes, y=OneYEyes, label=study.name)) +
  geom_point(color="red") +
  geom_abline() +
  geom_text_repel() + coord_fixed()
```

## Warning: Removed 35 rows containing missing values (geom\_point).

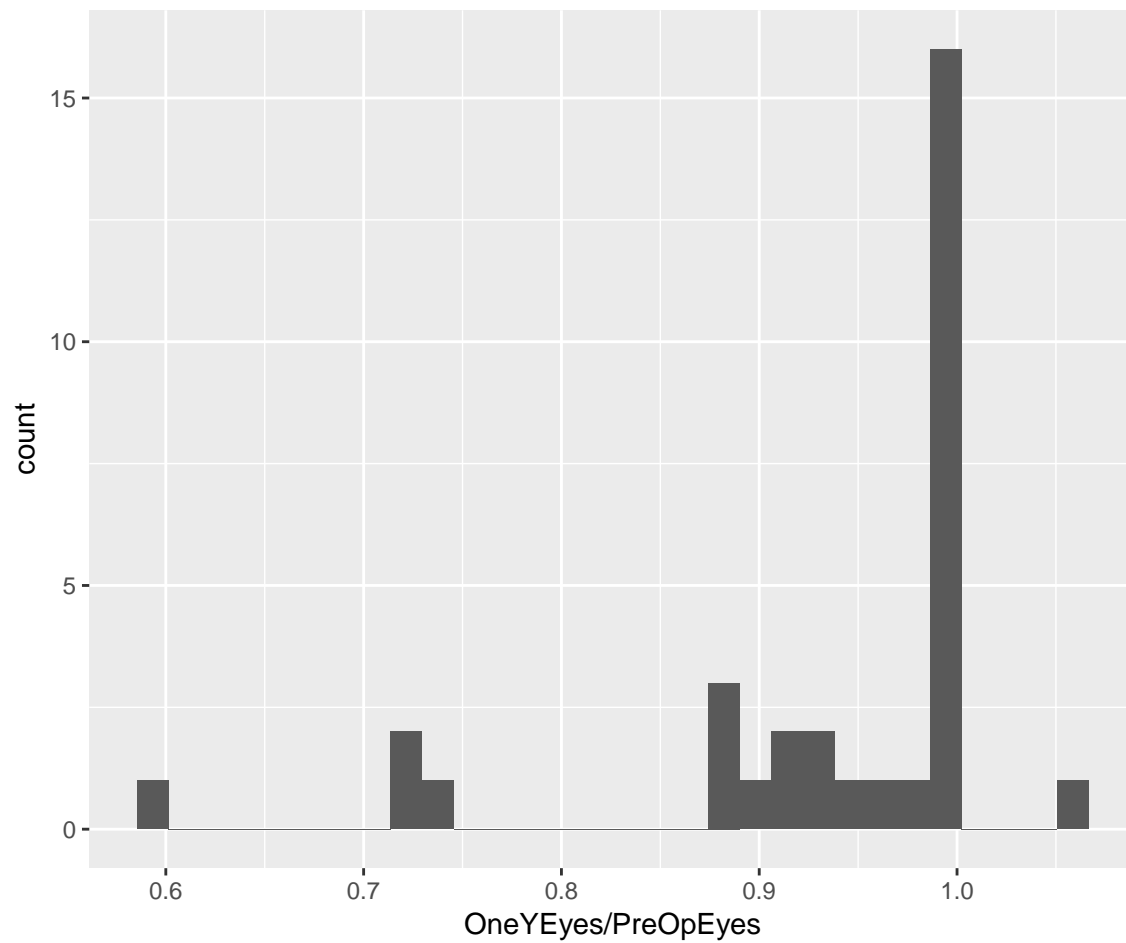
## Warning: Removed 35 rows containing missing values (geom\_text\_repel).



```
ggplot(df, aes(x=OneYEyes / PreOpEyes, label=study.name)) +
  geom_histogram() +
  coord_cartesian()
```

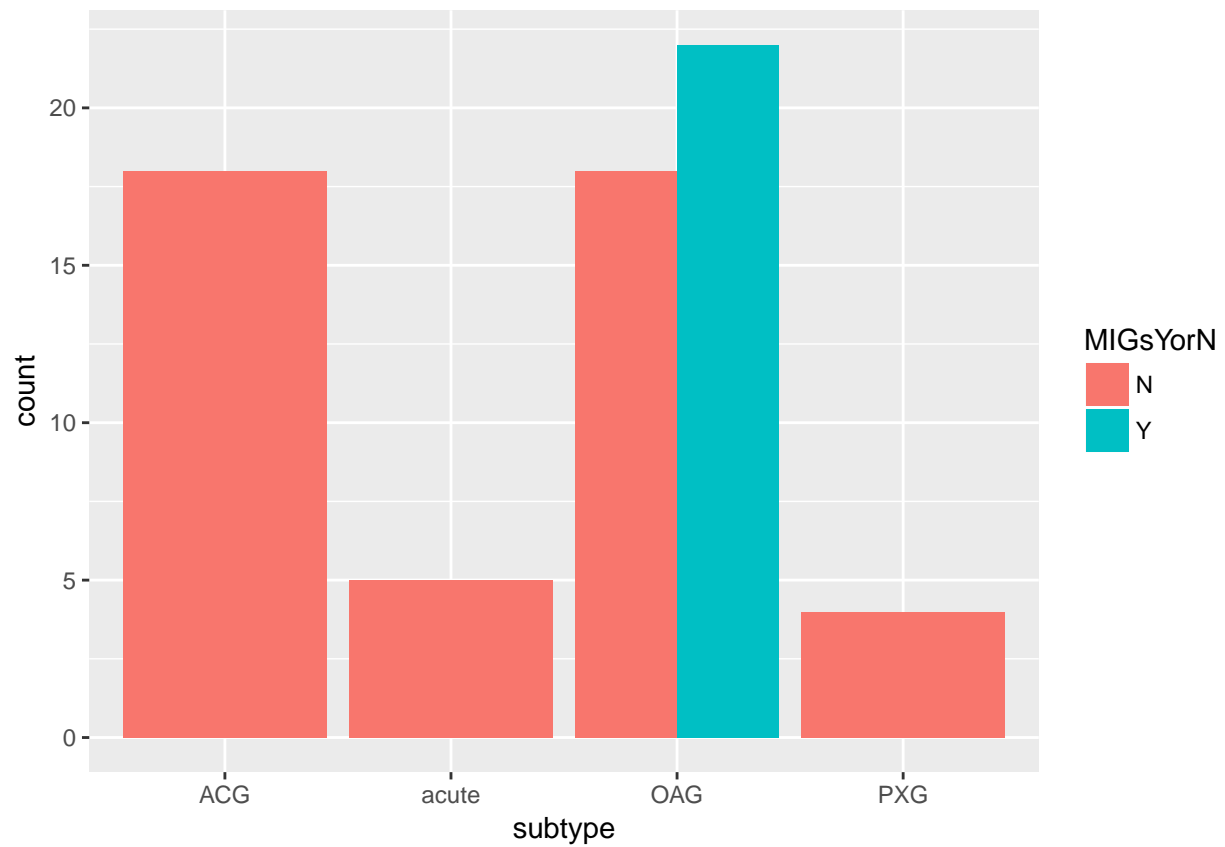
```
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
## Warning: Removed 35 rows containing non-finite values (stat_bin).
```





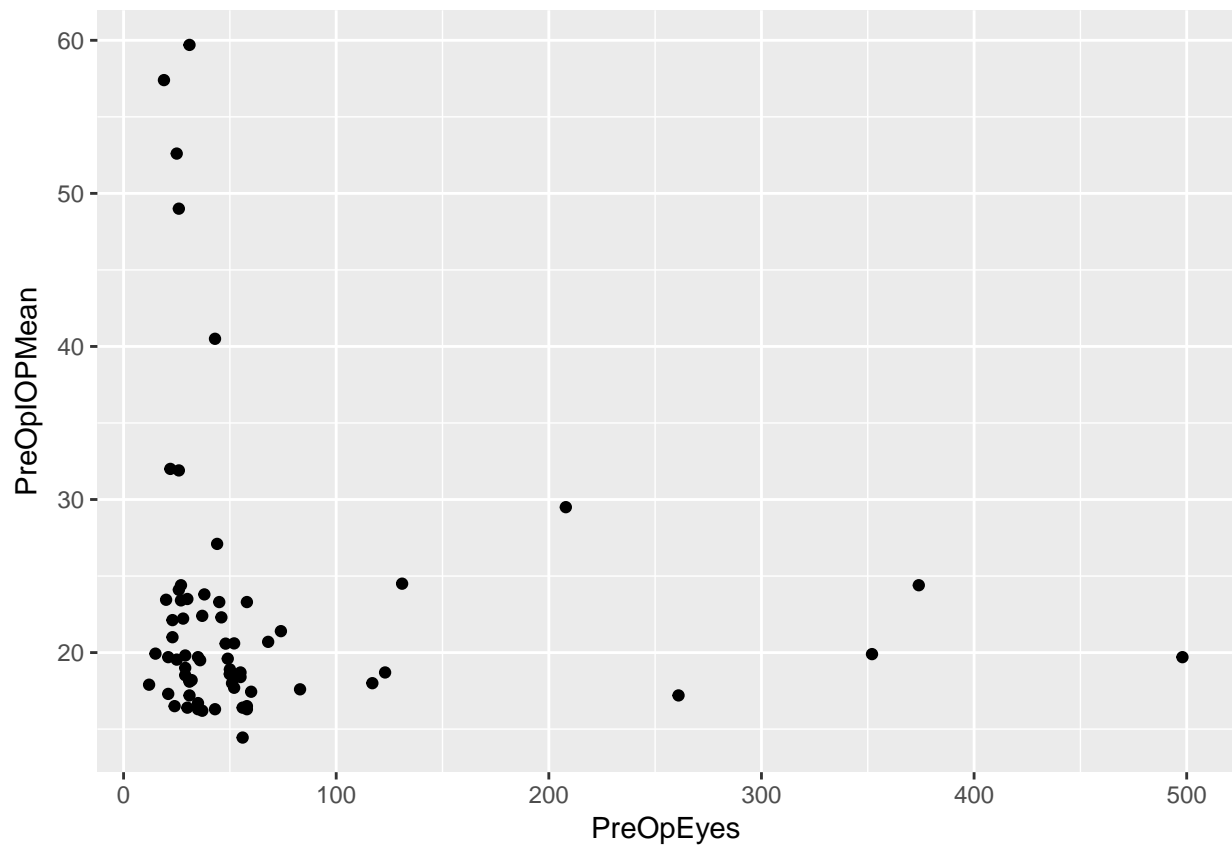
```
ggplot(df, aes(x=subtype, fill=MIGsYorN)) +  
  geom_histogram(stat="count", position = 'dodge')
```

```
## Warning: Ignoring unknown parameters: binwidth, bins, pad
```



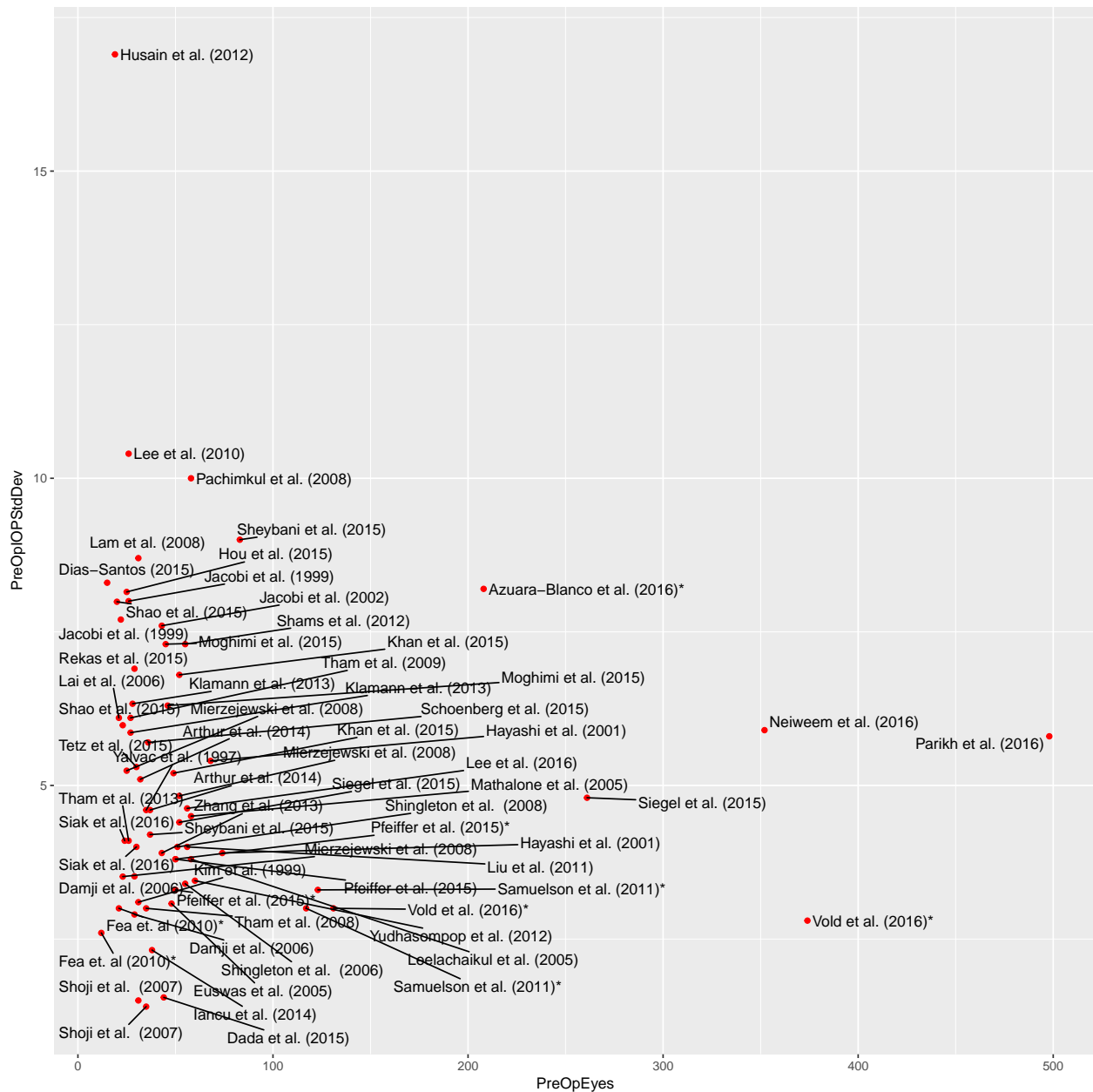
Look at the distribution of eyes and IOP means.

```
ggplot(df, aes(x=PreOpEyes, y=PreOpIOPMean)) + geom_point()
```



Look at number of eyes and standard deviation.

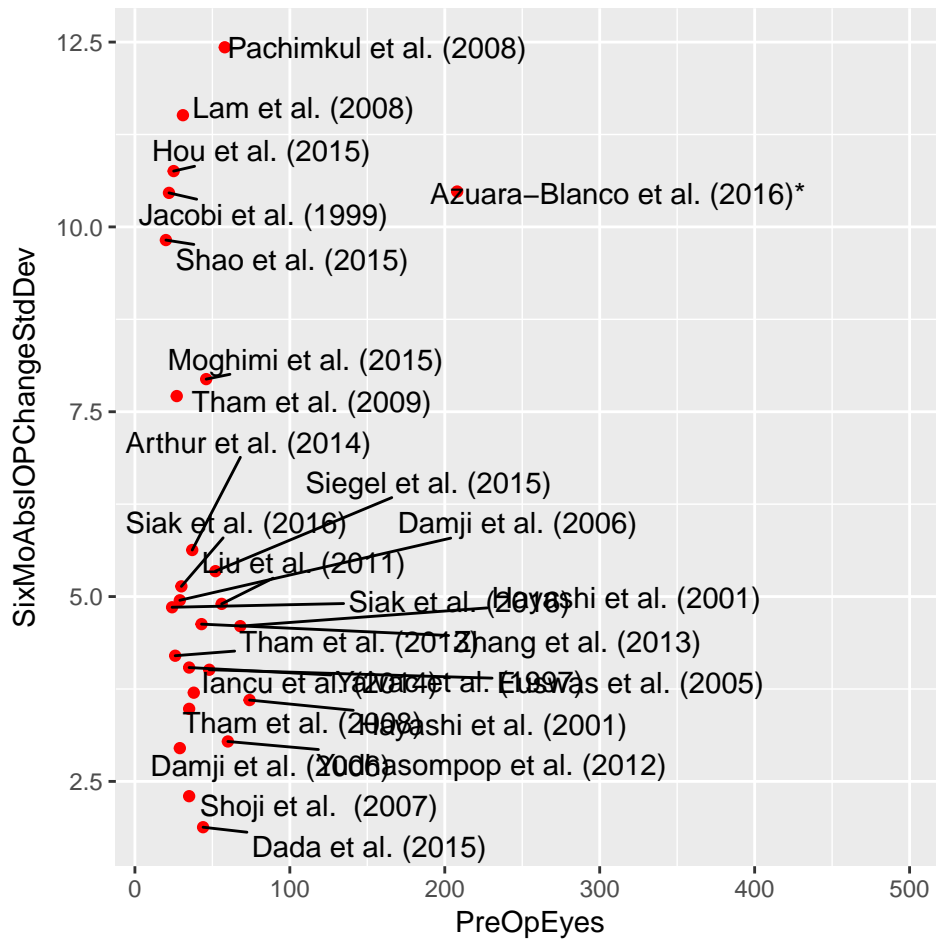
```
ggplot(df, aes(x=PreOpEyes, y=PreOpIOPStdDev, label=study.name)) +  
  geom_point(color="red") + geom_text_repel(nudge_x = 5)
```



```
ggplot(df, aes(x=PreOpEyes, y=SixMoAbsIOPChangeStdDev, label=study.name)) +
  geom_point(color="red") + geom_text_repel(nudge_x = 5)
```

```
## Warning: Removed 41 rows containing missing values (geom_point).
```

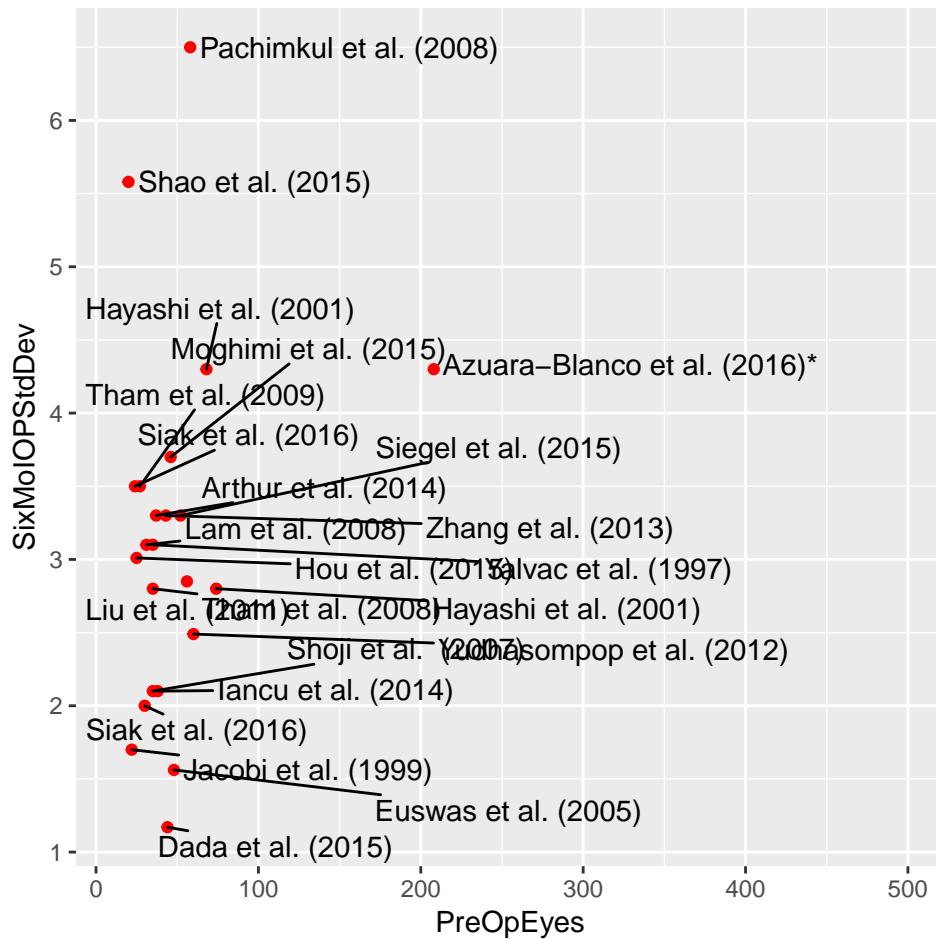
```
## Warning: Removed 41 rows containing missing values (geom_text_repel).
```



```
ggplot(df, aes(x=PreOpEyes, y=SixMoIOPStdDev, label=study.name)) +
  geom_point(color="red") + geom_text_repel(nudge_x = 5)
```

```
## Warning: Removed 44 rows containing missing values (geom_point).
```

```
## Warning: Removed 44 rows containing missing values (geom_text_repel).
```

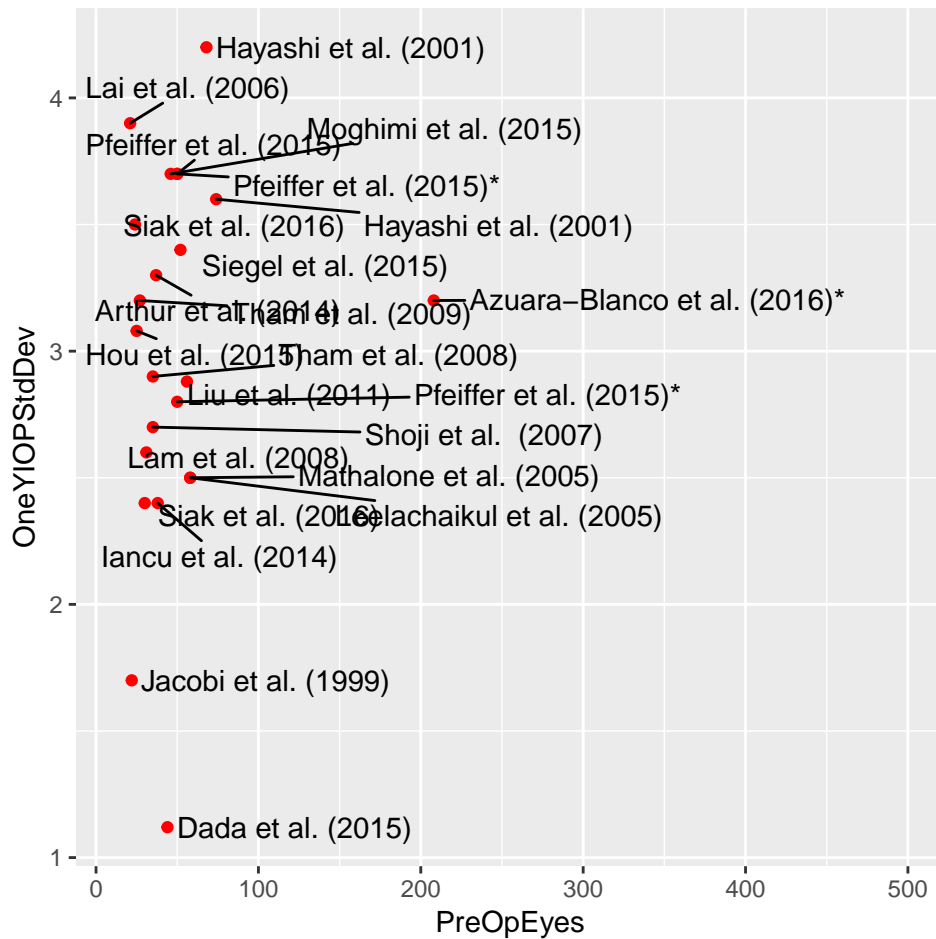


```
ggplot(df, aes(x=PreOpEyes, y=OneYAbsIOPChangeStdDev, label=study.name)) +
  geom_point(color="red") + geom_text_repel(nudge_x = 5)
```

```
## Warning: Removed 37 rows containing missing values (geom_point).
```

```
## Warning: Removed 37 rows containing missing values (geom_text_repel).
```



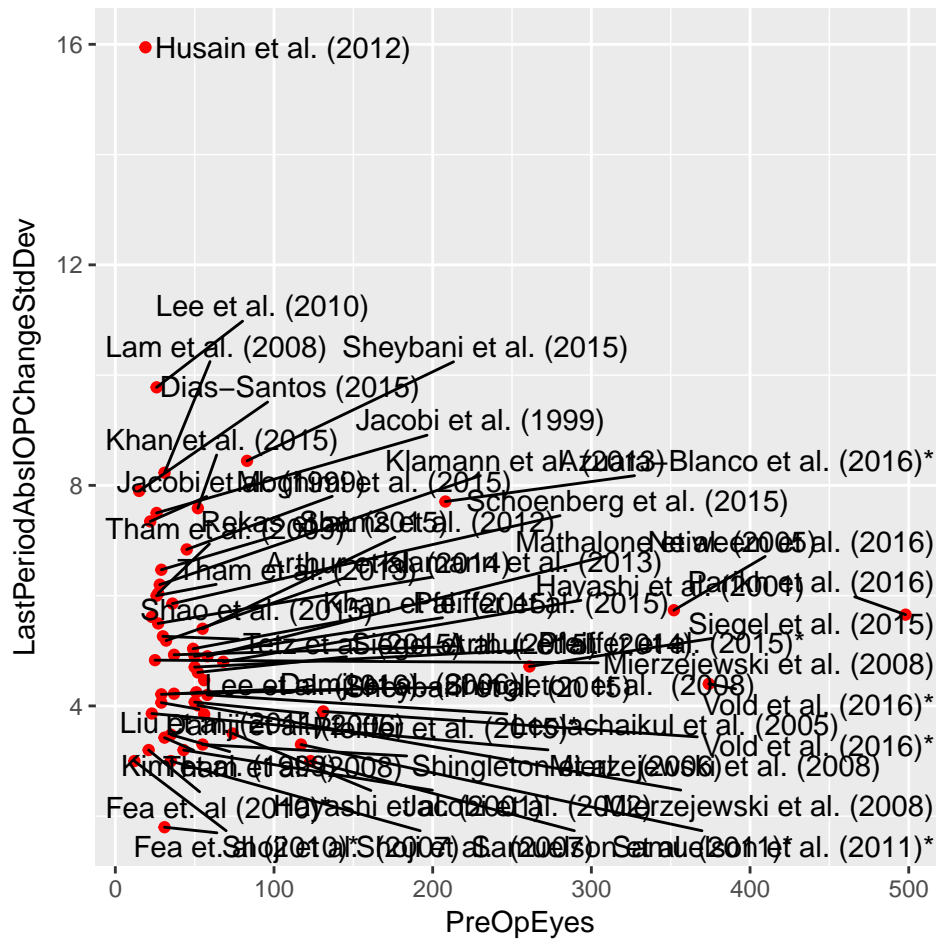


```
ggplot(df, aes(x=PreOpEyes, y=LastPeriodAbsIOPChangeStdDev, label=study.name)) +
  geom_point(color="red") + geom_text_repel(nudge_x = 5)
```

```
## Warning: Removed 13 rows containing missing values (geom_point).
```

```
## Warning: Removed 13 rows containing missing values (geom_text_repel).
```





```
ggplot(df, aes(x=PreOpEyes, y=SixMoIOPStdDev, label=study.name)) +
  geom_point(color="red") + geom_text_repel(nudge_x = 5)
```

```
## Warning: Removed 44 rows containing missing values (geom_point).
```

```
## Warning: Removed 44 rows containing missing values (geom_text_repel).
```

