

Computer Rage:

Exploring Distributions of Frustration and
Dealing with Issues in the Analysis of an
Online Survey

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February 16, 2005



Frustration Theory

- Most behavior is goal directed.
- Problem solving occurs when there are obstacles between the current state and the desired goal state.
- While rationale problem solving involves the search for and testing of alternative solutions, sometimes obstacles can also cause a sense of frustration.
- When frustration exceeds a person's limit to control it, rage can occur.

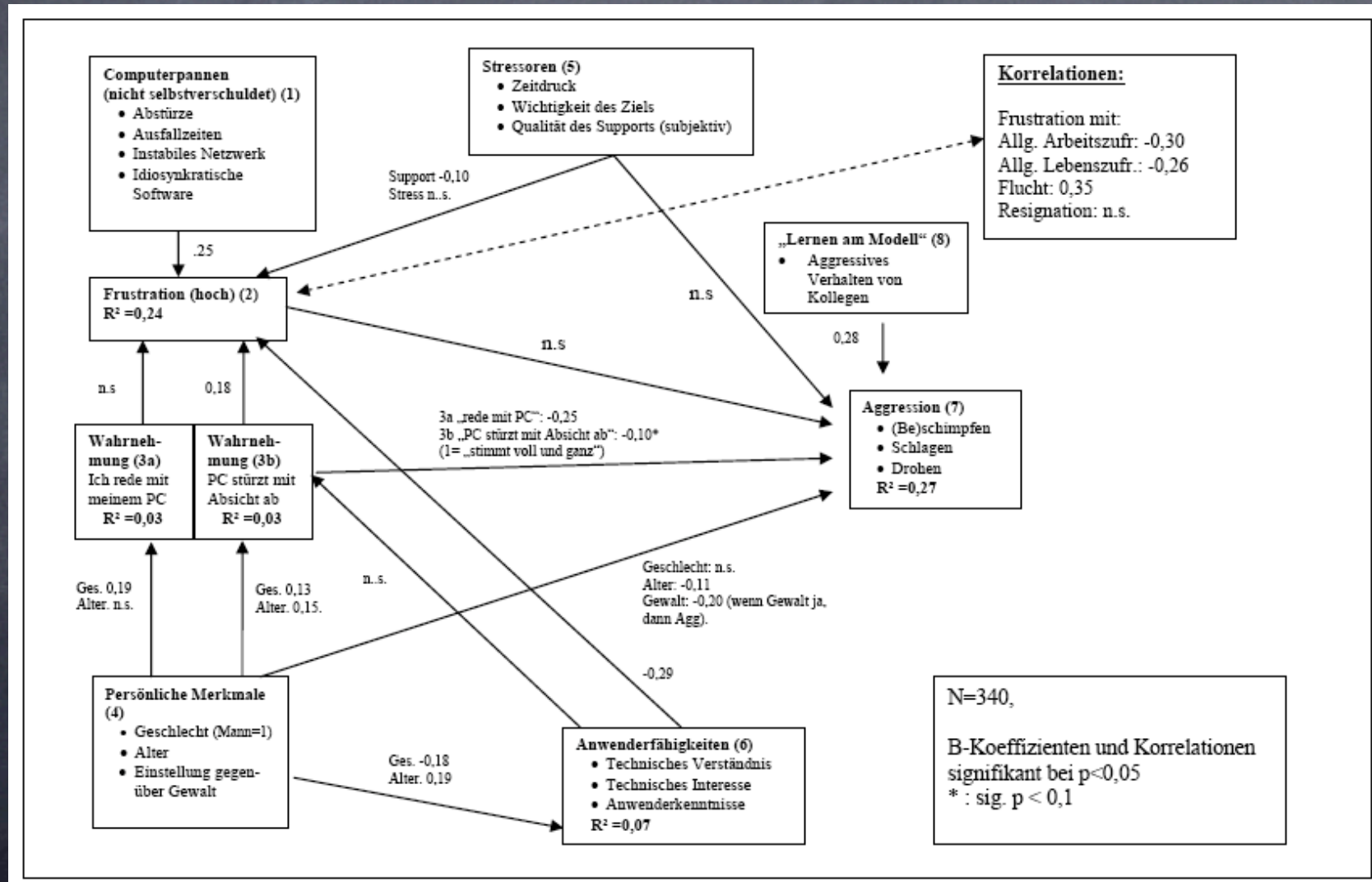
Frustration Theory + Computers

- A significant proportion of our problem solving is computer mediated.
- A significant proportion of the obstacles to achieving our desired goals are computer generated.
- A major source of frustration is the result of interacting with computers.
- The outcome is "computer rage."

What is Computer Rage?

- Physical Bashing of a Computer and/or a Computer Related Item
- Verbal Abuse of a Computer and/or a Computer Related Item (Brinks, 2004)
- Heightened Physiological Response with Associated Feelings of Anger and Frustration (Lazar, Jones, Bessiere, Ceaparu, & Shneiderman, 2004)

Full Theory of Computer Rage



Simple Theory of Computer Rage

Microsoft  Rage

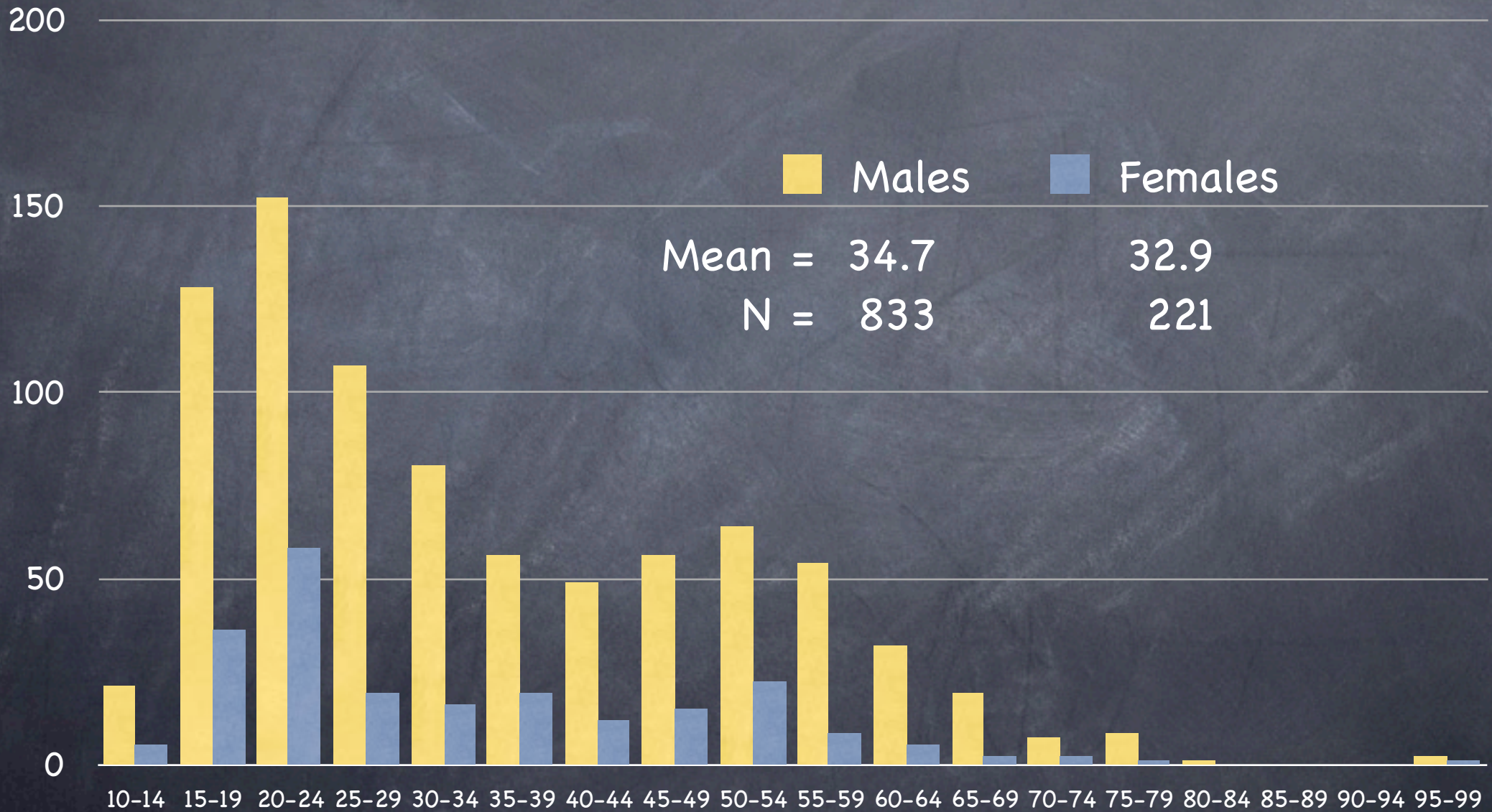
Online Survey Sample

- lap.umd.edu/computer_rage
- Total sample N = 2141
- US sample N = 1054, from 5/15/2002 to 1/30/2005 with a massive spike from 12/12/2004 to 1/21/2005 as result of media exposure (Baltimore Sun, Kojo Nnamdi Show, Future Tense, WUSA Channel 9 News)

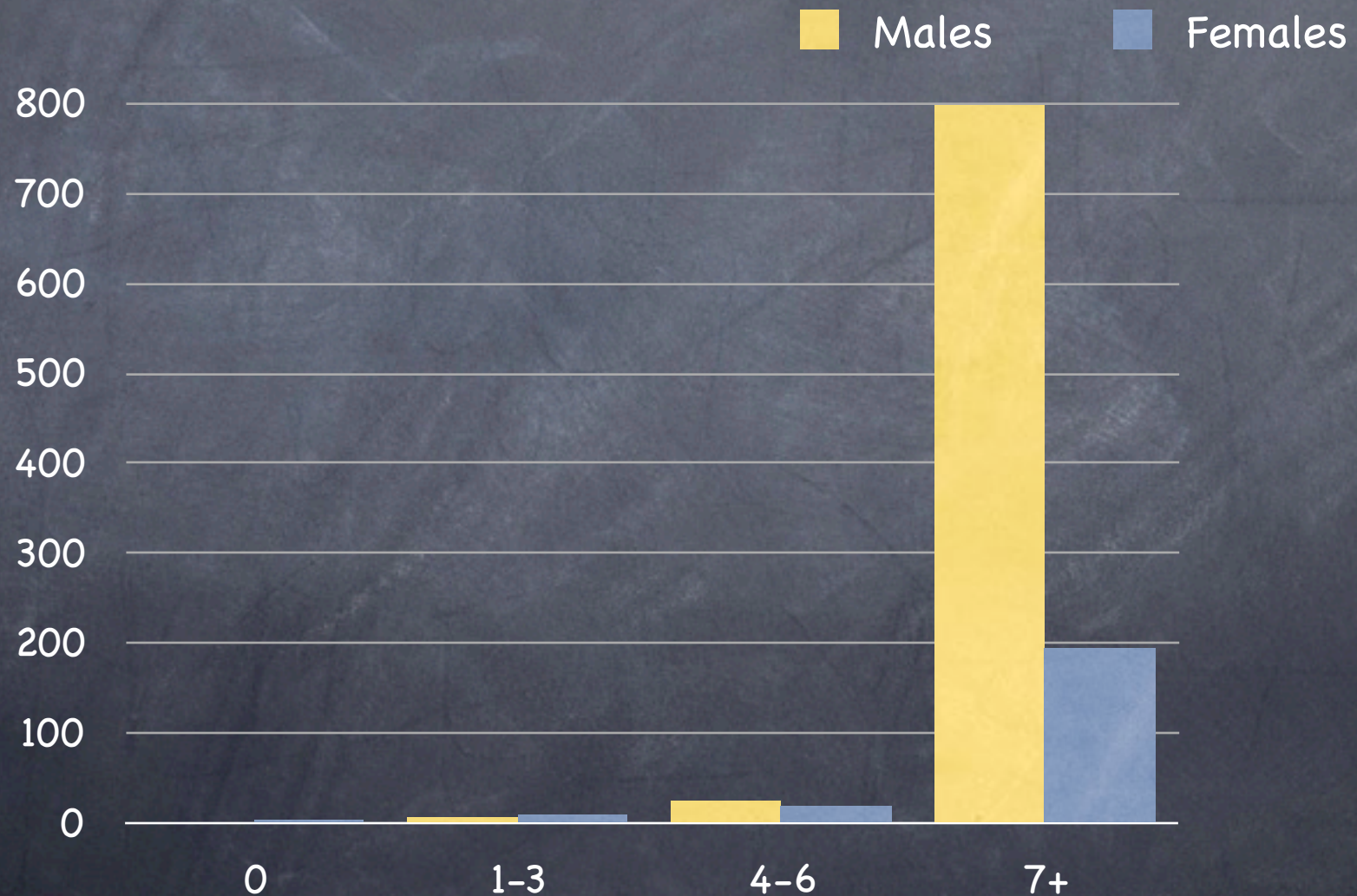
Issues with Online Surveys

- Nonrandom sample from the population ... age, gender, experience, etc. can be assessed.
- Bias due to self selection ... but which way?
- Bias due to context and framing ("Computer Rage") ... but which way?

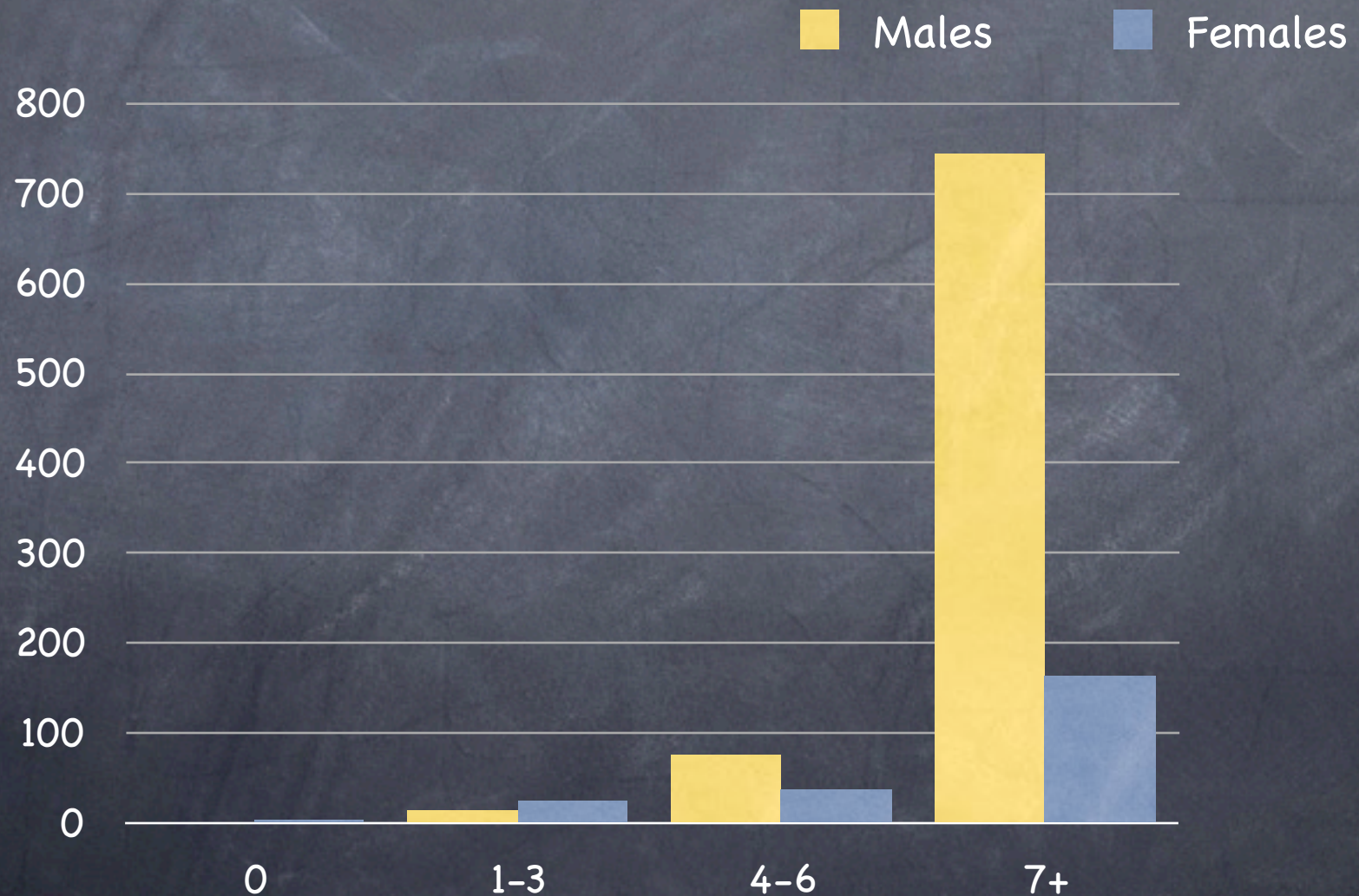
Demographics



Average number of hours per week on computers



Average number of hours per week on the WWW



Have you ever been angry with a computer?

■ Males ■ Females

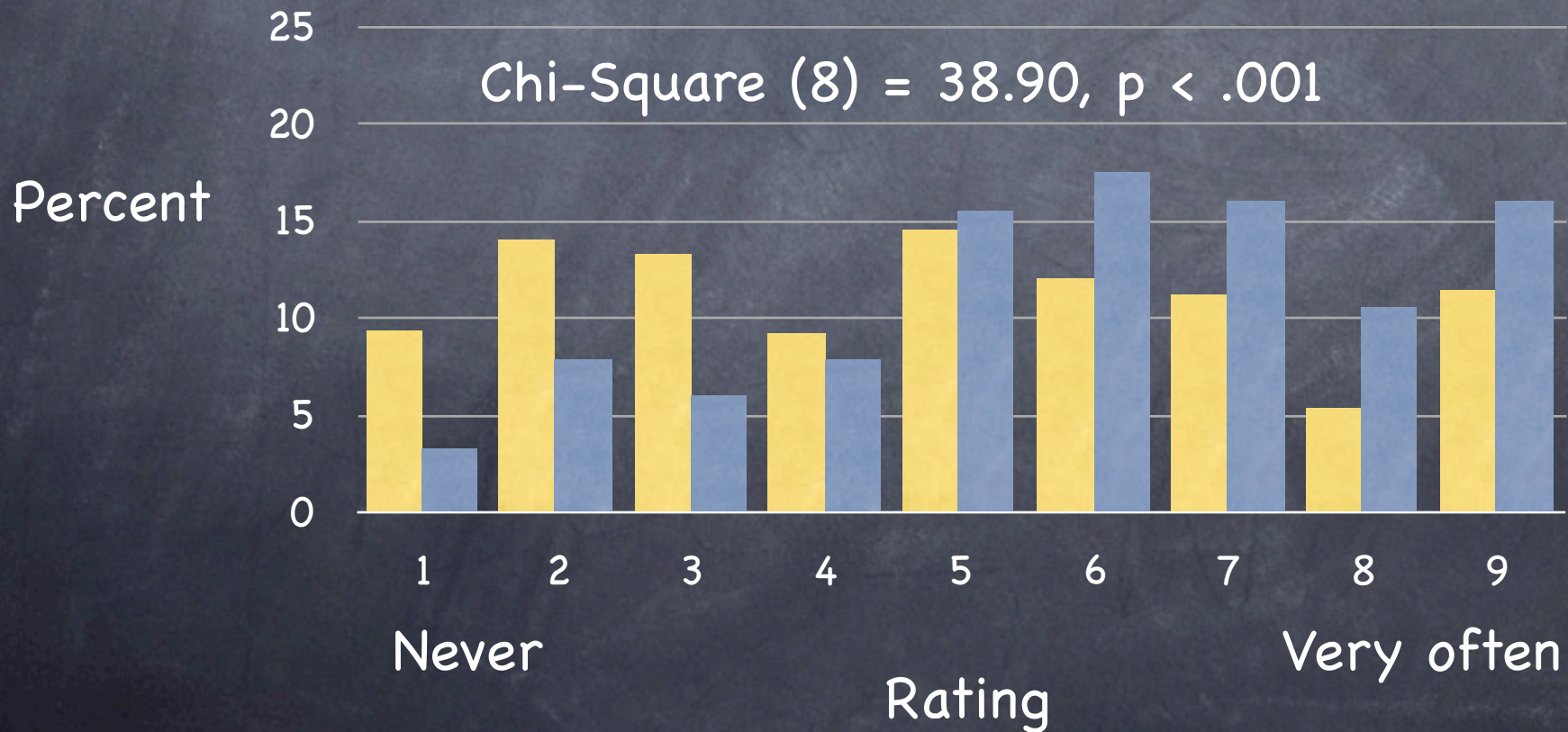
mean = 4.81

5.89

sd = 2.49

2.25

$t(1044) = 5.81, p < .001$



How frustrated do you get when the computer crashes and has to be restarted?

■ Males ■ Females

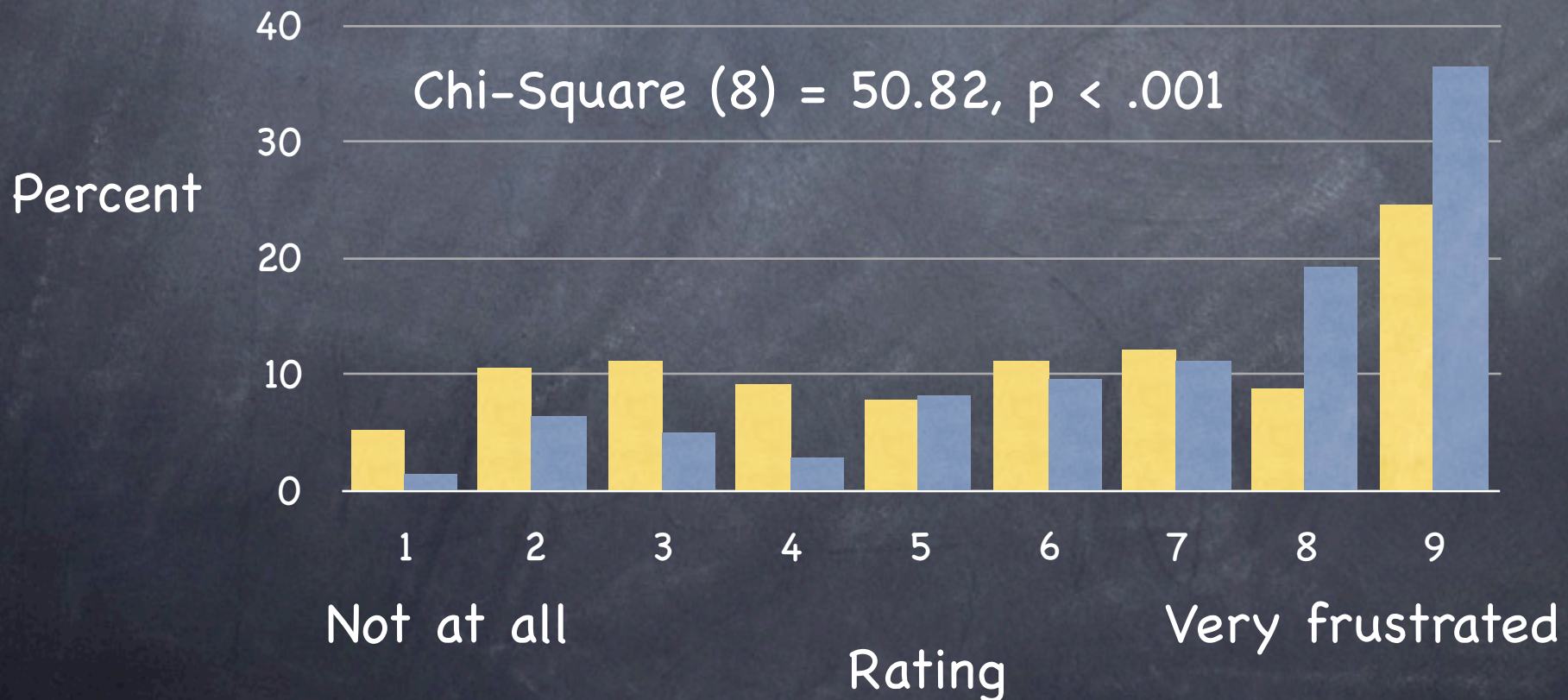
mean = 3.72

4.84

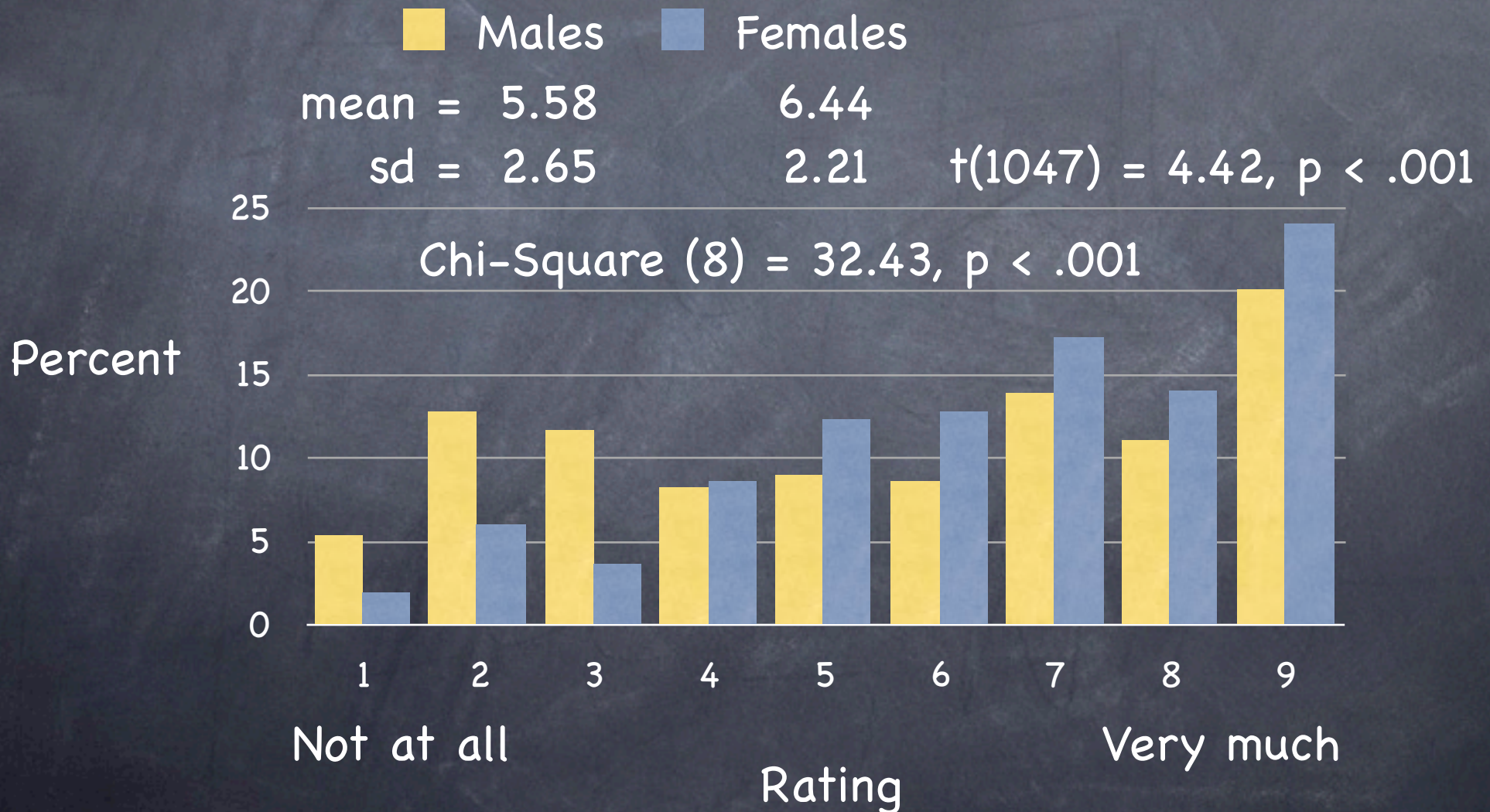
sd = 2.25

2.23

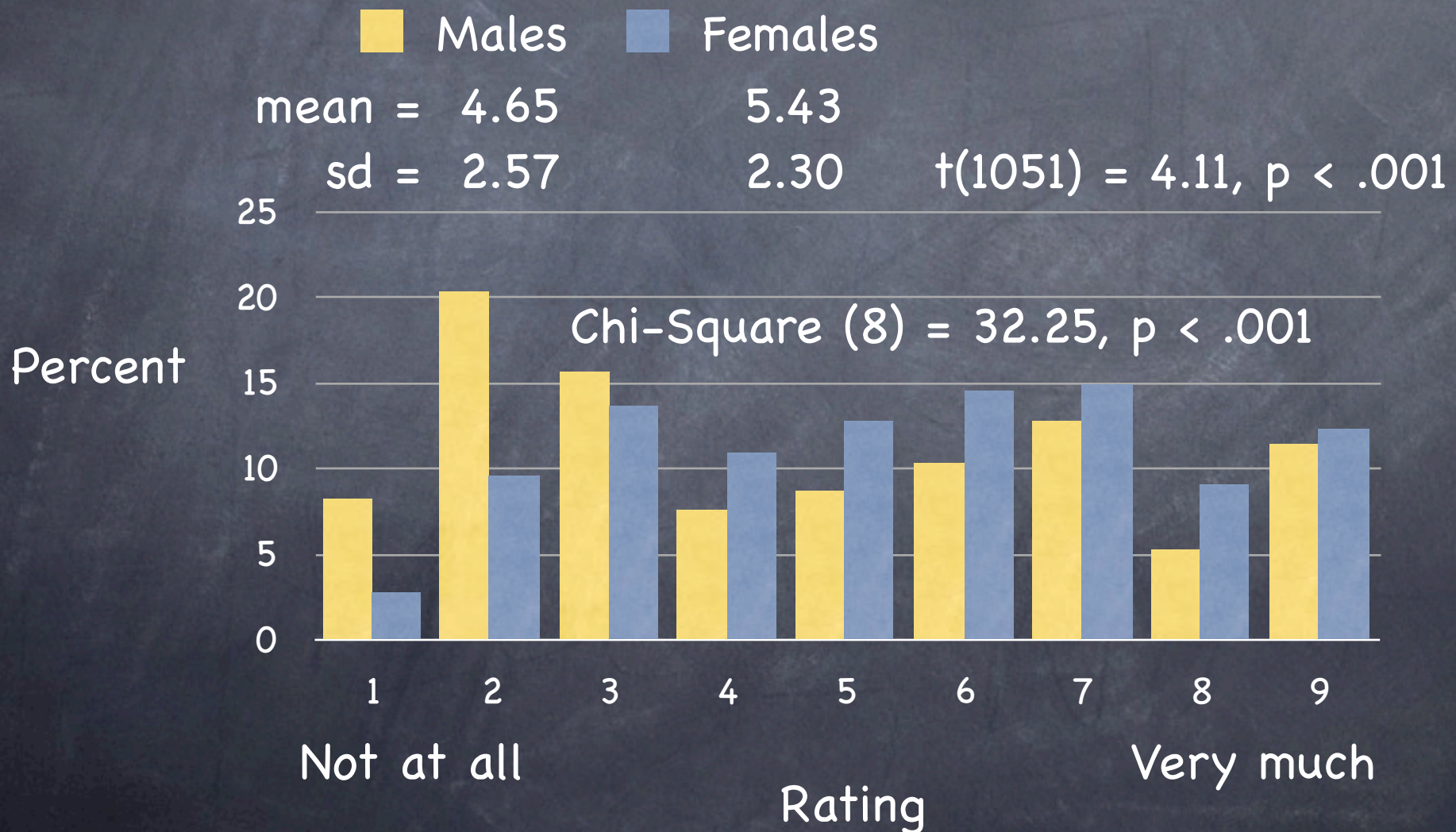
$t(1045) = 6.5, p < .001$



To what extent have you been frustrated waiting for a computer to do something?



How often have you been frustrated because you had to redo something over and over because of a computer problem?



How annoying is it to you to use a mouse to move a cursor around the screen?

■ Males ■ Females

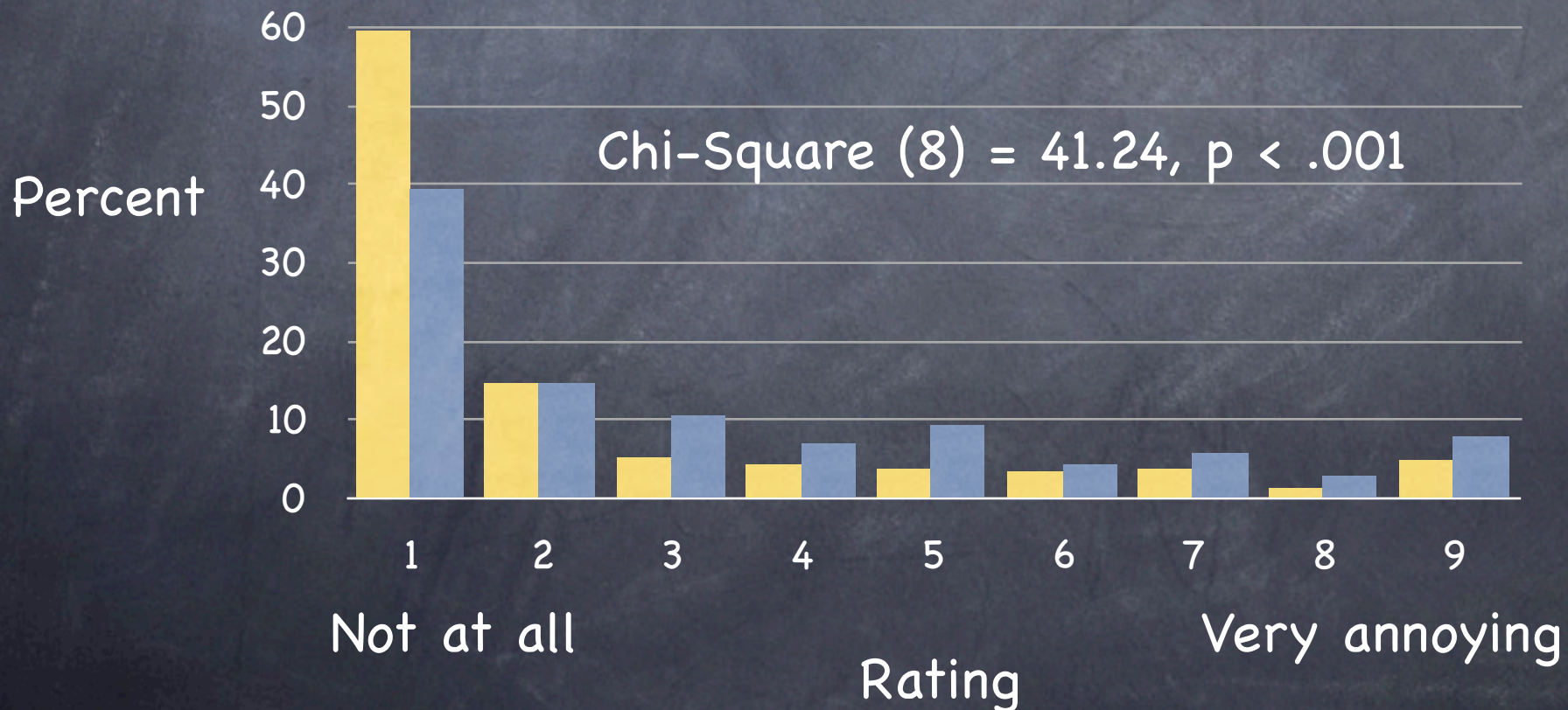
mean = 2.37

3.26

sd = 2.25

2.61

$t(1049) = 4.96, p < .001$



How irritated have you been by how hard it is to read the computer screen?

■ Males ■ Females

mean = 2.72

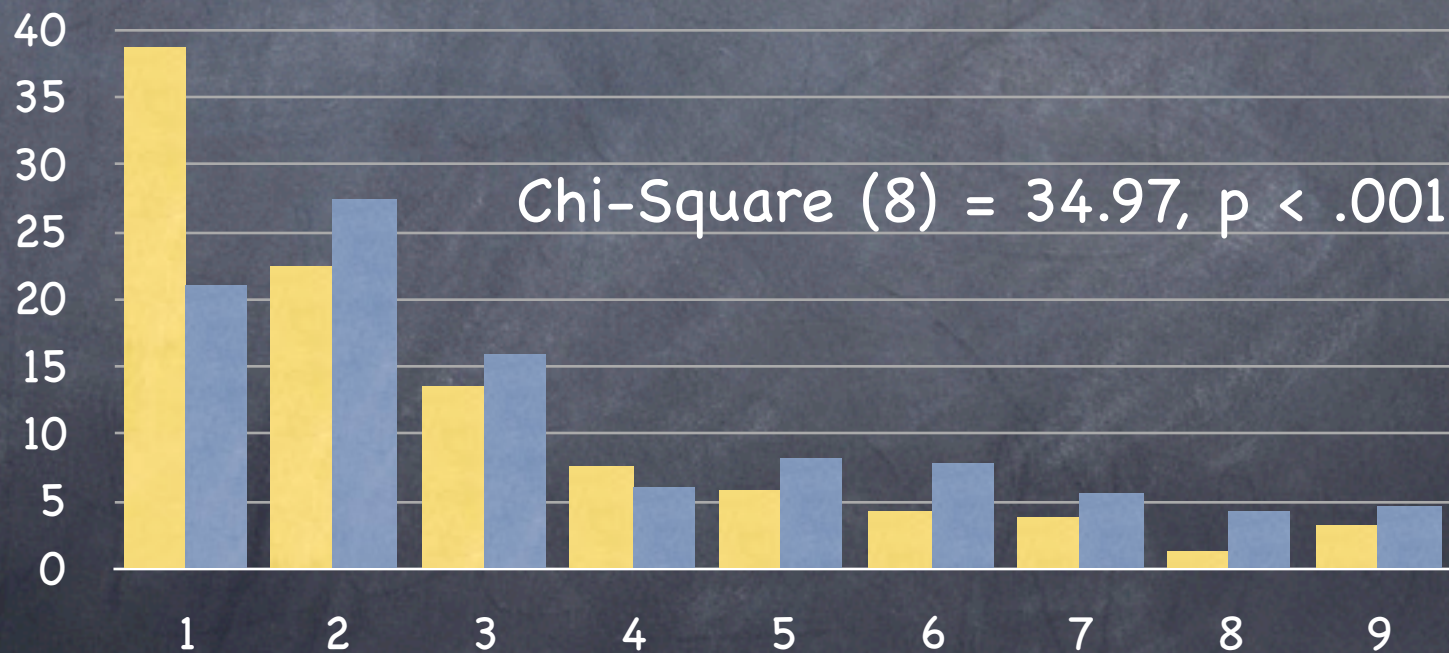
3.46

sd = 2.10

2.35

$t(1042) = 4.51, p < .001$

Percent



Not at all

Rating

Very irritated

How annoyed have you been because of typing errors on a computer?

■ Males ■ Females

mean = 3.14

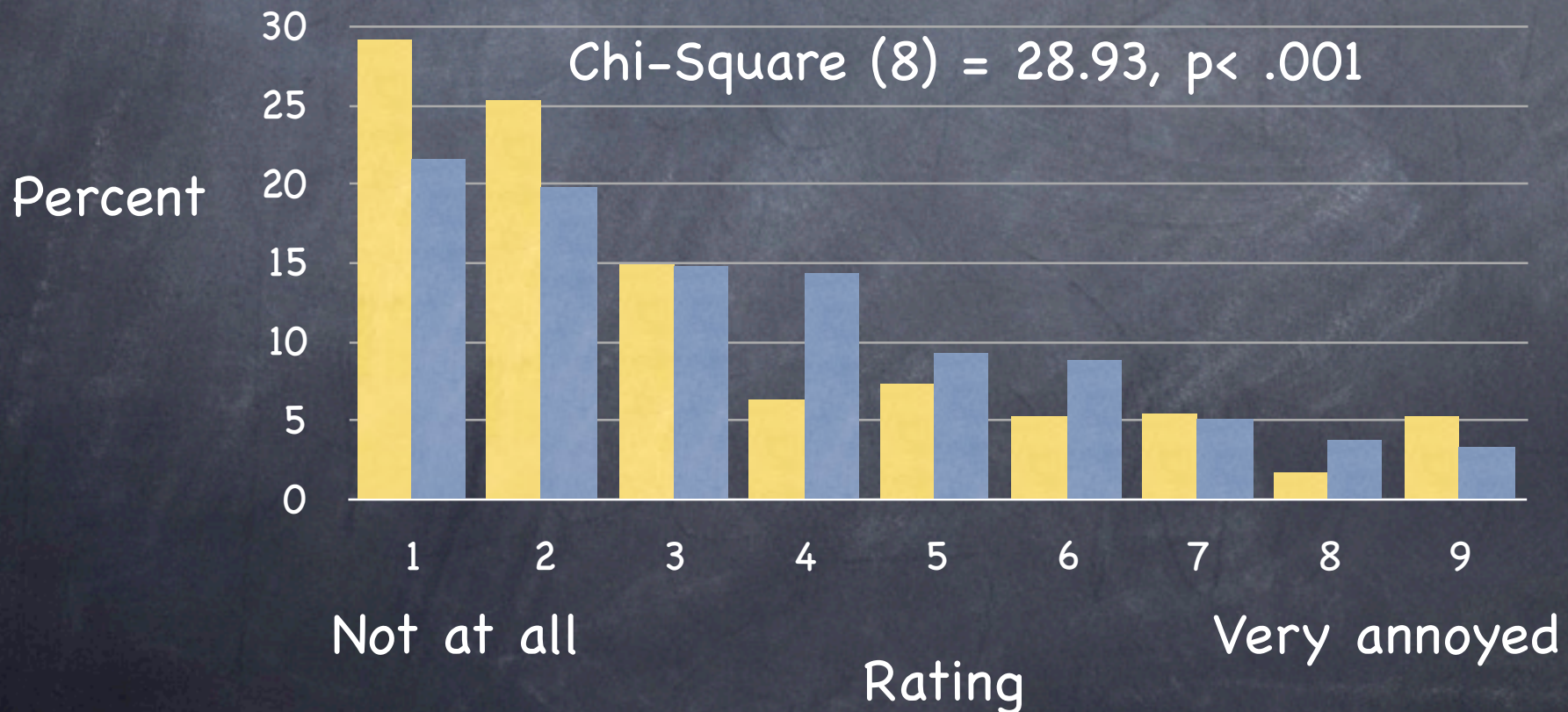
3.54

sd = 2.32

2.23

$t(1042) = 2.26, p > .01$

Chi-Square (8) = 28.93, $p < .001$

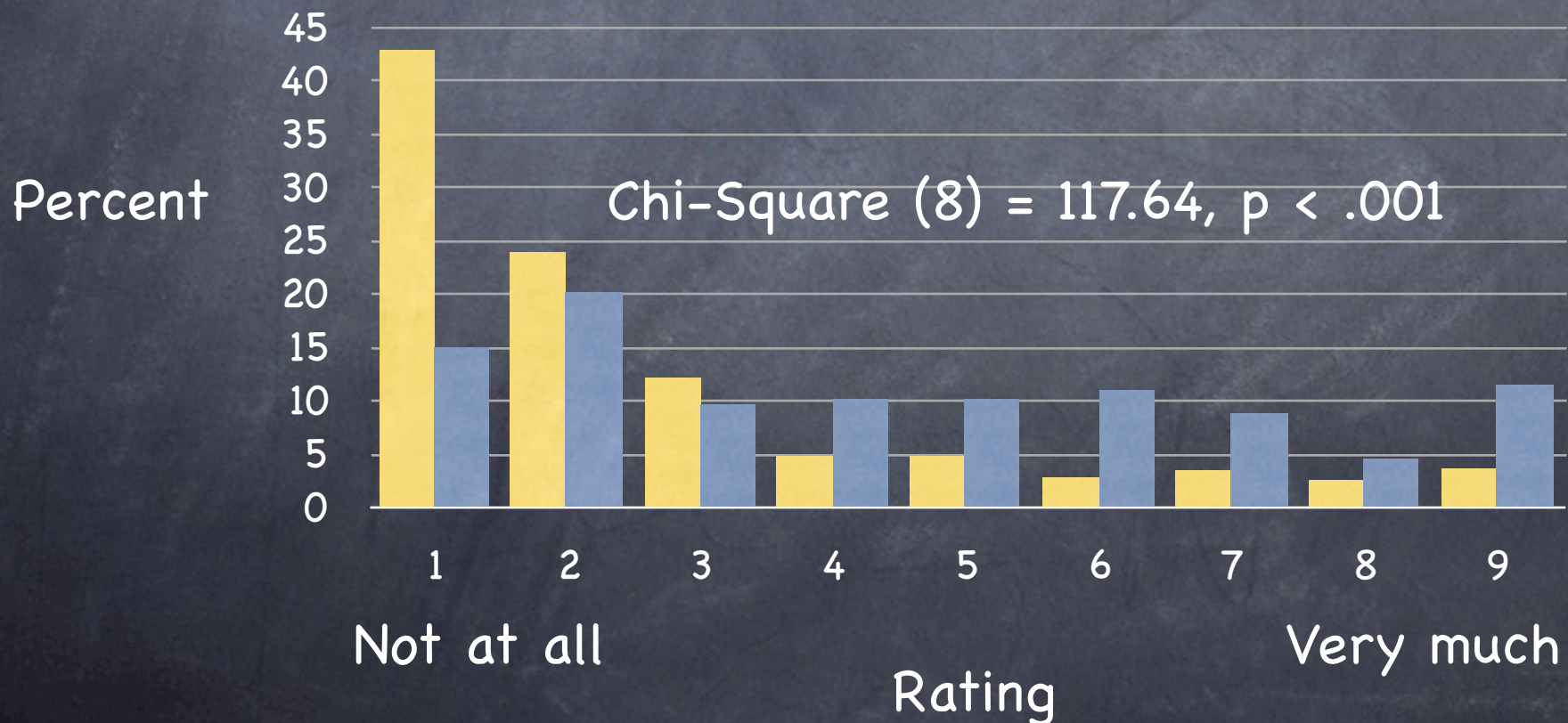


How frustrated have you been by not understanding how the computer works?

■ Males ■ Females

mean =	2.59	4.38
sd =	2.12	2.65

$t(1049) = 10.43, p < .001$



How frustrated have you been when you could not figure out how to get the computer to do something that you wanted?

■ Males ■ Females

mean = 4.67

6.10

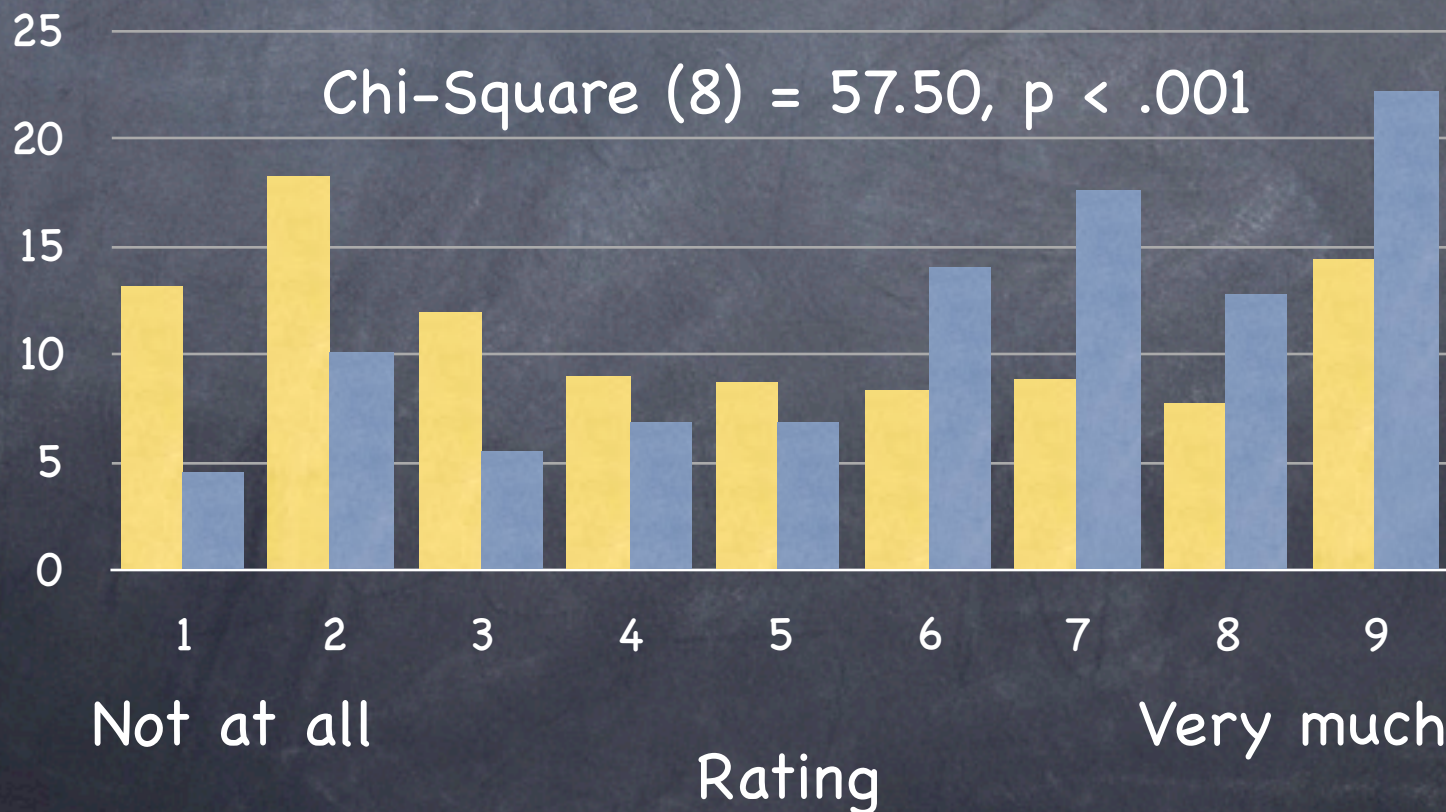
sd = 2.76

2.50

$t(1050) = 7.00, p < .001$

Chi-Square (8) = 57.50, $p < .001$

Percent



How frustrating are computer manuals and documentation to you?

■ Males ■ Females

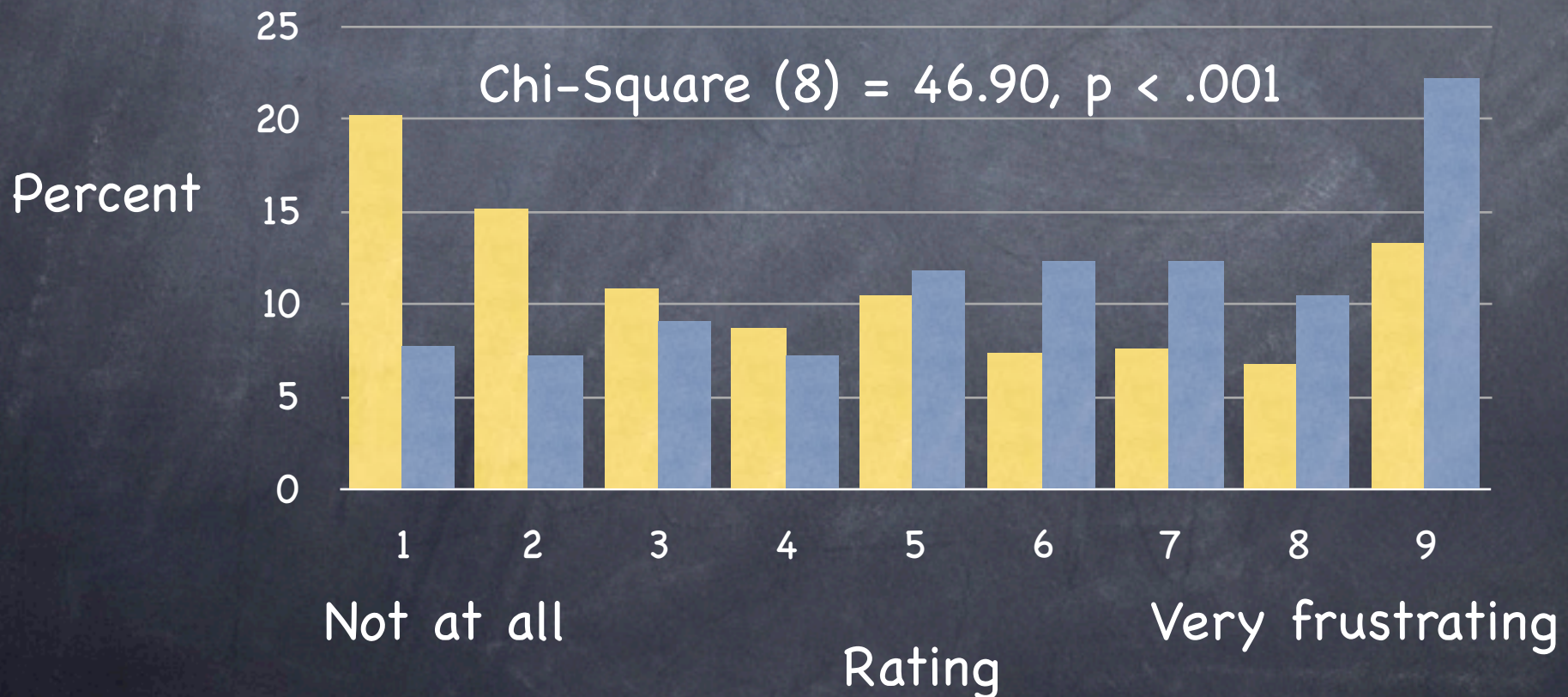
mean = 4.39

5.79

sd = 2.80

2.61

$t(1045) = 6.69, p < .001$



How annoyed have you been by computer help systems not giving you answers?

■ Males ■ Females

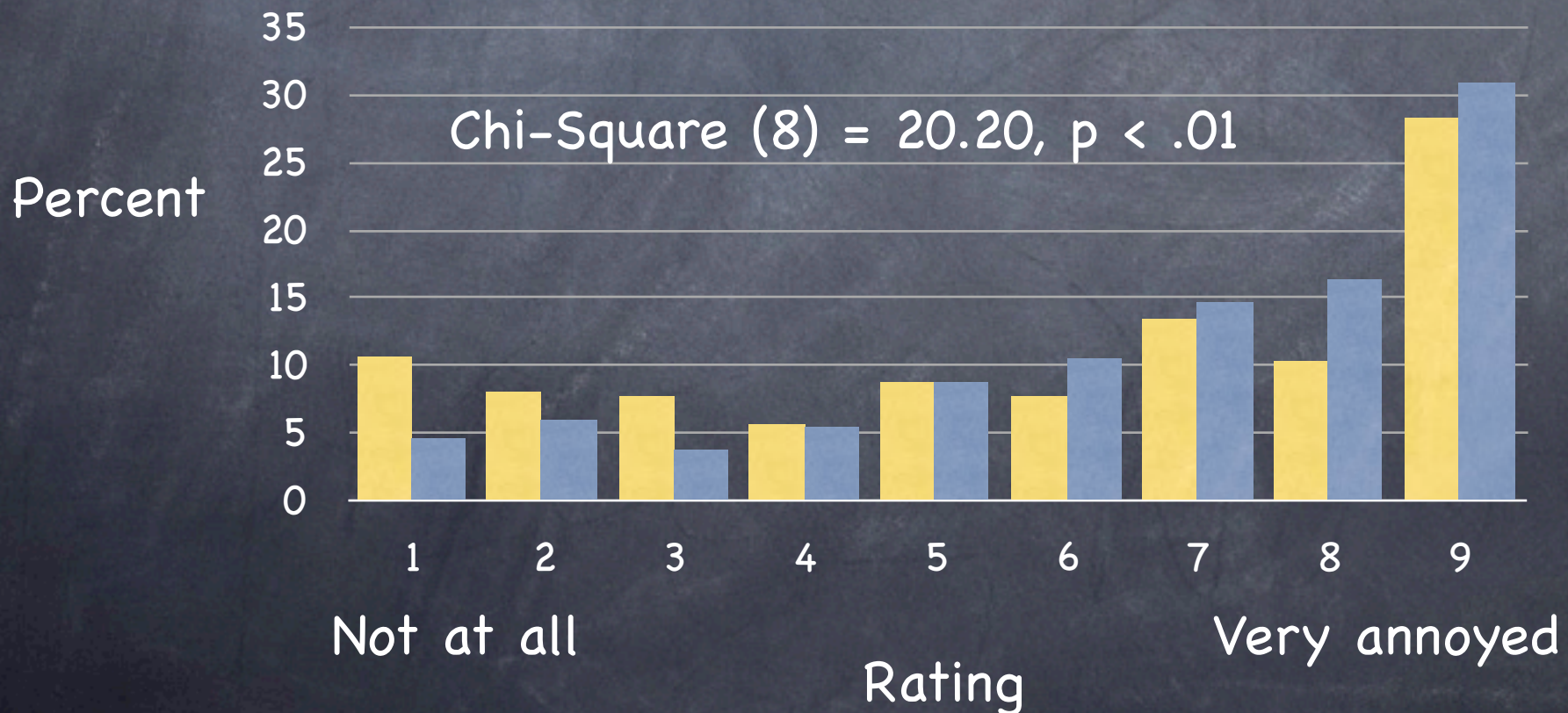
mean = 5.91

6.63

sd = 2.83

2.43

$t(1046) = 3.47, p < .001$



How annoyed have you been with computer help desks and hot lines?

■ Males ■ Females

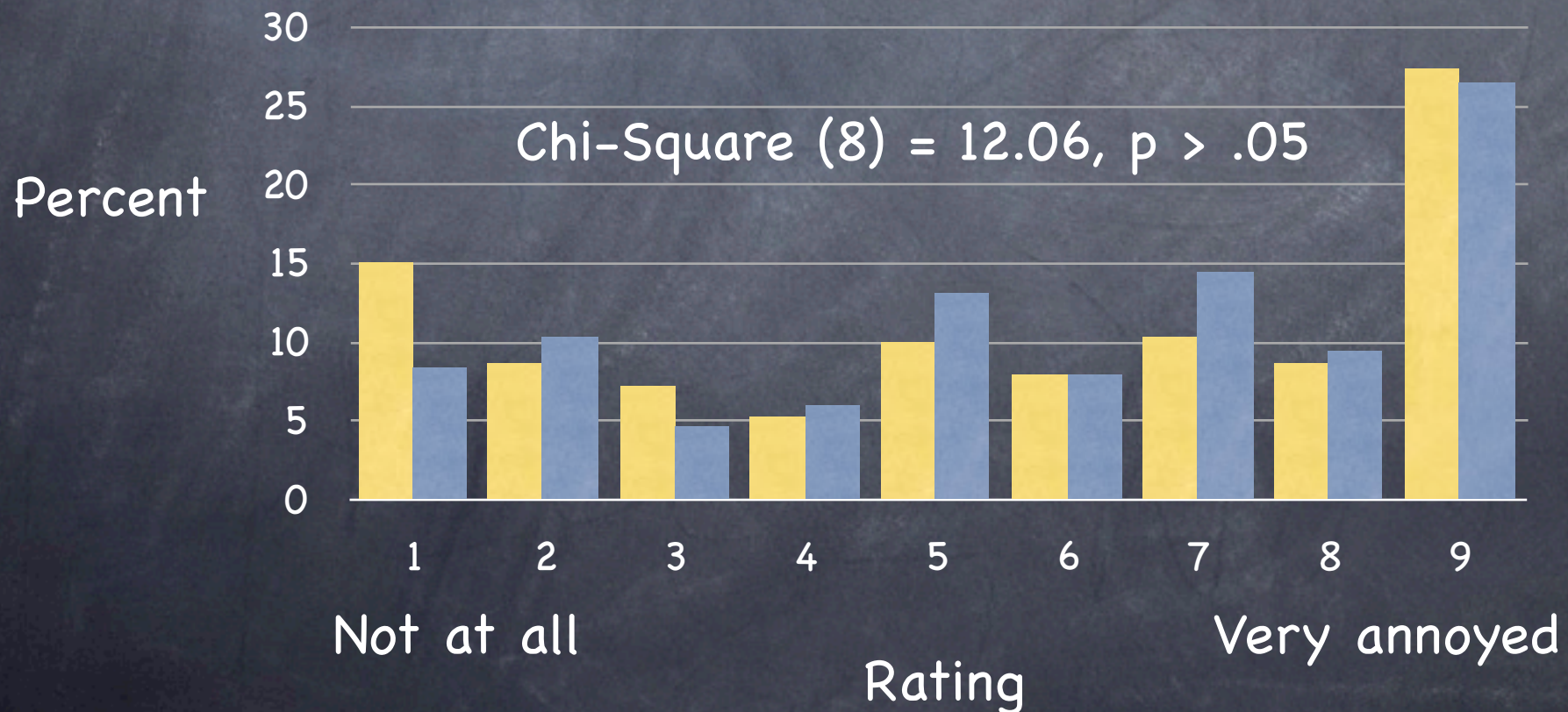
mean = 5.58

5.91

sd = 2.97

2.72

$t(1036) = 1.47, p > .05$



How frustrating is it trying to find information on the World Wide Web?

■ Males ■ Females

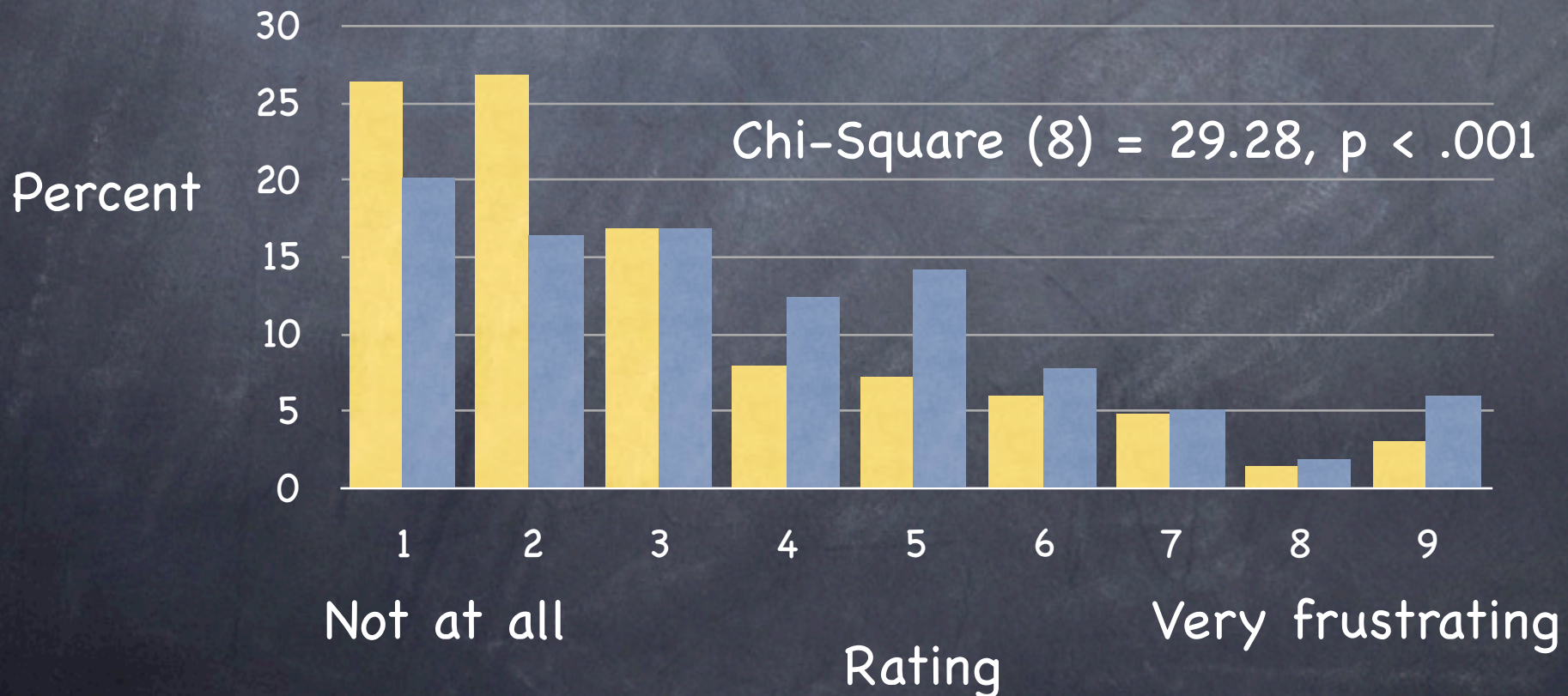
mean = 3.04

3.72

sd = 2.10

2.29

$t(1046) = 4.16, p < .001$



How annoyed are you by too much email?

■ Males ■ Females

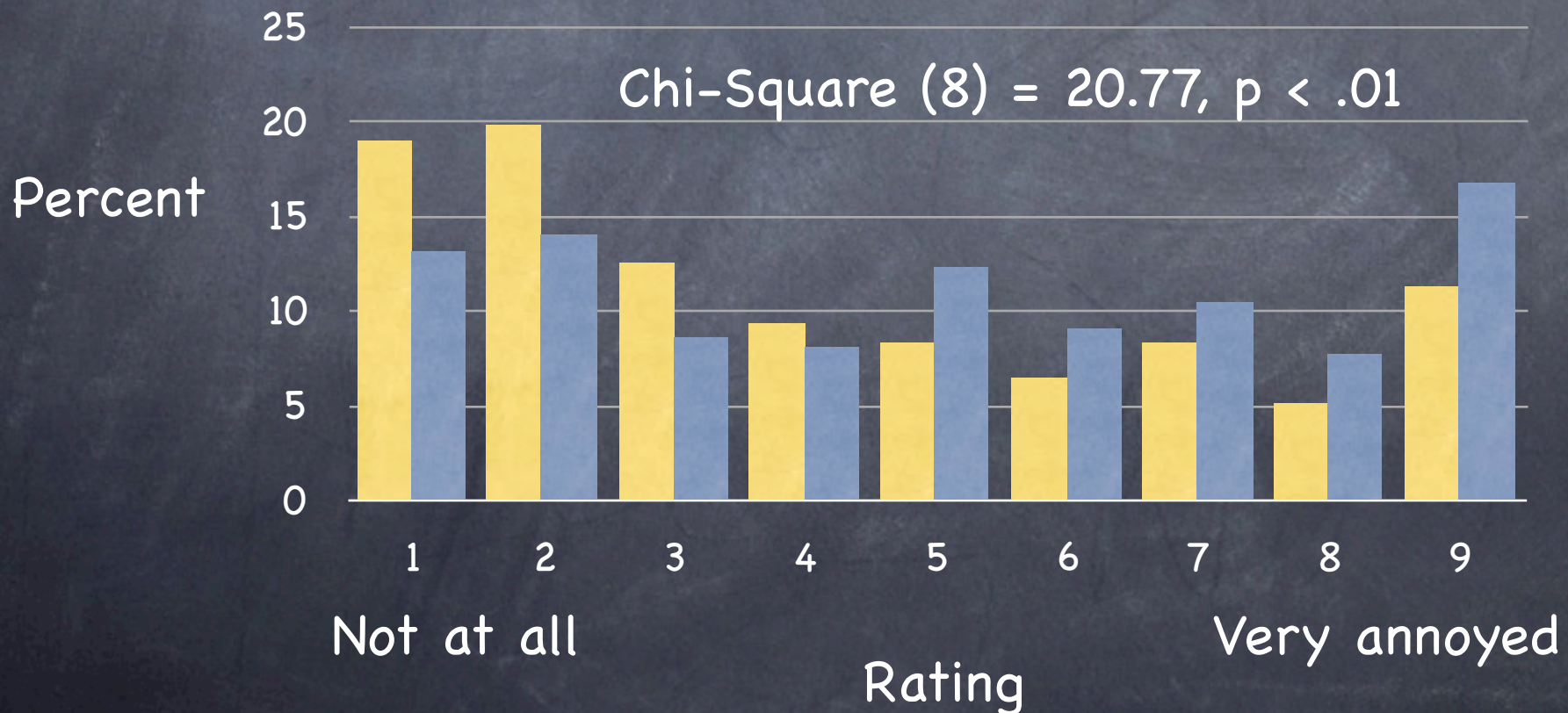
mean = 4.14

5.00

sd = 2.71

2.78

$t(1048) = 4.16, p < .001$



How frustrated have you gotten when trying to set up a new computer system?

■ Males ■ Females

mean = 3.26

4.61

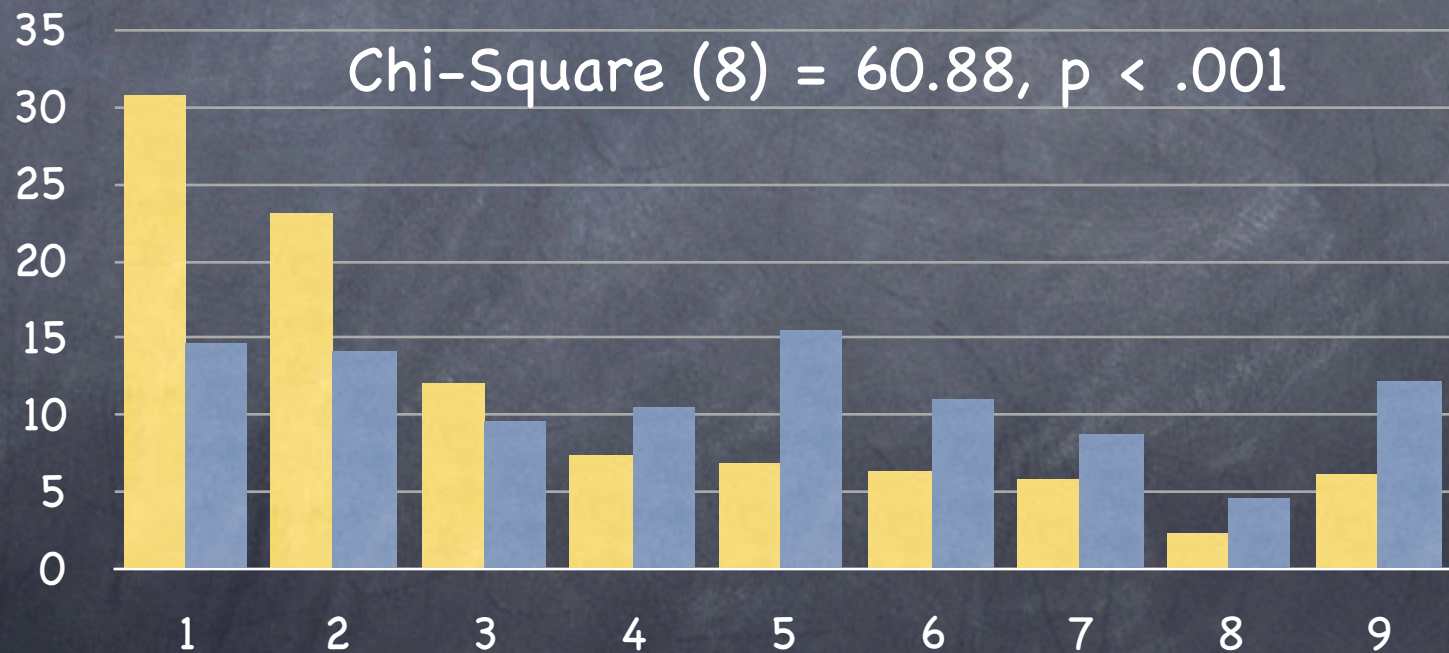
sd = 2.45

2.60

$t(1046) = 7.18, p < .001$

Chi-Square (8) = 60.88, $p < .001$

Percent



Not at all

Rating

Very frustrated

How frustrated have you gotten when trying to install new software?

■ Males ■ Females

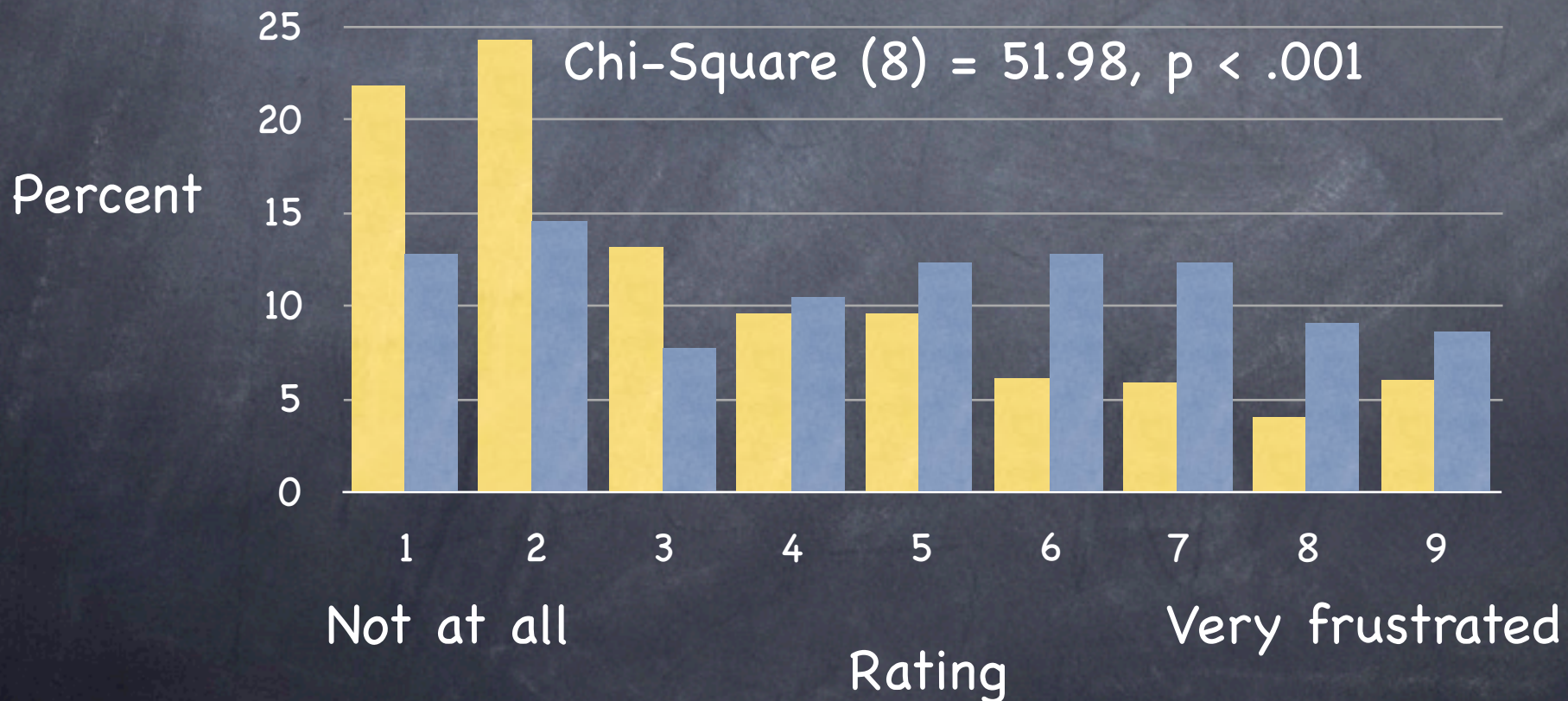
mean = 3.58

4.79

sd = 2.42

2.56

$t(1050) = 6.53, p < .001$



How irritating has it been for programs to become obsolete and having to upgrade to new versions?

■ Males ■ Females

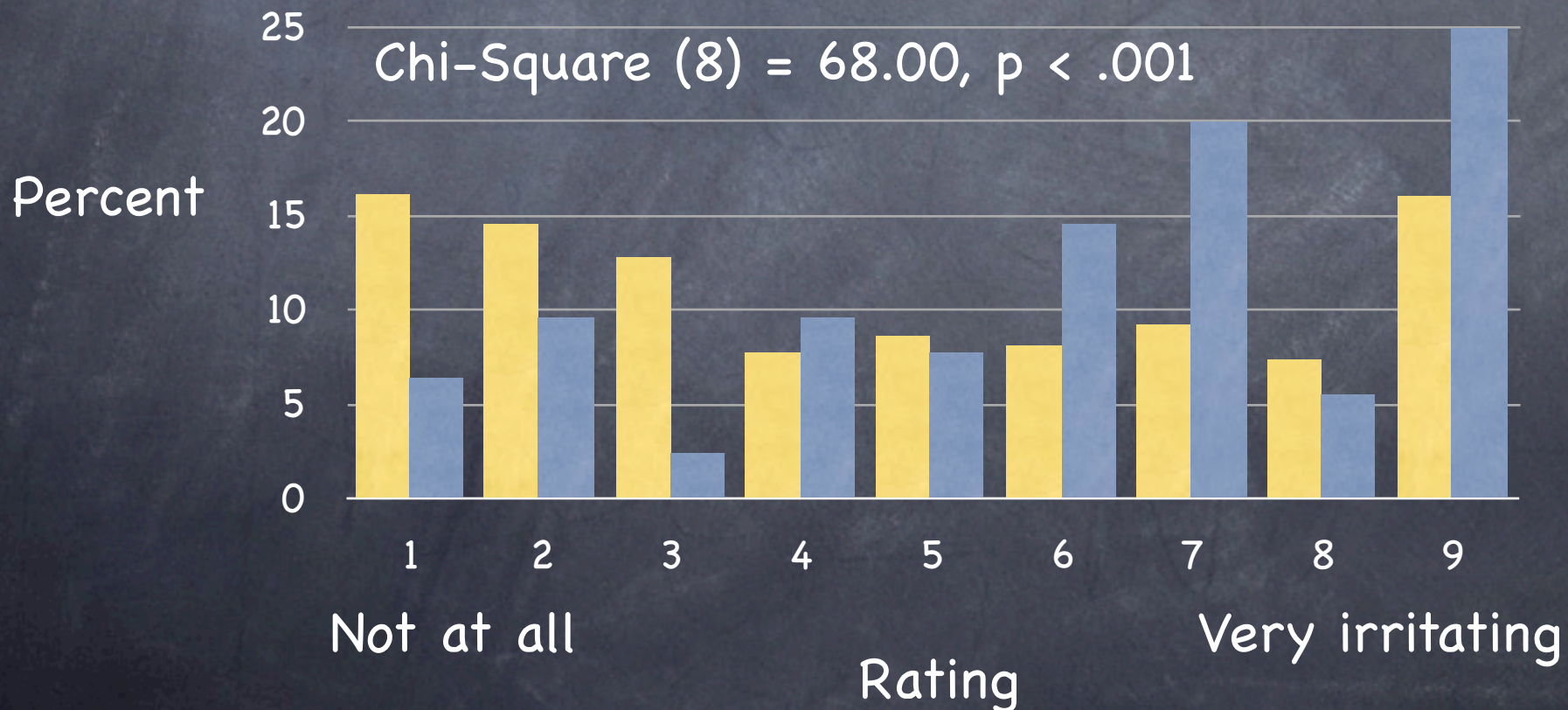
mean = 4.71

6.02

sd = 2.84

2.54

$t(1045) = 6.25, p < .001$



Have you ever wanted to throw your monitor out of a window?

■ Males ■ Females

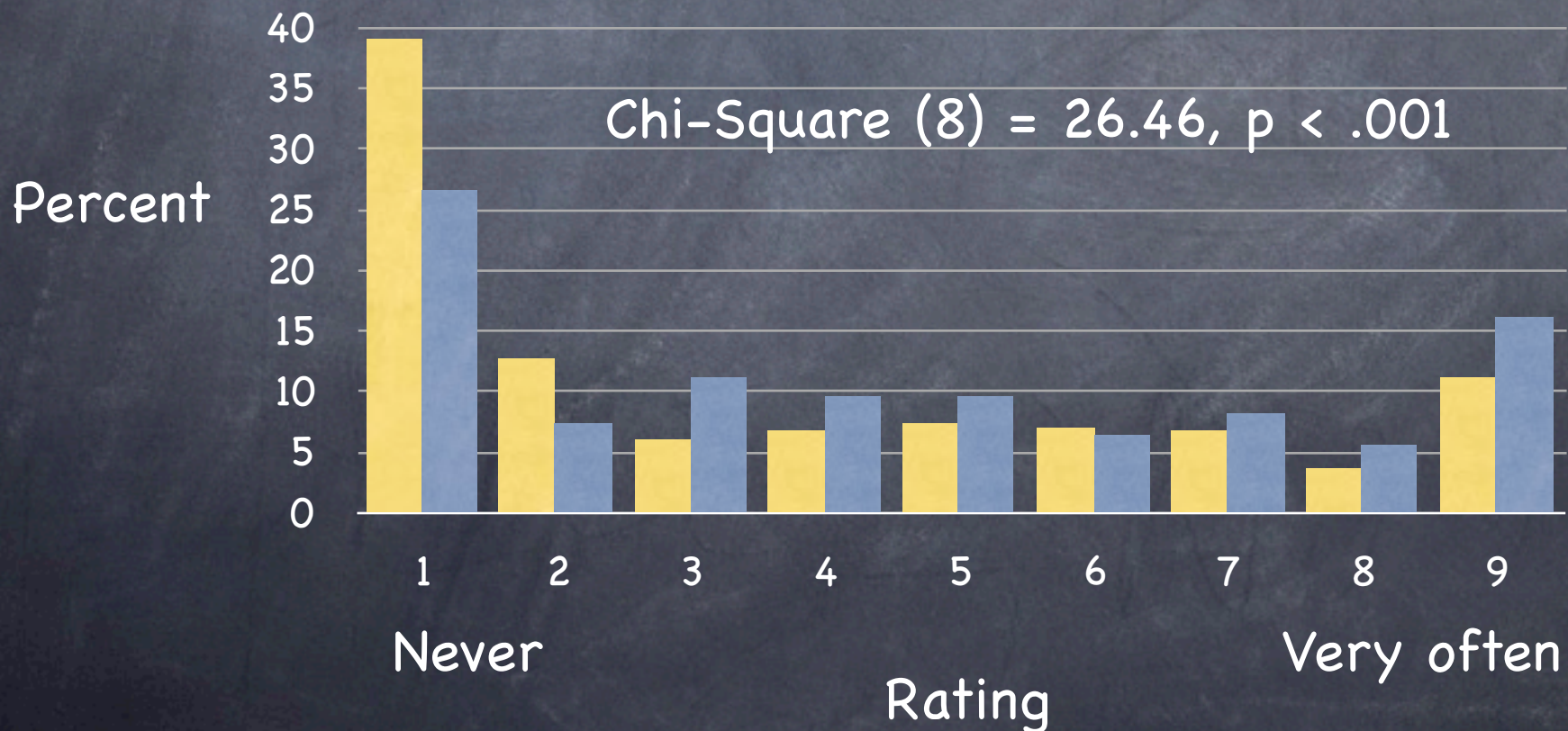
mean = 3.63

4.44

sd = 2.87

2.93

$t(1043) = 3.68, p < .001$

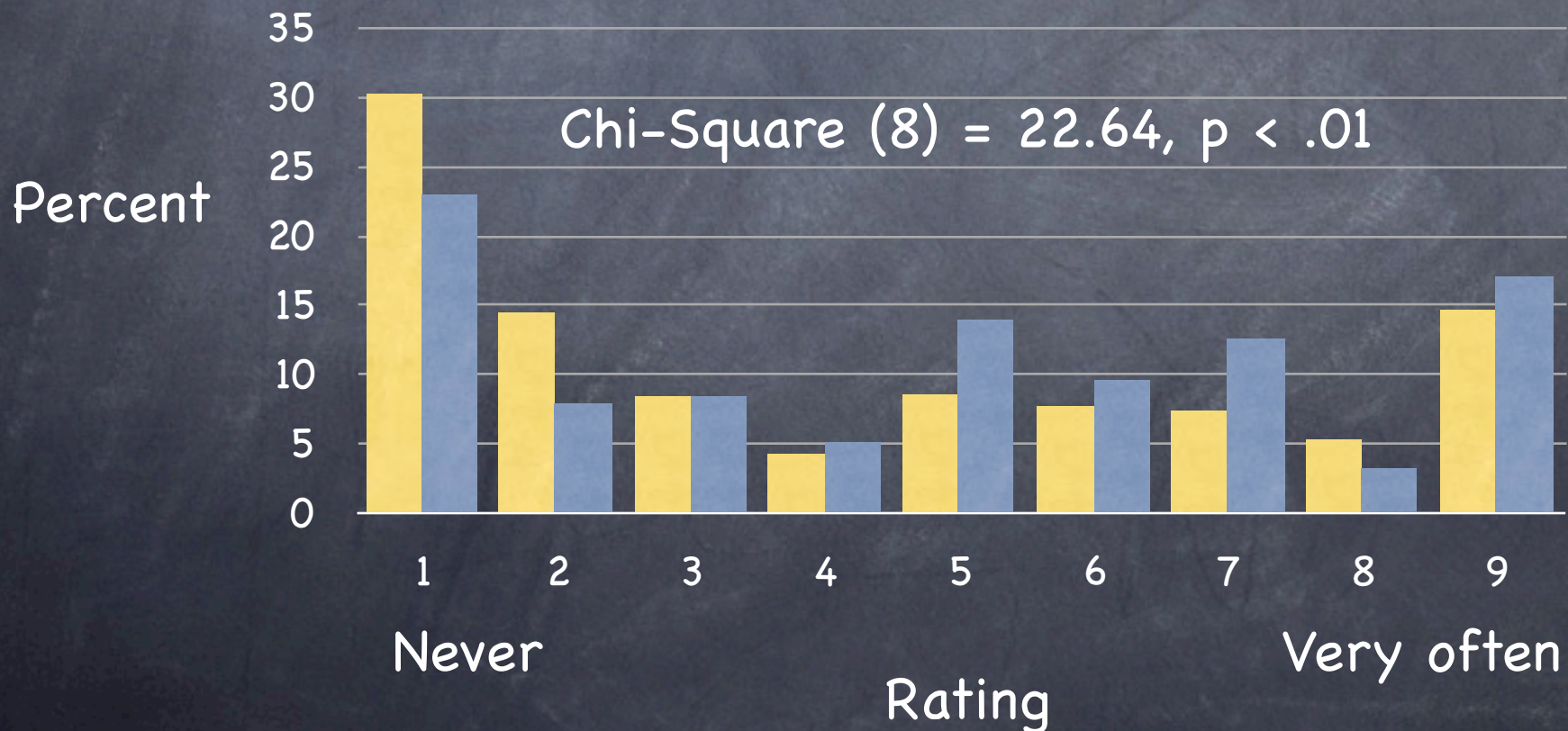


Have you ever felt like smashing a computer screen with a heavy object?

■ Males ■ Females

mean = 4.11 4.75

sd = 2.98 2.88 $t(1044) = 2.84, p < .01$



Age and Frustration

- Age was negatively correlated with frustration:
 - waiting for the computer, $r = -.18$
 - having to redo something, $r = -.15$
 - computer crash, $r = -.10$
- Age was negatively correlated with
 - being angry with a computer, $r = -.22$
 - desire to smash the screen, $r = -.25$
 - desire to throw monitor out the window, $r = -.24$

Experience Factors and Frustration

- Number of hours on the computer and the WWW was correlated, $r = .54$.
- Both of these experience factors were negatively correlated with frustration on all factors except with help systems, help desks, and email.

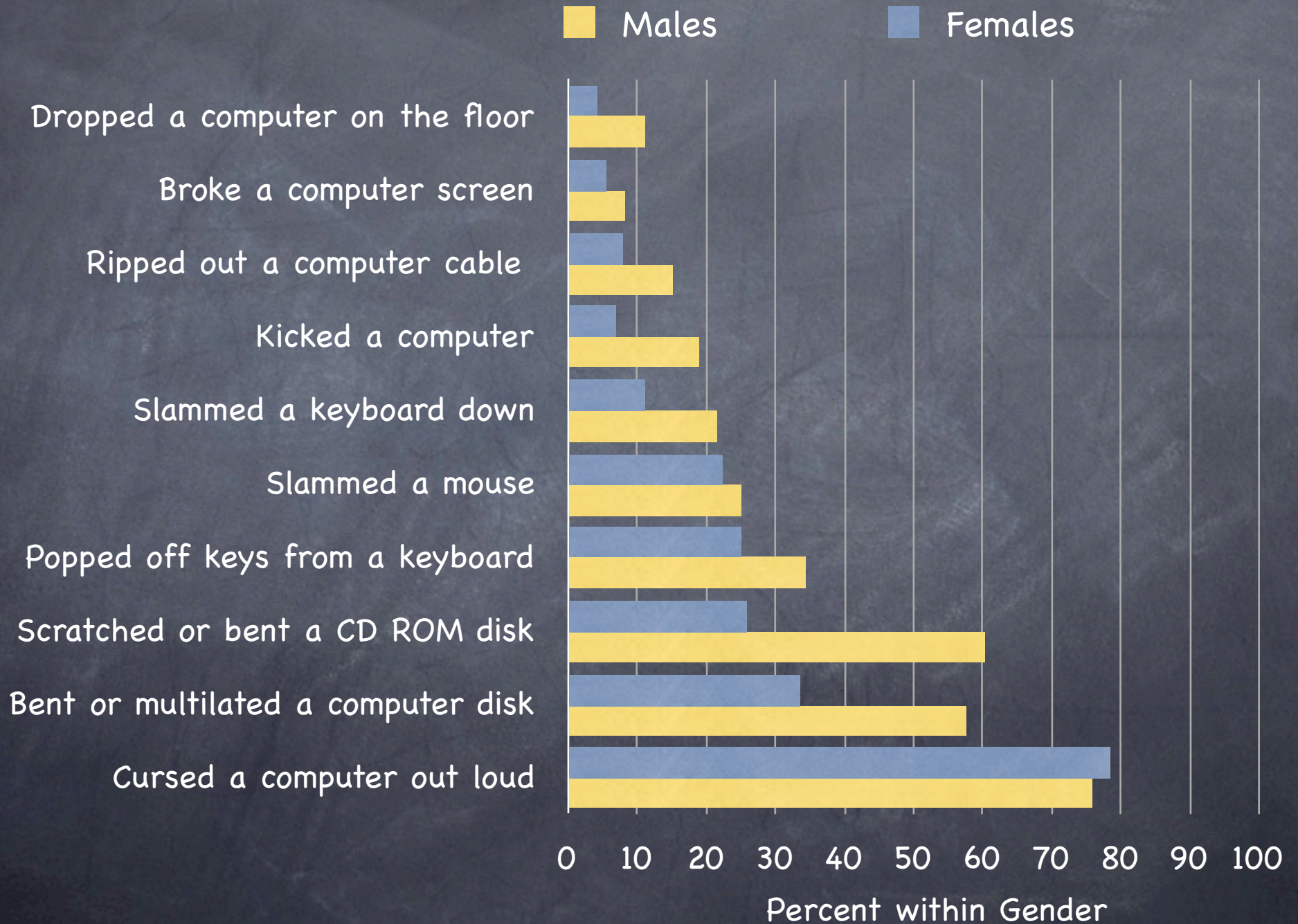
Students versus Others

- There were 277 students (undergraduates and graduates) and 629 others (employed, not employed, etc)
- Students had an average age of 23.7 and others 38.7.
- Others were significantly more frustrated than students on the following factors:
 - reading a computer screen
 - manuals and documentation
 - help desks and hot lines
 - too much email
 - installing new software
 - upgrading to new versions

A factor analysis on 20 scales resulted in four components:

- overall frustration (the "F" component) which loaded on all scales.
- a physical acts of frustration (the "P" component, e.g., desired to smash, break)
- irritation with the interface (the "I" component, e.g., mousing, typing, reading)
- lack of help (the "H" component, not understanding the computer, frustration with help systems and help desks)

Incidence of Rage Behaviors by Gender



Incidence by Age and Status

- There is virtually no difference in proportions of behaviors reported by students and others.
- There is no difference in proportions of behaviors reported by age (using a median split).

The Down Side of Computer Rage

- Destruction of personal, business, or government property (estimates are in the millions of dollars annually)
- Potential injury to self or others
- Loss of personal time or time on the job

The Up Side of Computer Rage

- Release of “pent” up anger
- Directed at physical objects rather than other people
- Can be personally rewarding
- Helps to reduce inventory of older equipment and increase purchase of new equipment

Good Practices of Computer Rage

- Controlled Rage: Find the appropriate time, place, and method.
- Safety First: Use safety goggles and protect others.
- Select Targets Wisely: Preferably Vent on Obsolete Equipment.
- Consider Vicarious Computer Rage: Buy our Computer Rage I and II DVDs.

The End

