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)
```

N.B.:

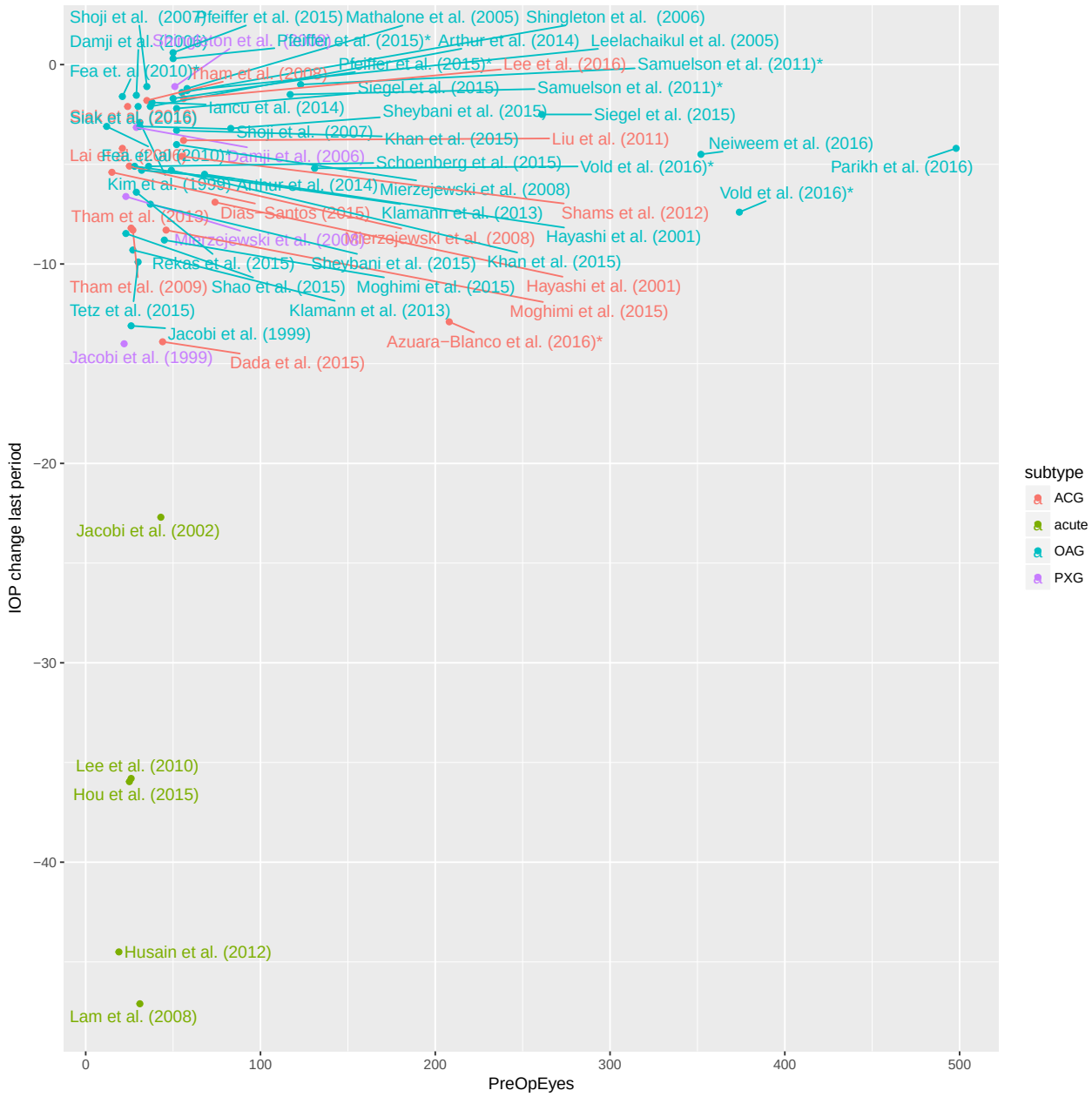
- Shoji is fine.
- Mathalone is fine.
- Liu is fine.

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).
```

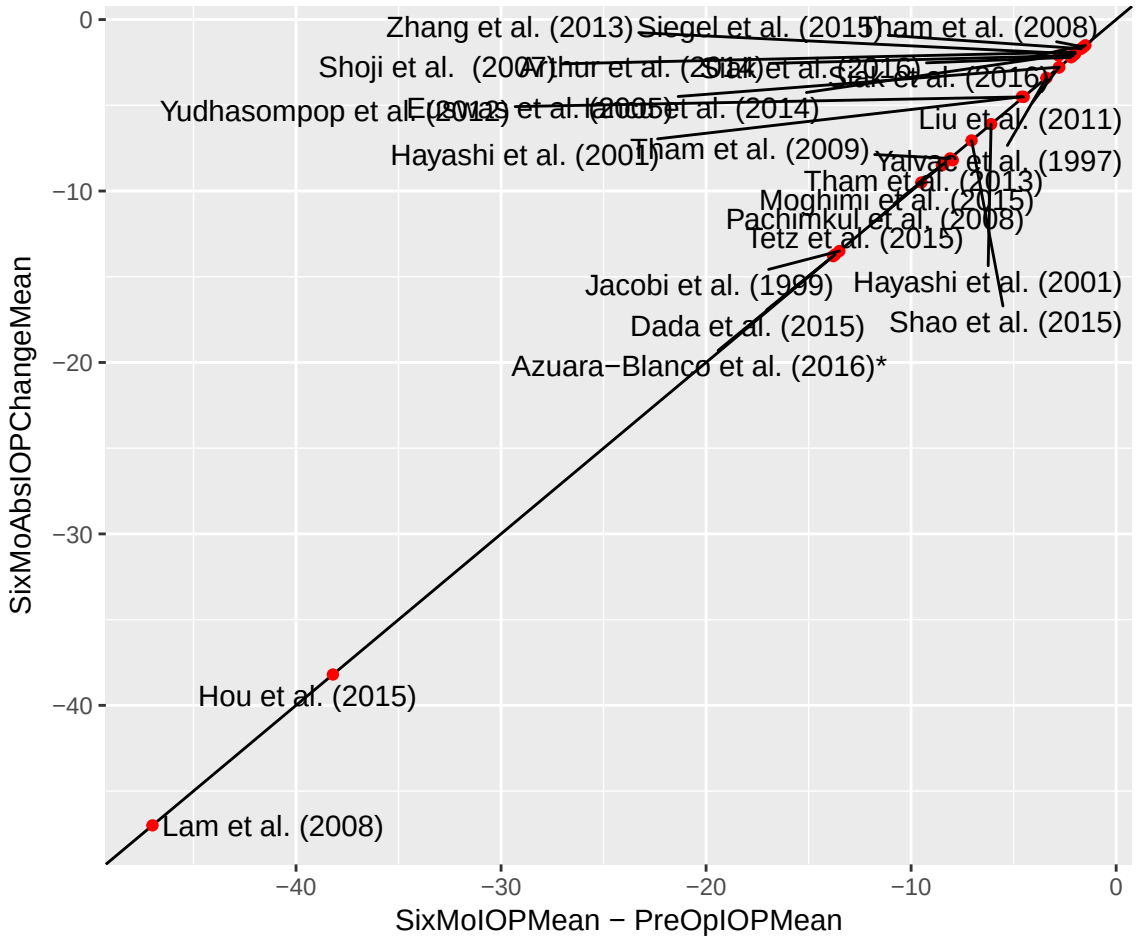


Check that changes add up.

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

```
## Warning: Removed 42 rows containing missing values (geom_point).
```

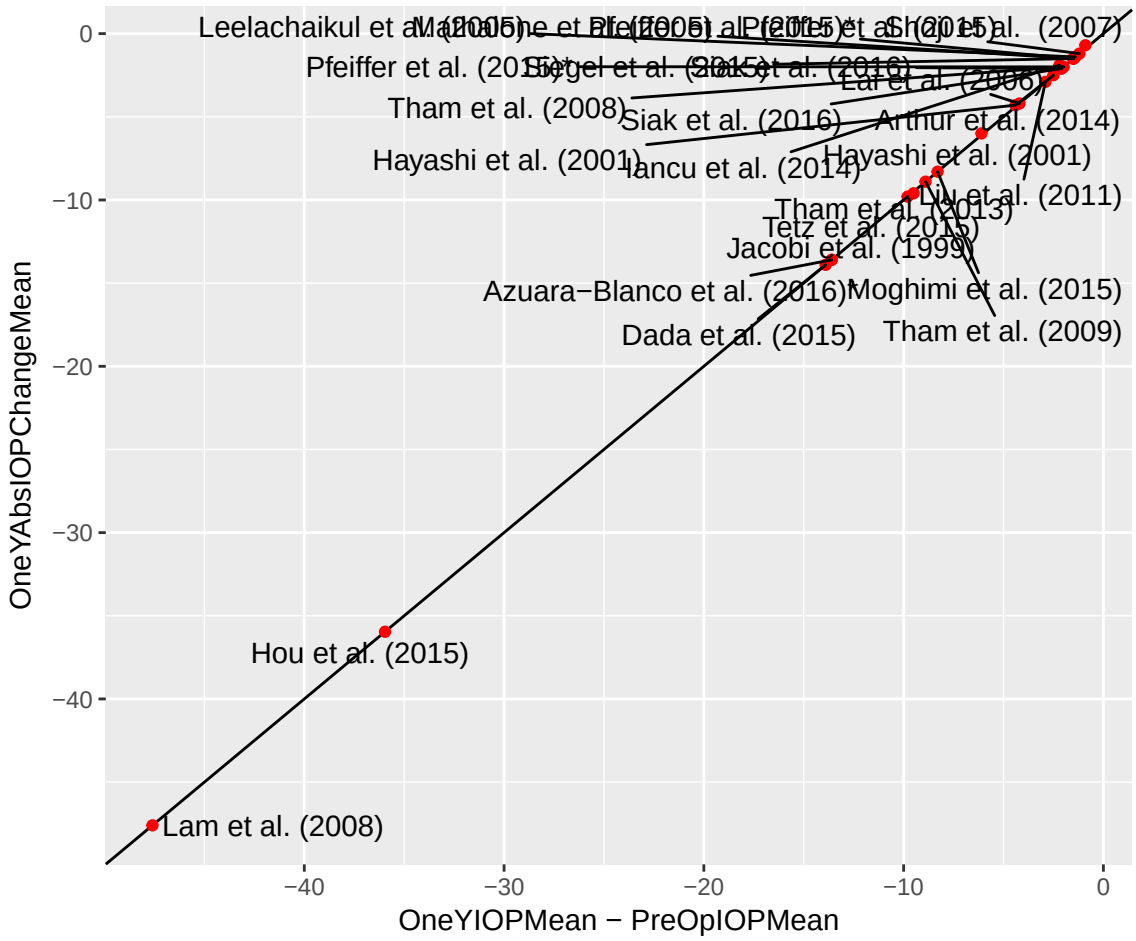
```
## Warning: Removed 42 rows containing missing values (geom_text_repel).
```




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

```
## Warning: Removed 42 rows containing missing values (geom_point).
```

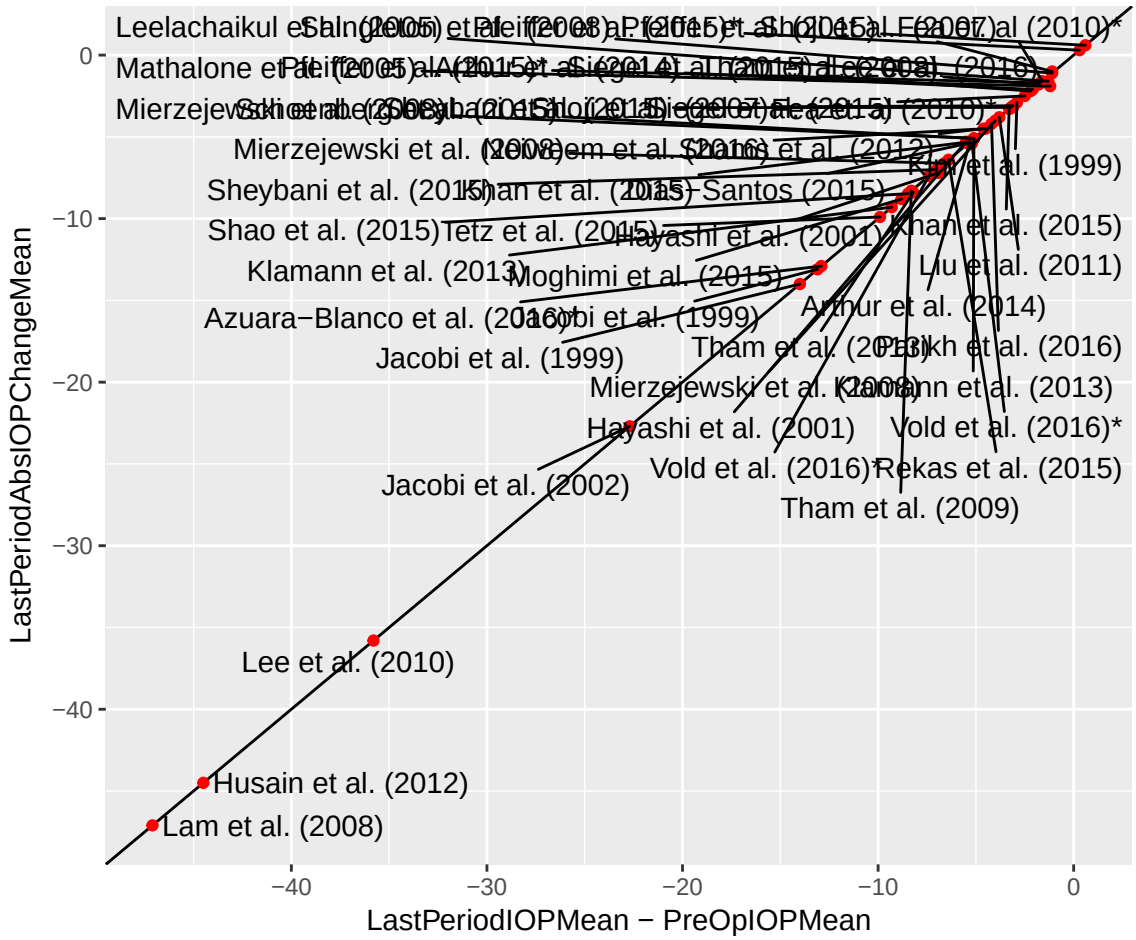
```
## Warning: Removed 42 rows containing missing values (geom_text_repel).
```




```
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).
```

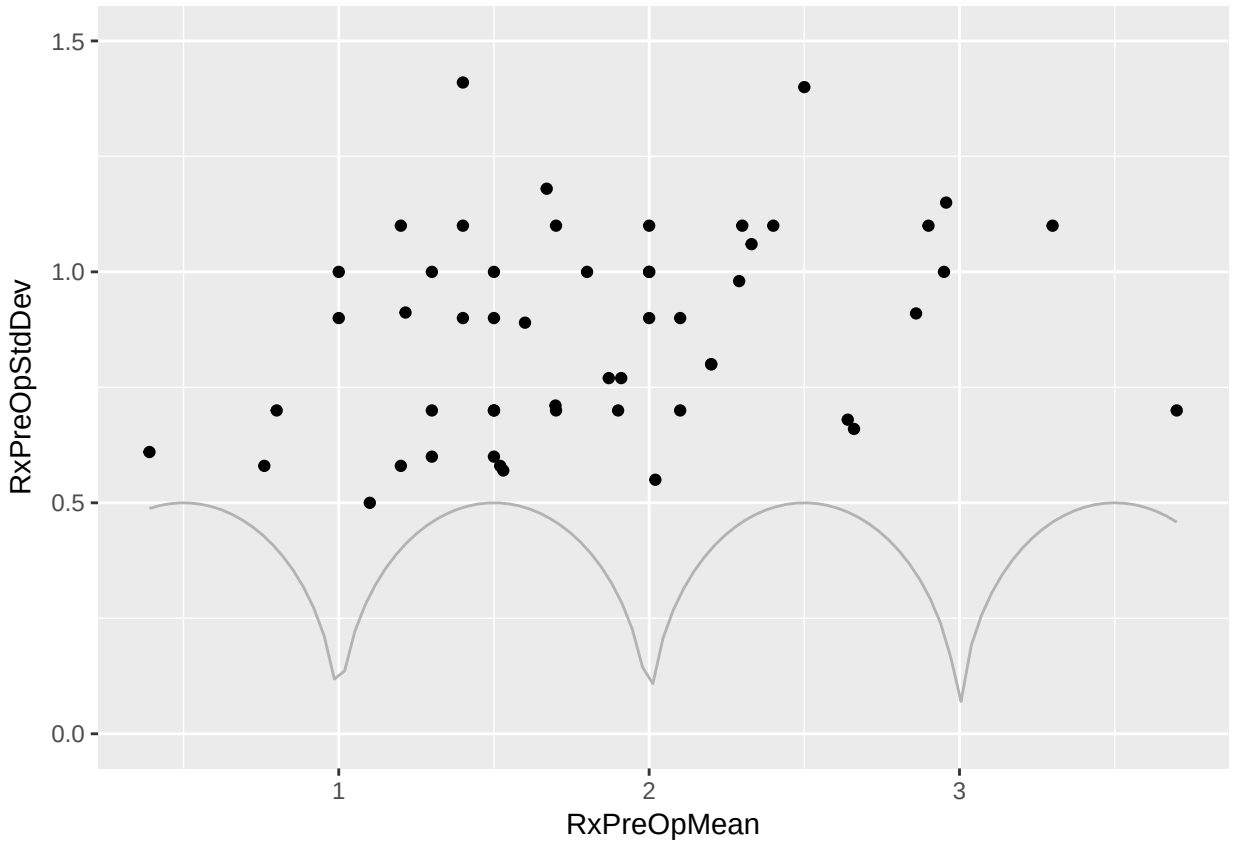
```
## Warning: Removed 18 rows containing missing values (geom_text_repel).
```



Check the relationship between RxPreOpMean and s.d.

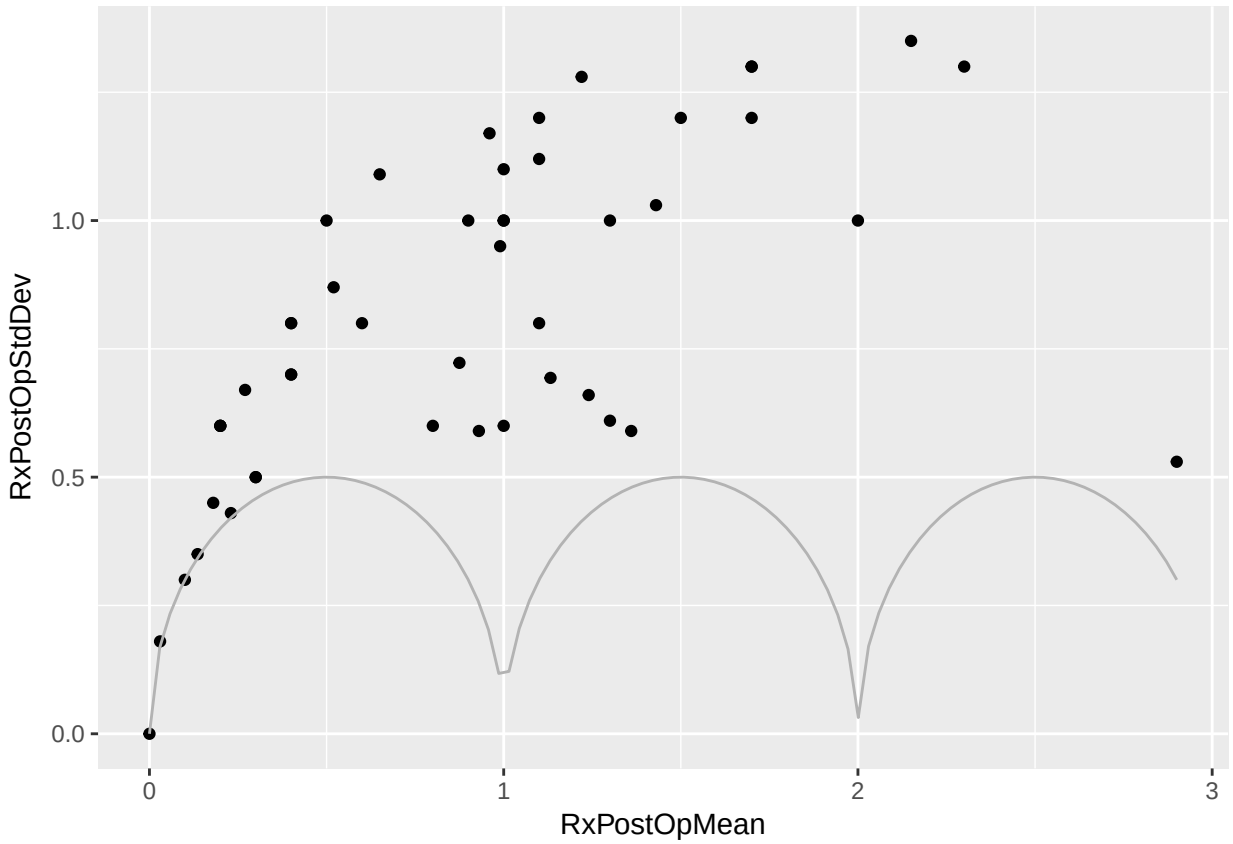
```
ggplot(df, aes(x = RxPreOpMean, y = RxPreOpStdDev)) +
  geom_point() +
  coord_cartesian(y=c(0, 1.5)) +
  stat_function(fun = function(x) sqrt((x - floor(x)) * (1 - (x - floor(x)))), color="gray70")
```

```
## 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).
```

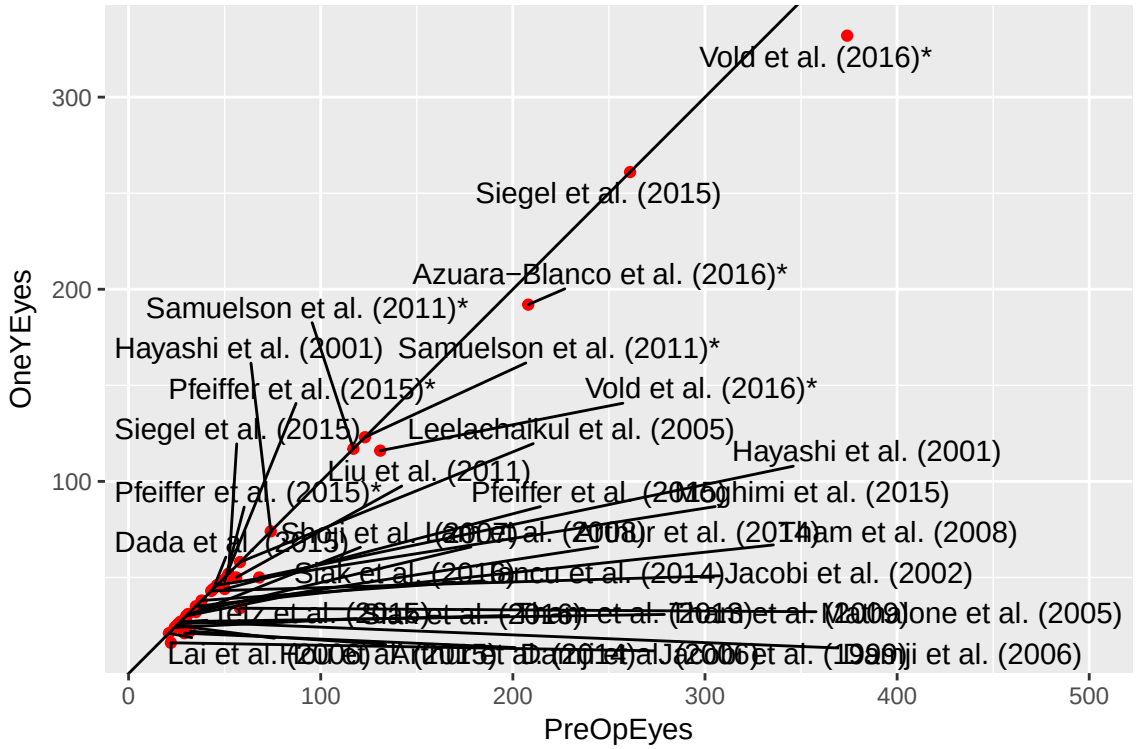


Examine loss at one year.

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

```
## Warning: Removed 33 rows containing missing values (geom_point).
```

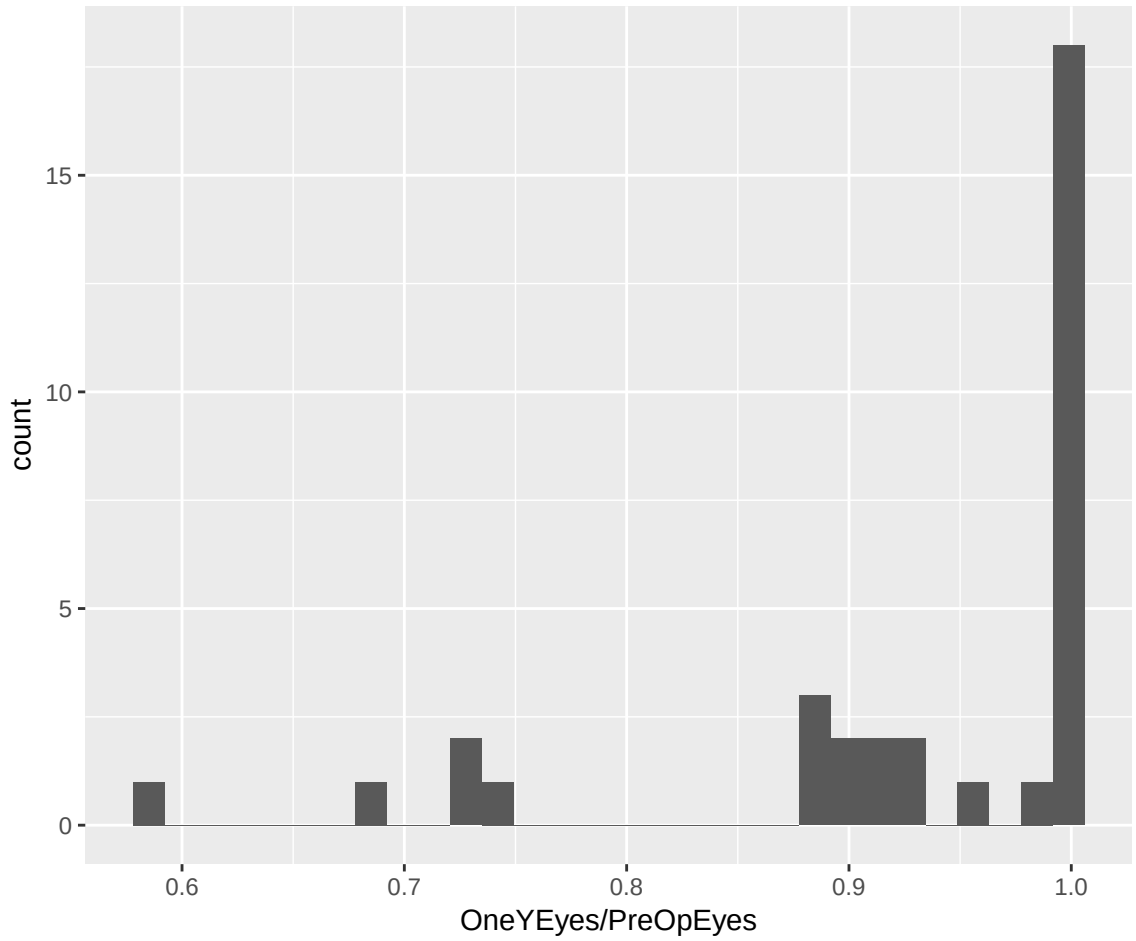
```
## Warning: Removed 33 rows containing missing values (geom_text_repel).
```




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

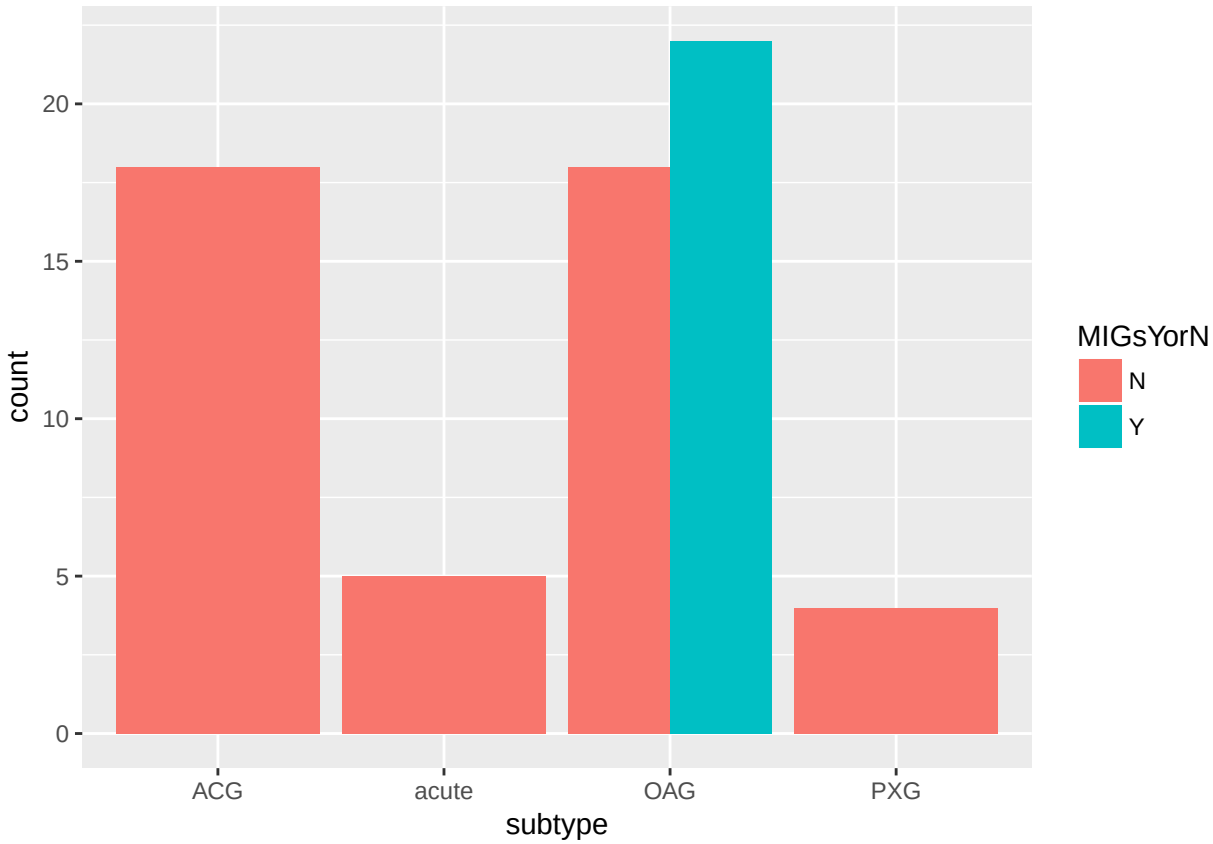
```
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
```

```
## Warning: Removed 33 rows containing non-finite values (stat_bin).
```



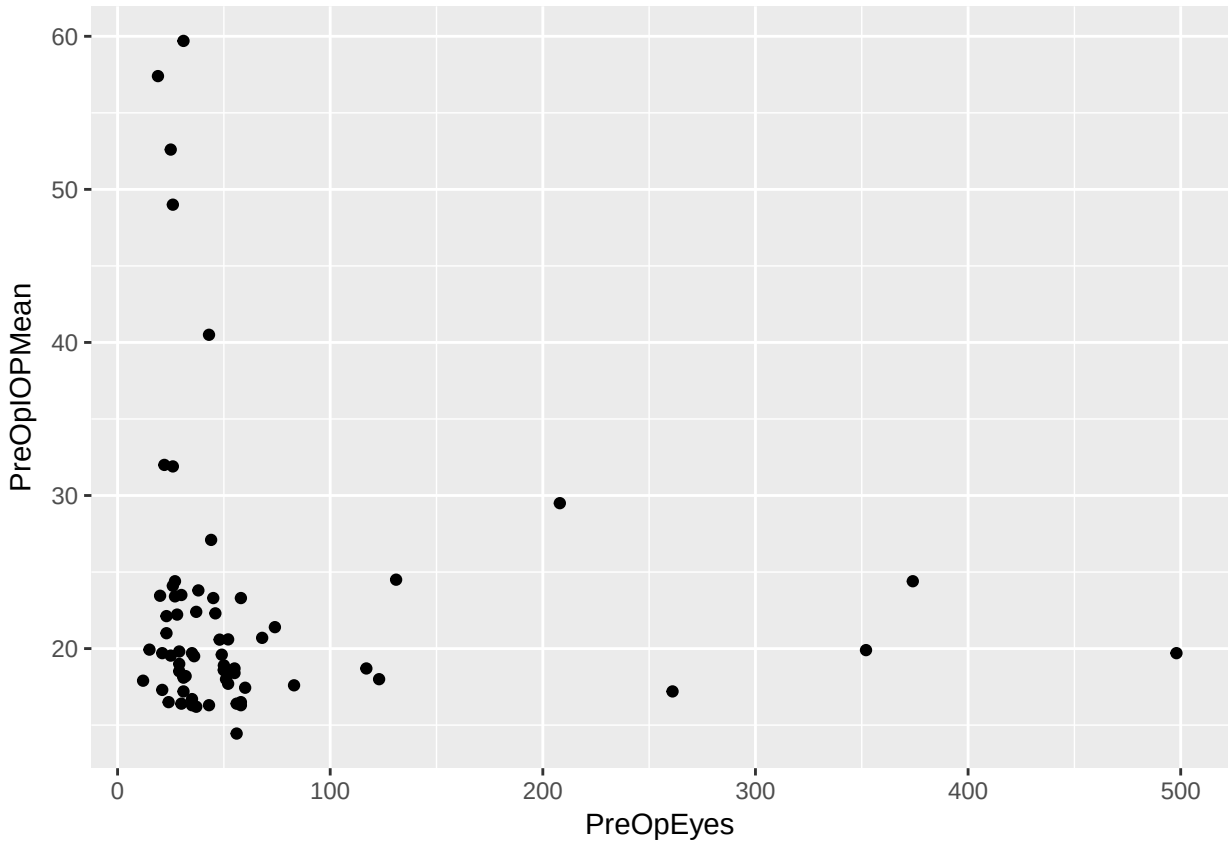

```
ggplot(df, aes(x=subtype, fill=MIGsYorN)) +
  geom_histogram(stat="count", position = 'dodge')
```

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



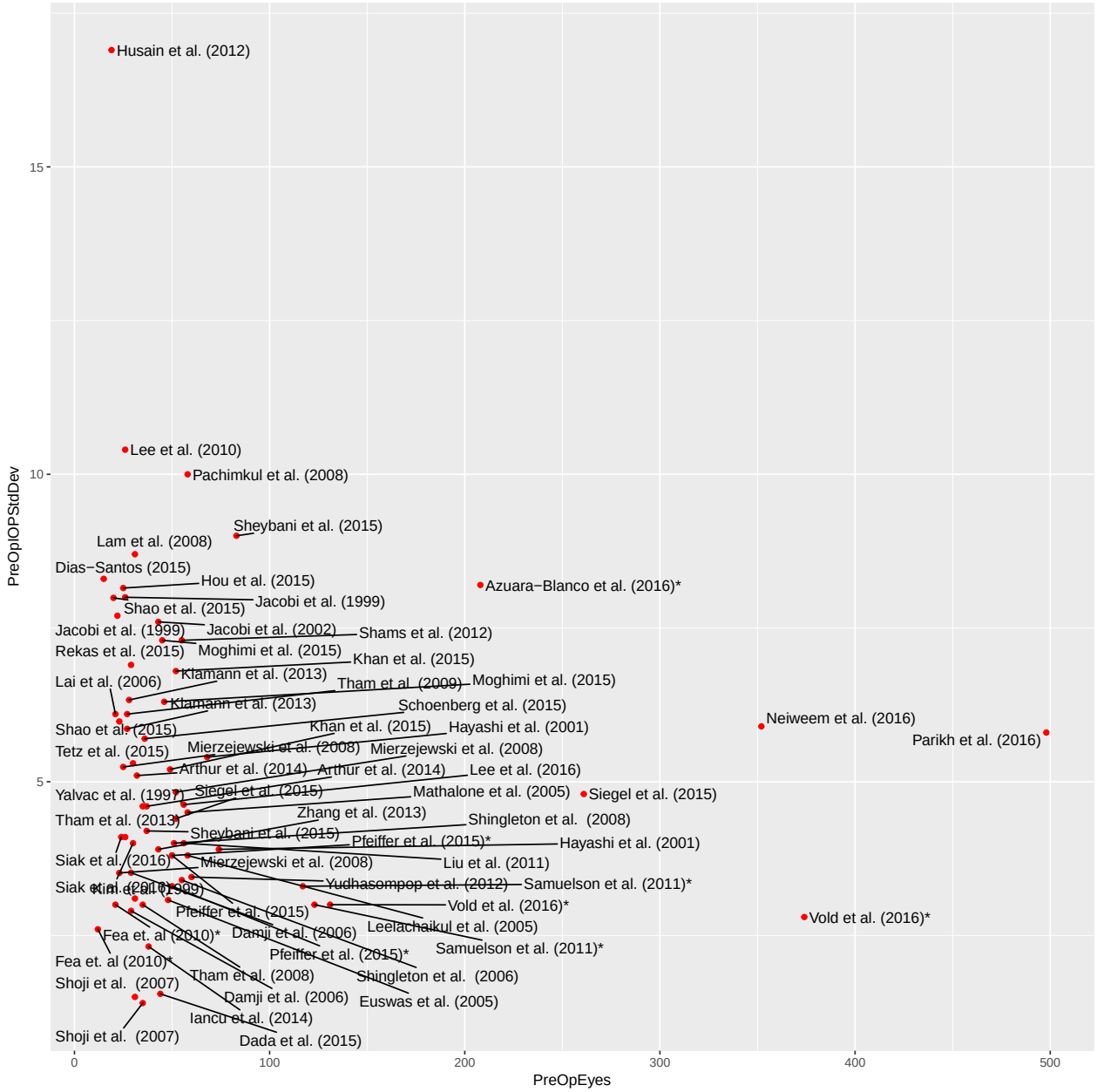
Look at the distribution of eyes and IOP means.

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



Look at number of eyes and standard deviation.

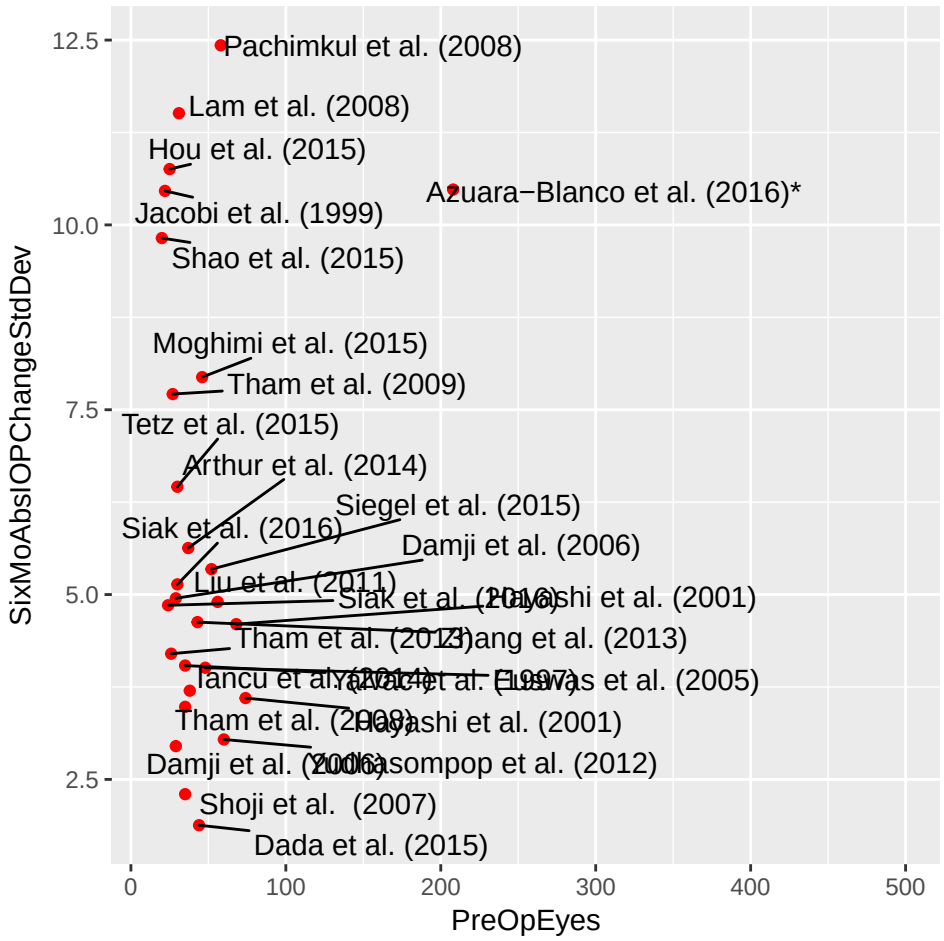
```
ggplot(df, aes(x=PreOpEyes, y=PreOpIOPStdDev, label=study.name)) +
  geom_point(color="red") + geom_text_repel(nudge_x = 5)
```




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

```
## Warning: Removed 40 rows containing missing values (geom_point).
```

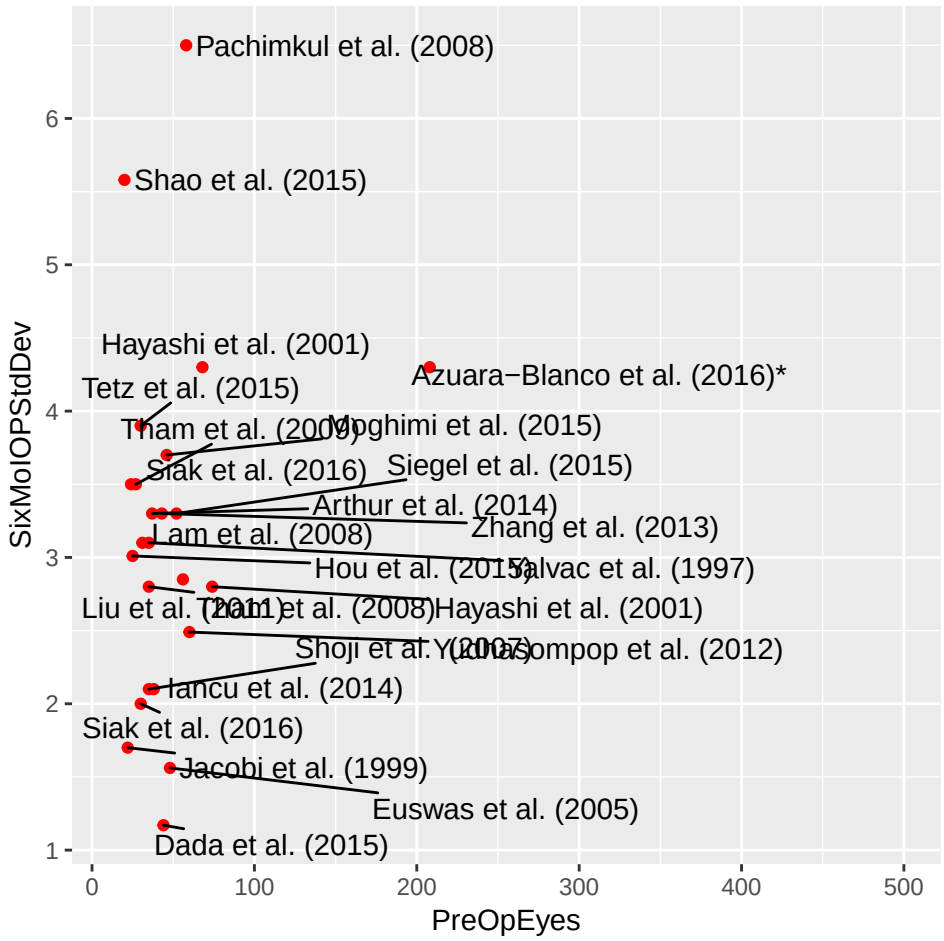
```
## Warning: Removed 40 rows containing missing values (geom_text_repel).
```




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

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

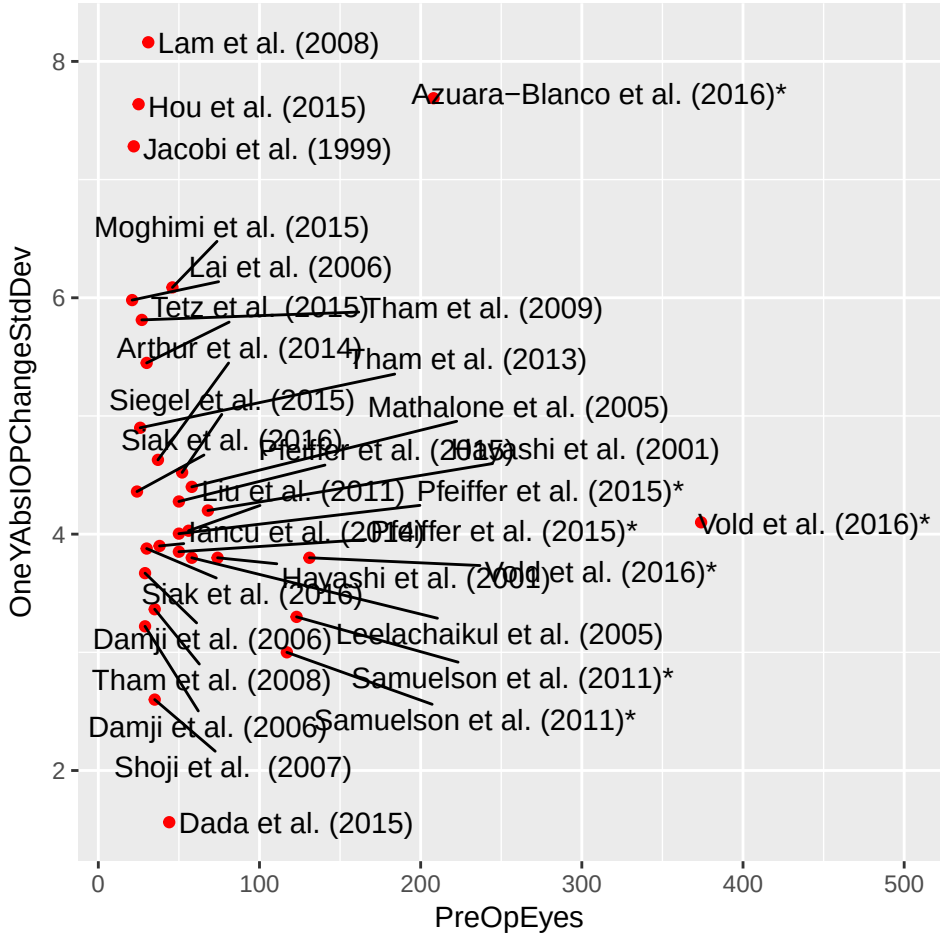
```
## Warning: Removed 43 rows containing missing values (geom_text_repel).
```




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

```
## Warning: Removed 36 rows containing missing values (geom_point).
```

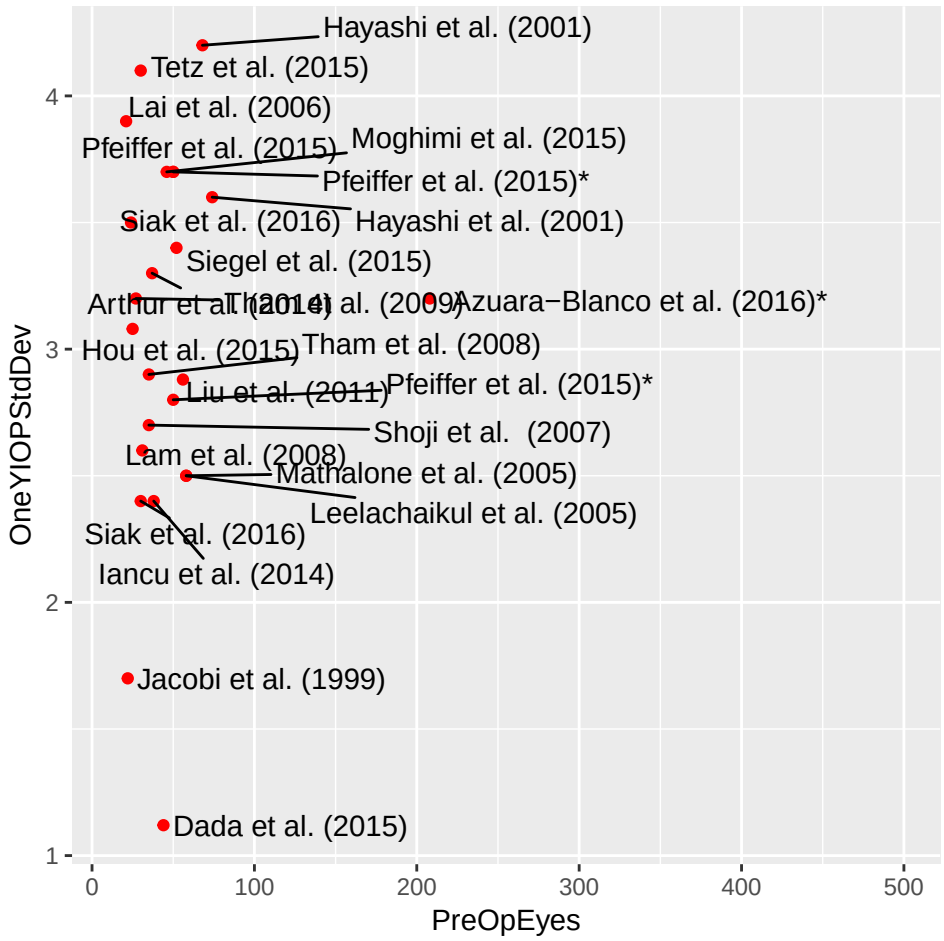
```
## Warning: Removed 36 rows containing missing values (geom_text_repel).
```




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

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

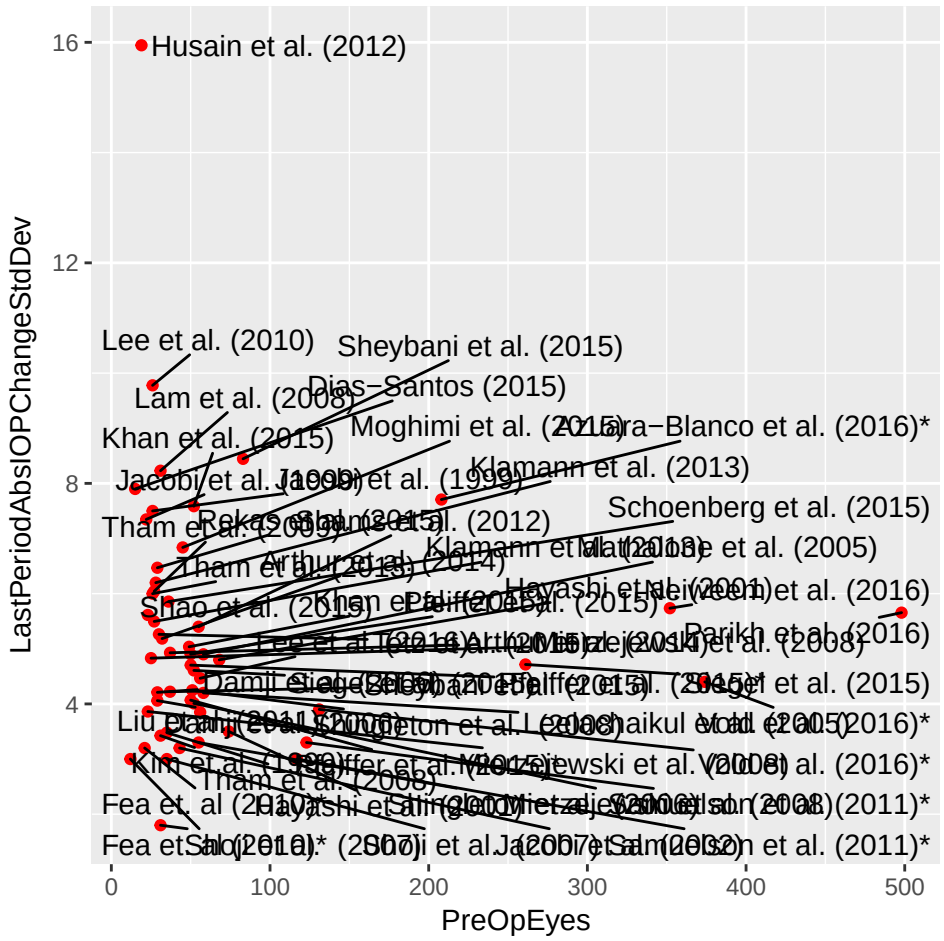
```
## Warning: Removed 43 rows containing missing values (geom_text_repel).
```




```
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).
```

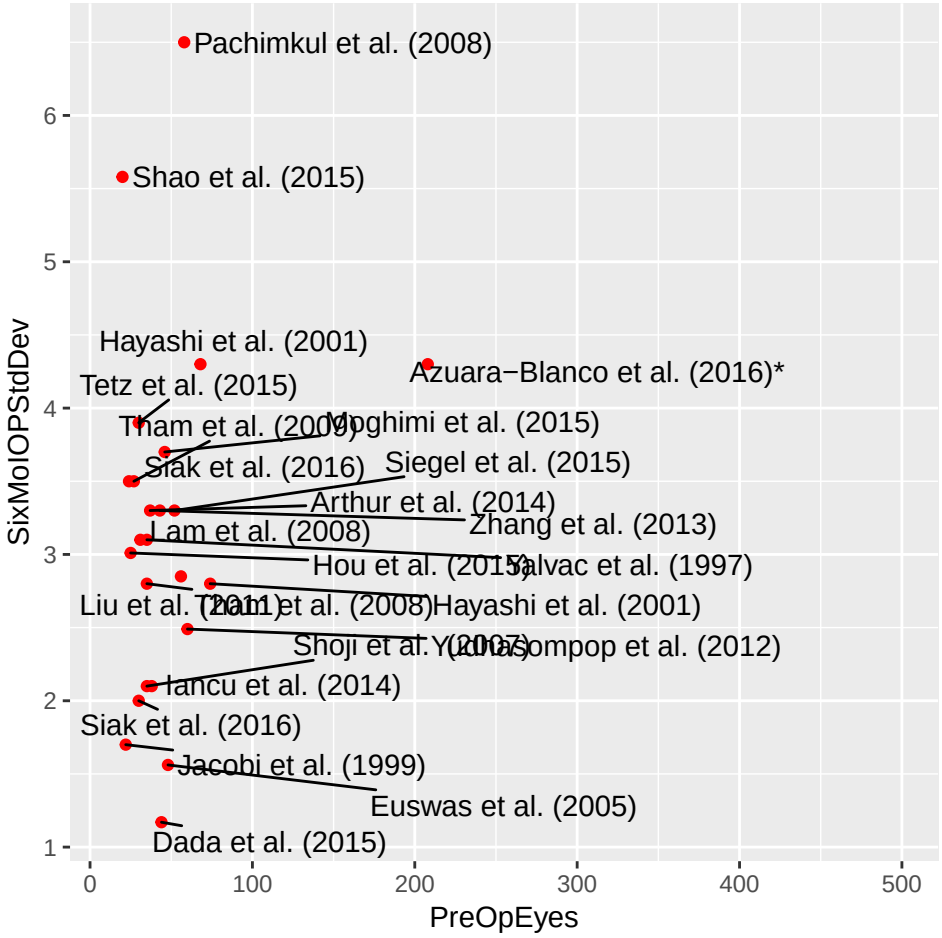
```
## Warning: Removed 13 rows containing missing values (geom_text_repel).
```




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

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

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


Pachimkul et al. (2008)
Shao et al. (2015)
Hayashi et al. (2001)
Azuara−Blanco et al. (2016)*
Tetz et al. (2015)
Tham et al. (2009)
Moghimi et al. (2015)
Siak et al. (2016)
Siegel et al. (2015)
Arthur et al. (2014)
Zhang et al. (2013)
Lam et al. (2008)
Hou et al. (2015)
Salvac et al. (1997)
Liu et al. (2011)
Hayashi et al. (2001)
Shoji et al. (2007)
Iancu et al. (2014)
Siak et al. (2016)
Jacobi et al. (1999)
Euswas et al. (2005)
Dada et al. (2015)
SixMoIOPStdDev
PreOpEyes
0
100
200
300
400
500
1
2
3
4
5
6