Cause and correlation

In Chapter 34 of *How to Write Your Undergraduate Dissertation* I use the violent crime example to illustrate the mistake that occurs when we confuse a cause with a correlation. It illustrates that, prior to identifying something as a cause and not a mere correlation, we must have something analogous between the two things, something that allows us to conclude that one might be the cause of the other.

1. Obesity and stomach cancer

Suppose it is found that there is a very much higher incidence of stomach cancer among those who are obese (those who have a BMI[1] over 30), than those who have a normal weight (no more than 25 BMI). In other words, there is a high *correlation* between obesity and stomach cancer. Do we have good grounds for inferring a *causal connection*? If not, why not and how can we settle the issue?

2. Marriage and owning a pet

Studies have shown that men aged 18-27 who have owned a pet for at least 2 years before marrying are 35% less likely to divorce. Researchers conclude that caring for a pet prepares men for long-term, healthy relationships in marriage.

Which of the following, if true, most strengthens the conclusion that men who have owned pets are prepared for healthy marriages?

    A.   Studies have shown that pet ownership drastically reduces daily stress levels.
    B.   Many successful marriages are based on emotional investment in a common interest, such as a pet.
    C.   Many men who have been married for 25 years or more continue to own pets.
    D.   Men who have not owned pets for at least two years before marrying are more likely to divorce.
    E.   Men whose wives who owned a pet for at least two years are equally as unlikely to divorce.

Answer

    A.   While this may be true, it does not introduce *additional* evidence to support the conclusion.
    B.   This option does not address the question of why *men* who own pets are less likely to divorce.
    C.   The question concerns men who have owned pets *before* marrying, not after.
    D.   **Correct.** This option provides additional evidence of a causal correlation between pet ownership and the likelihood of divorce.
    E.   The question concerns *men,* not their wives.

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[1] Body Mass Index – an index that compares weight and height to identify when someone is overweight to an unhealthy degree.