

# Writing About Statistical Findings

Today's information is based on:

Miller, Jane E. (2006) How To Communicate Statistical Findings: an Expository Writing Approach. *Chance* 19, No. 4, pp 43-49.

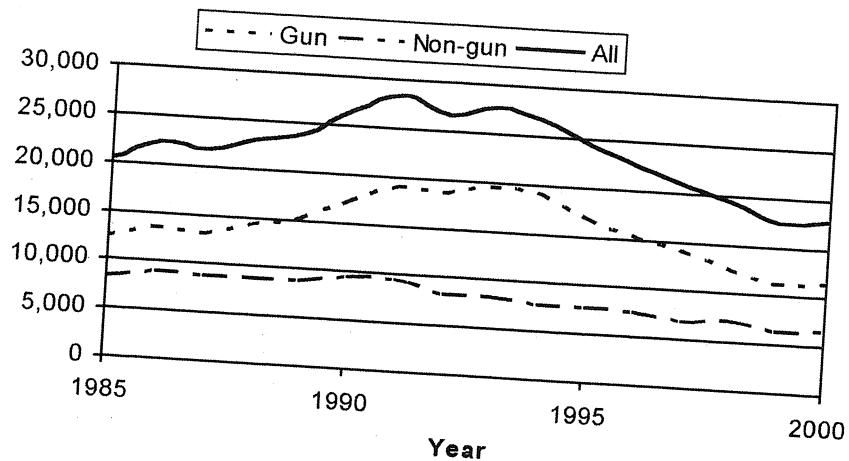
For each topic, compare the sentences. What makes the better ones better?

## Introducing the Topic

**Poor:** [No introductory sentence.] "In 2000, there were 11,280 gun-related homicides (Figure 1)."

**Better:** "What factors explain the observed rise and fall in overall homicide rates in the United States in the 1990s (Figure 1)?"

**Best:** "Was the substantial rise and subsequent fall in the number of homicides in the 1990s in the United States (Figure 1) observed across all age groups and types of weapons?"

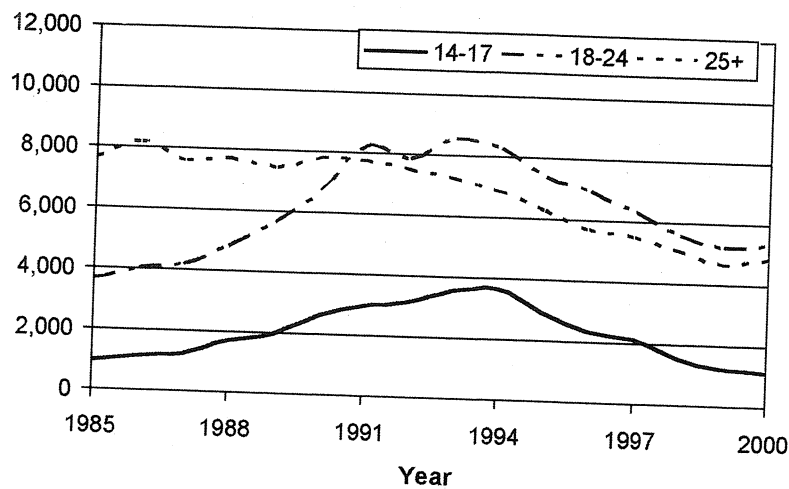


**Figure 1. Gun and non-gun homicides, United States, 1985–2000**

Source: Fox, J.A., and Zawitz, M.W. (2004). *Homicide Trends in the United States*. U.S. Department of Justice, Bureau of Justice Statistics: Washington, DC

## Continuing the Introduction

**Poor:** "In 1985, there were 20,370 homicides, 12,263 of which were gun-related (Figure 1). The total number of homicides rose until the mid-1990s, and then declined until 2000. In 1985, 14–17 year olds committed 952 gun-related homicides, while persons 18–24 and 25+ committed 3,633 and 7,621 gun-related homicides, respectively (Figure 2). Three-quarters of teenage homicide victims were killed by guns, compared to only one-quarter of those aged 80 and older (Figure 3).



**Figure 2. Gun homicides by age of offender, United States, 1985–2000**

Source: Fox, J.A., and Zawitz, M.W. (2004). Homicide Trends in the United States. U.S. Department of Justice, Bureau of Justice Statistics: Washington, DC

**Better:** [Transition sentence from a paragraph describing Figure 1 to a second paragraph describing Figure 2] "As shown in Figure 1, the increase and subsequent decrease in homicides were driven entirely by trends in gun-related homicides. Figure 2 examines whether gun-related homicides exhibited the same time trend among all age groups of offenders."

## Reporting and Interpreting Numbers 1

**Poor:** "In 1985, there were 12,263 gun-related homicides (Figure 1)."

**Better:** "Throughout the period shown, homicides were committed most often with guns. In 1985, for example, roughly 1.5 times as many homicides were committed with guns as with other types of weapons (12,263 versus 8,107; Figure 1)."

## Reporting and Interpreting Numbers 2

**Poor:** "Homicide is negatively associated with type of weapon."

**Better:** "Homicides are committed more often with guns than with other weapons."

## Reporting and Interpreting Numbers 3

**Poor:** "Age of victim is correlated with the percentage of homicides due to guns (Figure 3)."

**Better:** "As the victim's age increases, the percentage of homicides involving guns decreases (Figure 3)."

**Best:** "Among victims aged 15 and older, the percentage of homicides involving guns is inversely related to age. For example, more than three-quarters of teenage homicide victims were killed by guns, compared to less than one-quarter of victims aged 80 and older (Figure 3)."



**Figure 3.** Percentage of homicides involving guns by age of victim, United States, 1976–2002

Source: Fox, J.A., and Zawitz, M.W. (2004). Homicide Trends in the United States. U.S. Department of Justice, Bureau of Justice Statistics: Washington, DC

## Summarizing Information from a Chart

**Poor:** "In 1985, 14–17 year olds committed 952 gun-related homicides. In 1986 and 1987, persons in that age group committed 1,099 and 1,207 gun-related homicides, respectively (Figure 2). [Description continues by reporting annual statistics for each of the three age groups]."

**Poor [version 2]:** "Between 1985 and 1986, the number of gun-related homicides committed by 14–17 year olds increased from 952 to 1,099. Between 1986 and 1987, it increased again, to 1,207 (Figure 2). [Description continues by reporting one-year changes in the number of homicides for each of the three age groups]."

**(Somewhat) better:** "Among offenders aged 14–17, gun-related homicides nearly quadrupled between 1985 and 1994 (from 952 to 3,617), and then declined to 1,079 in 2000. Among offenders aged 18–24, gun-related homicides more than doubled between 1985 and 1994 (from 3,633 to 8,253), then decreased through 2000. Among offenders aged 25 and older, gun-related homicides declined slightly throughout the period from 1985 to 2000 (Figure 2)."

**Best:** "As shown in Figure 2, in the two youngest groups of offenders, gun-related homicides increased substantially between 1985 and 1994, and then decreased steadily until 2000. In contrast, the number of gun-related homicides committed by older offenders decreased slowly throughout the time period shown."

## Generalization, Example, Exceptions (GEE)

Here is an effective way to describe a pattern involving three or more numbers.

**Generalization #1:** "In the youngest two age groups of offenders, the number of gun-related homicides increased markedly between 1985 and 1994, then decreased until 2000 (Figure 2)."

"For example, among offenders aged

14–17, the number of gun-related homicides nearly quadrupled between 1985 and 1994, then declined to near-1985 levels."

**Generalization #2:** "From 1985 until 1990, persons aged 25 and older were most likely to commit gun-related homicides (Figure 2)."

"In 1985, for example, persons 25 and older accounted for more than twice as many gun-related homicides as 18–24 year-old offenders, and nearly eight times as many as those aged 14–17."

"However, after 1990, 18–24 years olds became the largest group of gun-related homicide offenders. Throughout the period shown, offenders aged 14–17 committed the fewest gun-related homicides."

## Writing the Conclusion

**Poor:** "In the two youngest groups of offenders, gun-related homicides increased two-fold to four-fold between 1985 and 1994, then decreased until 2000. In contrast, the number of gun-related homicides committed by offenders aged 25 and older decreased slowly throughout the time period shown. Homicides committed with other weapons remained relatively steady over the entire period."

**Better:** "The rise in the total number of homicides in the early 1990s was due to increases only in gun-related homicides—increases that were concentrated largely among perpetrators in their teens and early 20s."