



# LESSON 1: *Thinking About the Study*

## Activity 1B: Transforming Critical Thinking



### General Article information

**Name of Study:**

*The Effects of Extended Pre-Quit Varenicline Treatment on Smoking Behavior and Short-Term Abstinence: A Randomized Clinical Trial*

**First Author:**

(Located on back page in Original Article Citation) L.W. Hawk

**Funders:**

(Located on last page under Disclosures) 2008 Global Research Award for Nicotine Dependence

(sponsored by Pfizer, Inc., the maker of Chantix - varenicline is the generic name) and the NIDA (National Institute of Drug Abuse)

**Information Source:**

(the name of the publication in which the original article was published) Nature

**Disclaimers/Disclosures:**

(located on last page; can limit the number of disclosures/disclaimers students are required to list)

*Answers may vary.*

**Health Science Content:**

*Answers may vary:* addictive nature of nicotine, effect of nicotine addiction on the brain, difficult to overcome nicotine addiction, carbon monoxide levels in the blood due to smoking.

**Describe the subjects or participants in the study:**

The subjects in the study were all smokers who, on average, smoked more than 20 years (data table on page 2). It included both men and women.

**Purpose of study:**

Varenicline is a drug that helps some people quit smoking. Scientists wanted to learn if increasing the length of time people use varenicline would increase their chance of success to quit smoking.



**DESIGN OF ARTICLE**

Newspaper

Peer-Reviewed Journal

Magazine

Web Article/Blog





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### Understanding Nicotine Addiction & Varenicline Study



What is **Varenicline**?

**Varenicline is a drug that helps smokers quit smoking.**

What is the **standard dosage** of Varenicline?

**The standard dosage of varenicline is one week during the pre-quit period.**

How does nicotine **affect** the **functions** of the **nervous system**?

**Nicotine tricks the brain into releasing dopamine (a neurotransmitter) which creates a feeling of pleasure.**

What is **Nicotine**?

**Nicotine is a chemical that naturally occurs in the tobacco plant (FYI--Nicotine is a toxin that protects the plant from being eaten by bugs and bug larvae).**

What makes nicotine so addictive?

**Nicotine tricks the brain into releasing dopamine, which makes a person feel good. But dopamine does not last long and to keep feeling good, a person has to smoke more and more cigarettes for the nicotine.**

Why was a **randomized clinical trial** an appropriate method for this study?

**A randomized clinical trial has two groups: one with the regular dose and one with an adjusted dose of varenicline. Scientists can test their hypothesis by comparing the results of each group.**

What was the **outcome** of the study?

**When given for an extended time, varenicline can reduce the smoking rate.**

Write two **inferences** on why you think the scientists conducted this study?

**Answers may vary: 1. Nicotine addiction is difficult to overcome and by understanding how nicotine addiction works, the scientists can develop better treatments. 2. Smoking affects the entire body causing diseases that are difficult and expensive to treat. 3. Helping people quit smoking can lead to a healthier population. 4. Smoking does not just affect the smoker. It also affects everyone around them.**





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### Words to Define:

*Answers will vary.*

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### Study Design

Note: an RCT is classified as an experimental investigation, however, it is important for students to know that research includes aspects of EACH type of investigation. When sharing responses, ask students to share their rationale. The right answer is not as important as understanding the interconnected nature of science.

#### Transformation Checklist: Type of Investigation (Check all that apply)

##### Descriptive investigation:

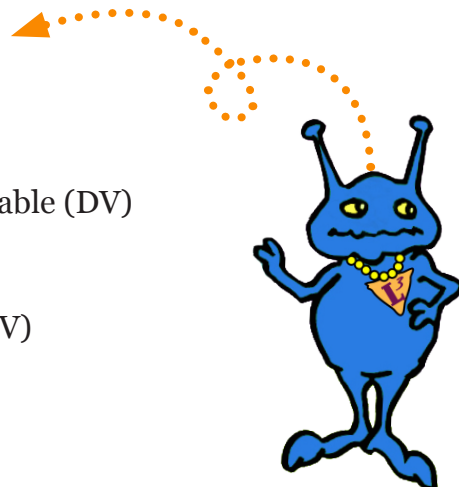
- Collection of quantitative data
  - Used words that explain *measurements*
- Collection of qualitative
  - Used words that are *descriptions*

##### Comparative investigation:

- Collection of data on a variety of objects/organisms or features
- Compares similarities and differences

##### Experimental Investigation:

- Has independent variable (IV) and dependent variable (DV)
- Manipulates a variable
- Outcome is determined by independent variable (IV)





# LESSON 1: *Thinking About the Study*

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### Identify Variables in the Study using an IV C DV Chart

An IV C DV chart is used to help identify the independent variable (IV), the constants (C), and the dependent variable (DV) in an experiment. There can only be one item in the IV column and one item in the DV column. There may be multiple Constants (things that do not change during the experiment).

Using the information from the Transformation, complete the IV C DV chart:

IV	Constants	DV
Extended use of varenicline or Use of varenicline for four weeks	<i>Answers may vary:</i> <ul style="list-style-type: none"><li>• Participants (men and women)</li><li>• All smokers</li><li>• Type of data collected</li><li>• How data was collected</li><li>• Length of pre-quit period</li></ul>	Reduction in % cigarettes per day

