Name:_____ Date: _____ Period: _____

Research Project Pages (RPP): Conducting your Research Investigation

The following pages provide documents to help you conduct your research investigation. Throughout this unit, you are addressing the question: "Why do some people become regular smokers and others do not?" by the carrying out these steps:

- Develop an overarching hypothesis from smoker profiles, your intuition/observations, and past research (Lessons 1-5).

- Create specific hypotheses that relate to your overarching hypothesis from the Smoking Behavior database questions (Lesson 6).

- Analyze many questions from the Smoking Behavior database to generate new hypotheses for future studies (Lesson 7).

The above bullet points are broken down into the following sections of RPP:

Name:_____ Date:_____ Period:_____

Lesson 1. Preliminary Ideas about Smoking Behavior

Write a paragraph describing three or four reasons why you think some people smoke and others do not. What evidence do you have for each reason you gave?

The obvious reasons why people may smoke is that they want to be "cool" to their peers or they saw their parents smoke before, which sends subliminal messages to their brain saying that it's OK to smoke. Another reason why people may smoke is that nicotine or sometype of chemical factor may have affected the ancestors of the human so that the human is now addicted to smoking. Evidence for this reason is movies & videos & on how ~~smoki smokrt~~ smoking is cool. These motion pictures depicts guys who smoke & people who see that think that if they do it that they'll be cool. Another ~~thing is that~~ evidence is that data shows that tribes such as the ~~ant~~ Mayans used to smoke. Their habits were possibly passed down to other generations. They were also probably curious as to why people were smoking so they tried it. Another thing is that people always seem relaxed after they smoke. Thats just a direct observation.

The reasons why people dont smoke is that its ~~not~~ [does not seem] very scruplous to smoke because parents always tell their children that it's unhealthy and smoking is associated with gangs & those who deal/~~to~~ go to casinos. Another reason why ~~smoking~~ people dont smoke is that their body doesn't react to the nicotine. ~~and They also th~~ The evidence for the first reason is that of course the parents dilled in subliminal "propaganda" to their children at a young age so the children grew up thinking smoking is bad. In movies, gangsters are always depicted dealing money in a dimly lit room as they smoke. Evidence for the third reason is that the body may not have the genes that encode the proteins needed for the person to react with the molecules. Although I do not have evidence for that opinion. correlation to diabetes is apperant. since gene defect doesn't allow for the insulin to react with the insulin receptor sugars arent able to be entered. This is what is most likely happening with the nicotine & proteins of the body. Somehow the proteins cant react with the nicotine due to gene defect.

Name: ██████████ Date: ██████████ Period: ████

Lesson 2. Research Topic and Overarching Hypothesis

Directions
Work with your research team to provide the following information. Each person should complete their own sheet.

1. Research Team name:

2. Research Team members: ██████████ ██████████ ██████████ ██████████

3. What is your research topic?

Physiological effects

4. Why does this topic interest you?

This interests me b/c I want to understand more about why it causes changes & reactions in the body from one person to another.

5. How does your research topic relate to the driving question, "Why do some people become regular smokers and others do not?"

This research topic relates to the driving question because the changes that smoking makes can greatly affect whether or not a person is influenced by peer pressure, family, or media.

6. Do a Google Scholar search to find out what other studies have shown related to your research topic. Summarize key findings below.

In nonabstient smokers/nonsmokers, nicotine enhanced finger tappings performance. "Unlikely that performance-enhancing effect of nicotine play an important role in the initiation of cigaret smoke smoking?" (psycnet.apa.org) Journals /pha /2/4/3us/ While another article shows relationship ↔ body weight & smoking. They conclude that

7. What is your overarching hypothesis?

Those who have less sensitive receptors to the bitter chemicals of nicotine & other products of the cigarette will most likely smoke.

8. What evidence from the smoker profiles, prior studies, and your own experience did you use to form this hypothesis?

The evidence from ~~prior~~ that we used to form this hypothesis is, that on student sheet 2.3 says that those w/ less sensitive to bitter tastes than others will ~~more~~ be more likely ~~to somewhat~~ enjoy the taste of cigarettes. this may be a factor that determines wether or not they'll ~~begin~~ continue it or they'll stop.

9. List 4-5 question numbers from the research questionnaire that will help you to test your hypothesis.

Q 18. Did you experience any of the following?
24 why did you become a regular smoker?
25 Why didnt you become a reg smoker
~~21~~ ~~6~~
~~21~~
26. How soon after you wake up do you smoke your first cigarette
pleasurable feeling
- "Buzz"
- good taste ~~im~~ in mouth
- bad taste in your mouth
- good taste
- bad taste
- relaxed feeling
- increased focus / concentration
- stress
- craving / + appetite

14. About how long did your ~~relear~~ experimental smoking phase last?

Name:_____ Date: _____ Period: _____

Lesson 3. Genetic Component to Research Topic

1. Your group may be focused on a topic that is mainly environmental. Do you think that there is also a genetic component to the topic/factor you are investigating?

I believe there must be a genetic component to the topic were investigating b/c proteins that determine intensity of buzz taste, & other ~~psycol phys~~ physiological factors depend on gens

2. In a paragraph, explain your thinking. How do you think this might affect a person who is experimenting with smoking?

Just I had said before that buzz, taste, & ~~psy~~ physiological factors that depend on the ~~developed from~~ nt of proteins depend on genes. In order for a person to react ~~then they must~~ → to the components of the cigarrets, their proteins must react. If they don't have those proteins that react with these chemical components then ~~they mustn't work the ge~~ the people must not have the genes because the genes produce certain proteins. ~~This may made~~ If they have the ~~proteins~~ genes that produce those proteins that react with those components then people will feel the buzz & the addictive components. ~~tr~~ They'll soon get addicted & keep smoking.

Name:_____ Date:_____ Period:_____

Lesson 4. The Smoking Behavior Case Control Study

Smoking Behavior Case Control Study

Research Question: What genetic and environmental factors might lead to someone becoming a regular smoker?

Outcome: Being a regular smoker

Exposures: Various environmental and genetic factors that might be associated with becoming a regular smoker.

The Exposure(s) our group is focusing on are ___Physiological factors that affect smokers___

Cases: Regular Smokers

Controls: People who have tried smoking and quit

Study Population

Intended	Actual number (in database)				
Men and women	Men: 89 (Cases) 73 (Controls)		Women: 73 (Cases) 62 (Controls)		

Are men and women evenly balanced between cases and controls? Explain.

No, because ~~men~~ there are a lot more men who've done smoking. It's probably b/c more of ~~them~~ men had resources to it when they were young

25 – 54 Years Old	25-29: 12 (Cases) 34 (Controls)	30-34: 15 (Cases) 28 (Controls)	35-39: 24 (Cases) 20 (Controls)
	40-44: 29 (Cases) 19 (Controls)	45-49: 41 (Cases) 16 (Controls)	50-54: 41 (Cases) 18 (Controls)

Are the age groups evenly balanced between cases and controls? Explain

the age groups are not really balanced because the older they are the more people are still addicted to ~~the~~ smoking since they were young whereas people now are educated about the hazards of smoking

Diverse Racial Backgrounds		Cases	Controls
American Indian / Alaskan Native		3	3
Asian		4	9
Black/African American		51	15
Native Hawaiian/ Other Pacific Islander		1	0
White		88	100

Are the racial groups evenly balanced between the cases and controls? Explain.

the racial groups are not evenly balanced because foreigners may not have been treated by researchers fairly in the past. Also resources may account to the fact that ~~they c~~ not many of them are in the ~~case~~ are research

EXPLORING DATABASES   SEPTEMBER 2011

Lesson 4. The Smoking Behavior Case Control Study, continued

Questions:

1. The Smoking Behavior Study was conducted in the urban Puget Sound Region through the University of Washington. Why do you think there might have been problems properly matching cases and controls?

There may have been problems matching the cases & controls because of the different resources present to different races, ethnicity, and age groups. ~~Not only that but those~~ who are in different ethnicities ~~will~~ Not only that but this is a small group of people so its difficult trying to get an overall picture of what's going on. Sometimes they ~~probably weren't able to get a ride.~~

2. How might the problems matching cases and controls (as far as gender, age, and racial group) affect the results of your investigation? Refer to your specific exposure(s). ~~More men may~~ The problems trying to match cases & controls for gender is that women may not really have taken a liking to smoking as much as men probably because most of them are busy at home while the husbands have more time. ~~Those who are cases probably are able to stick with it.~~ They have the same ratio so gender is a factor. As for age, the older people probably have more resources & experience at getting it at a cheeper price. Racial groups have been treated unfairly by ~~s~~ researchers.

Name: _____ Date: _____ Period: _____

Lesson 6a. Hypothesis Testing

Please see the Directions for the Research Project Pages to complete the following RPP.

Go to http://www.sciencemathpartnerships.net/vlewrapper/view.html

Big Research Topic:
Psyiogical Effects of smoking

Overarching Hypothesis:
If the receptors are less sensitive to the chemicals of the chem then they will less likely to become a smoker b/c theres less effect

Complete this section before entering database

Your 1st database question (give question # and question):
#18.7 During your experimental phase, did you experience any of the following? A decrease in stress.

Your specific hypothesis for this question:
If you experience a decrease in stress during your experimental smoking phase, then you are most likely going to be a smoker

Exposed: Responses _____ and description in words:
Those that experienced a decrease in stress

Not exposed: Responses _____ and description in words:
Those who had no decrease of stress

Why did you define "exposed" and "not-exposed" this way?
To see if smoking had its affect on stress anything to do with smokers or non smokers.

Study population (select one) Everyone __ Males __ Females __

Testing your Hypothesis: Go to "Hypothesis Testing" to complete this page.

Odds Ratio: 10.82 Sample size: 251

95% CI: 5.88 – 19.93 Does the 95% CI contain the value 1? NO

Interpret the result:
a) Use the odds ratio in a sentence that describes what it means.
If the odds ratio is 10.82 then those who experienced a decrease in stress were 10.82X more likely than to become a smoker than those who didn't

b) Is there an association between the exposure and the outcome? How do you know?
Theres an association between the exposures & out come b/c those that had a decreased in stress continued to smoke.

c) Do you think this exposure causes people to become a regular smoker? Apply the criteria for causality to support your answer. Since our data had a ratio greater than one, then this shows that this has a strength of association & an increase in the exposure would cause a greater outcome such as more regular smokers. Not only that but it has biological plausibility to it.

RPP-7

Name:_____ Date:_____ Period:_____

Lesson 6a. Hypothesis testing, continued

Complete this section before entering database

Your 2nd database question (give question # and question):
#18.2# During your experimental smoking phase, did you experience any of the following regularly? A "Buzz"

Your specific hypothesis for this question: If you experience a buzz during your experimental smoking phase, then you're more likely to become a smoker.

Exposed: Responses _____ and description in words:
Those who experienced a buzz

Not exposed: Responses _____ and description in words:
Those who felt no buzz

Why did you define "exposed" and "not-exposed" this way?
B/C the peo this helps separate those who may have been easily affected & those who were & see their comparisons of cases & controls

Study population (select one): Everyone__ Males__ Females__

Testing your Hypothesis: Go to "Hypothesis Testing" to complete this page.

Odds Ratio: 6.33 Sample size: 269

95% CI: [3.33 , 12.02]   Does the 95% CI contain the value 1? NO

Interpret the result:

a) Use the odds ratio in a sentence that describes what it means.
If the odds ratio is 6.33 then those who experienced a buzz is 6.33X more likely to become a smoker.

b) Is there an association between the exposure and the outcome? How do you know?
There's an association between the exposure & the outcome because the confidence interval doesn't include 1.

c) Do you think this exposure <u>causes</u> people to become a regular smoker? Apply the criteria for causality to support your answer.

This The exposure causes people to become a regular smoker because the confidence interval depending on the way their body processes cigarettes if it makes them feel good, then they would be more likely to become regular smokers because their body would become depend on the way that it makes them feel due to biological explanability

EXPLORING DATABASES SEPTEMBER 2011

Name:_____ Date:_____ Period:_____

Lesson 6a. Hypothesis testing, continued

Complete this section before entering database

Your 3rd database question (give question # and question):

#18.3 During your experimental smoking phase, did you experience any of the following regulary? A good taste in your mouth.

Your specific hypothesis for this question:

If smoking leaves a good smo taste in their mouth then they'll most likely to become smokers.

Exposed: Responses _____ and description in words:

Those who tasted thought smoking tasted good.

Not exposed: Responses _____ and description in words:

Those who disliked the taste of smoking

Why did you define "exposed" and "not-exposed" this way?

So we can see if good taste can positively effect + experimental smokers

Study population (select one): Everyone ✓ Males__ Females__

Testing your Hypothesis: Go to "Hypothesis Testing" to complete this page.

Odds Ratio: 2.71 Sample size: 254

95% CI: [1.47, 5] Does the 95% CI contain the value 1? Yes

Interpret the result:

a) Use the odds ratio in a sentence that describes what it means.

If the odds ratio is 2.71, then those who experienced will be 2.21x most likely to smoke

b) Is there an association between the exposure and the outcome? How do you know?

Yes there's an association between an exposure & the outcome because the OR is X71

c) Do you think this exposure causes people to become a regular smoker? Apply the criteria for causality to support your answer.

B/c it does make biological sense if one likes does liked the taste of smokin, then they'd most likely do it again. when someone eats food they continue eating. The strength of the association is 1

Name:_____ Date:_____ Period:_____

Lesson 6a. Hypothesis testing, continued

Complete this section before entering database

Your 4th database question (give question # and question): 4#
About how long did your experimental smoking phase last?

Your specific hypothesis for this question:
If the experimental phase lasted for a long time then one is more likely to smoke

Exposed: Responses _____ and description in words:
Experimental phase 1+ years

Not exposed: Responses _____ and description in words:
Experimental phase 1- years

Why did you define "exposed" and "not-exposed" this way?
To see if the person responds faster to or slower to the chemicals of cigarettes.

Study population (select one): Everyone✓ Males__ Females__

Testing your Hypothesis: Go to "Hypothesis Testing" to complete this page.

Odds Ratio: 0.32 Sample size: 265

95% CI: [0.19, 0.54] Does the 95% CI contain the value 1? NO

Interpret the result:

a) Use the odds ratio in a sentence that describes what it means.
If the odds ratio is 0.32 those who underwent an experimental phase of a year or more were 0.32 times more likely to become a smoker

b) Is there an association between the exposure and the outcome? How do you know?
There is an association between the exposure & the outcome because the confidence interval doesn't include one.

c) Do you think this exposure causes people to become a regular smoker? Apply the criteria for causality to support your answer.
Since our data is a significantly away from one, there is an association between exposure & outcome is reliable This does not cause people to become a regular smoker since the odds ratio is less than 1, this exposure is seen as a protective factor

Name: _____

Date: _____   Period: _____

Lesson 6b. Mapping Activity

Directions: Fill in your overarching hypothesis in the oval below; then fill in each square with one of the four database question numbers and specific hypotheses. Using one of the three lines shown in the key, draw the relationship between each [Question #] and [Becoming a Regular Smoker] at the bottom of the page.

Overarching Hypothesis

(oval, handwritten): if a person has less sensitive receptors to the chemicals of nicotine, then they are less likely to then products smokers

Question # 18.7
Specific Hypothesis
(handwritten): If you experience stress during a devalued stress did in day your smoking phase your most likely going to become a smoker

Question # 18.3
Specific Hypothesis
(handwritten): If smoking but leaves a good taste in one's mouth, then the smoker will most likely become addicted be ? the pleasant ? elicity keeps one coming back to smoking regular

Question # 18.24
Specific Hypothesis
(handwritten): If your experimental phase lasted for a long period of time you're immediately to become a regular smoker

Question # 18.2
Specific Hypothesis
(handwritten): If you experience a buzz during your experimental smoking phase then you're most likely going to become a smoker

Key
→ Association
– – → Causation
→ Neither

[Becoming a Regular Smoker]

Name:_____ Date:_____ Period:_____

Lesson 6c. Drawing Conclusions

You will now look at the results for each of your four questions on RPP-7-10 and on the mapping activity to draw conclusions about your overarching hypothesis.

1. What do your results show about your overarching hypothesis?

What the results show about our over arching hypothesis is that if you experience any good feelings with ~~buzz~~ & ~~high res posi ht~~ positive response such as buzz, taste, & reduction of stress then you're more likely to become a smoker because all these factors allow for ~~~~ the smoker to come back ~~to~~ It makes them feel ~~as if~~ good inside so they go back to it.

2. Which pieces of evidence most strongly support your claim?

a. Discuss one piece of evidence and why it supports your claim.

The one about the decrease in stress helps our case because the positive response makes a person want to reduce that feeling.

b. Discuss a second piece of evidence and why it supports your claim.

The reason why chose with the buzz feeling helps support the claim because people like the feeling that the buzz makes them.

3. How strong is the evidence that your overarching hypothesis is supported? Are there other ways to interpret your data?

These are very strong evidence because they ~~are all very~~ all have very strong associations ~~wato~~ as for 18.7, 2, 3 — They all have ~~protective~~ factors while ~~is~~ 14 has ~~this~~ a association protective factor. Another way to interpret the data is that there may have been a food that had affected the taste/affect of the cigarret. As for the time people would have probably went straight into smoking.

4. What are the implications of your research for health? For your community?

The implications of our research for health is that if a community have never experience the pleasures & buzz of smoking then they wouldn't get addicted to smoking. & Also, they'll be more healthy because they wouldn't have been addicted to it.

Name:_____ Date: _____ Period: _____

Lesson 7a. Planning your Hypothesis Generation Research

During hypothesis testing, you were constrained in your queries to:

a. Use four questions from questionnaire
b. Plan and define your queries before doing them
c. Define exposed and not-exposed one way only for each question

In Hypothesis Generation, these constraints no longer apply because you are using your results to propose a future study, not to draw scientific claims. In the Hypothesis Generation view of the database, you see case and control responses to the questions before you do the query, so you can deliberately define exposed and not-exposed to explore the effects on odds ratio.

After you and your teammates have had the chance to explore several questions, you will compare notes and then work together to propose a new case control study.

Work with your research team to answer the following questions:

1. Describe two research topics that you would like to investigate in Hypothesis Generation, and explain why these topics interest you. One of your topics can be the one you used during Hypothesis Testing.

Research topic 1: Does length ~or timing~ of experimental phase determine whether or not someone will be a smoker or not?

Why does this topic interest you? Because if the results did something quite unexpected.

Research topic 2: Does a decrease in ~strength~ stress determine whether or not someone will be a smoker or not?

Why does this topic interest you? Because it had a very large odds ratio which seems to show that it has a very strong association.

2. List at least four questions that interest your team and are related to one of the two research topics. You can include questions that you used in Hypothesis Testing as well as new questions. You may also include questions that only have graphical information.

Questions related to research topic 1: Q# 12 , Q# 13 , Q# 14

Questions related to research topic 2: Q# 69 , Q# 18.7 , Q# 18.5

Name: _____   Date: _____   Period: _____

Lesson 7b. Conducting Queries in Hypothesis Generation

Follow the instructions for Lesson 7B in the Directions for Student Research Pages. You may wish to do several queries on the same question. Record your results for each query in the table below. Use the Notes section to record your observations about trends in the data and interesting results.

Table 1: Keeping Track of Hypothesis Generation Searches

Question #	Exposed	Not Exposed	OR	CI	CI contains 1?	Odds Ratio Statistically Significant?	Sample Size
14	Males not exposed to cigarettes/smoke for 1+ years experimentally		3.41	CI: 6.5, 7.04?	yes	No	141
Notes:	odds ratio for the CI is very large. not very high. This shows that those less from a year are most likely exposed. been experimentally						
16.2	Buzz & Buzz Females NO		12.57	4.14 - vid	NO	yes 124	
Notes:	The OR is very very wide.			very high while the CI is very high. This shows that the buzz that men coming back feel keep them		men are not going to be a smoker b/c they have w/ a sensitive receptor	
18.3	Males w/ good taste		3.73	CI: 5.2, 9.14]	yes	yes 136	
Notes:	Wa good taste		The OR is not very high & CI is large which makes strong that makes strong		men that often gotten good taste that is good when that think taste or misagreed to smoke	smokers take shorter amount	
16.7	Males decrease stress		14.81	14.81 26:23 B 35:19 7	No	yes 133	
Notes:	Males decrease stress stressed						of time to become a smoker.
Notes:	The OR is high while the CI is even larger this shows that men who have a decrease in stress are most likely to be exposed to be coming a regular smoker						

Name:_____ Date: _____ Period: _____

Lesson 7c. Hypothesis Generation and Proposing a New Case Control Study

Meet with your research team to complete this page after you have completed your Hypothesis Generation queries.

1. Share the data you recorded in Table 1: *Keeping Track of Hypothesis Generation Searches* with your teammates. Record the most interesting queries in the table below. They may be on one or more research topics.

Research Topic	Question #	Why topic and question are interesting
Does length or timing of experimental phase determine whether or not someone will be a smoker or not.	12	We picked this que topic is because age can affect how one reacts to smoking, & maybe fin the age has a correlation.
	13	If we figured out it they sm when they first smoked an entire cigarett, we can figure out when were theyre on their way
	14	If we know the experimental phase & how long it lasted, we could tell the range of time & how long it took to become non to smoking or smoking then maybe well see the if the timing has a mental effect in the person to smoke
Does a decrease in stress determine whether or not someone will be a smoker or not.	69	This can show how much cigaret may have affected a persons life & if the lack of stress pushed them to smoke
	18.7	This will show us if the positive affect of decrease in stess makes people to want to not smoke. Also, if those who smoked frequently had the decreased feeling in stress.
	18.5	If they felt relaxed then that would show us that the genetic factors because the easier it is the for the chemicals to affect the receptors in a positive manner then theyjr most likely to be a smoker.

2. Look at the data in the table above and decide which research topic your team will address in a proposed new case control study. Why did you choose this topic?

We chose this research to to do a research topic in stress because we saw how easily significant the information was & how much it correlated with men.

3. What trends do you notice in the queries you did on the questions related to this research topic?

The trends that I noticed in the queries that I did on the questions related to this topic is that although the amount of stress doesn't have a significance in smoking it seems that more males get the relaxed feeling than women & they also feel the stress fall away from them.

4. What are any other questions you would like to ask related to this topic?

Other questions that I would like to ask related to this topic is if there are are there chemicals that are released that help endure the & increase the effect that the chemicals of smoking has on a person. or

Lesson 7c, continued

Designing your proposed case control study:

5. Formulate a new hypothesis for your proposed case control study. What evidence did you use from your Hypothesis Generation queries to form this hypothesis?

if a person feels a reduction ~~from stress~~ of stress from smoking, then they will most likely become a smoker.

6. What is the outcome of your proposed case control study?
   Note: It does not need to be the same as the outcome for this study. For example, you may be interested in designing a study focused on smoking cessation.

The outcome of the proposed case study is how ~~stress affects~~ stress ~~affects~~ make someone more likely to smoke. we chose this b/c we saw a very strong ~~cor~~ & significant finding.

Why did you choose this outcome?

7. Describe up to four exposures you would study related to your research topic and explain why you are interested in each exposure.
   a. *Amount of work that they deal with. Maybe they want to*
   b. *Other types of drugs used because ~~this can~~ if this makes a person relaxed then they dont need to smoke.*
   c. *~~food can chemicals~~ in Food b/c chemicals in the food can affect how one responds to smoking*
   d. *Amount of exercise; those who ~~amt of exercise~~ will have less stress than those who dont ~~exercise~~ exercise*

8. In your proposed case control study, what are the characteristics of your study population? *Note: your study population can be different from the population in the original Smoking Behavior study. For example, you may want to study males only, or people from a certain race/ethnicity or age bracket.*

Males

Why did you choose this study population?

Because there was a strong correlation between men, smoking & stress.

Name:_____ Date: _____ Period: _____

Lesson 7c, continued

9. What are the characteristics of the cases and controls in your proposed study? *& avend volatic* *in their emotion*
Note: They can be different from the cases and controls in the original Smoking *on their hands*
Behavior study. Controll - to those who dont have much on their hands
Cases - are those who are busy, loaded,
irritable, forgettable, bad tone

Why did you define cases and controls in this way?
Because those who are stressed are ~~never~~
not as relaxed & the difference is that
one has a higher pressure put on them

10. Use your responses to Questions 2-9 above to complete the case control study
design template.

Case Control Study Design

Research Topic: *amount of* Whether the stress enduce smoking.

Hypothesis: If a person is more stressed, they will most
likely ~~to~~ smoke.

Outcome for new study: ~~stress & that smokersaaaaaa~~ Experimental
smokers are pushed to be regular smokers due to stresss

Exposures you will test:
- Amount of ~~exercise~~ Exercize
- Drug uses   { - Blood test
- Work from (Jobs, college/school, Chores). { - Inquiry
- Food eaten

Characteristics of Study Population:
Males in Puget sound Area ~~that are at least~~ who smoke

Characteristics of Cases:
- Busy (full of work) - Not much of free time
- Loaded with work - volatile in emotions (bipolar?)
- irritable

Characteristics of Controls:
- ~~Free Free time~~ Those with free time . - Relaxed
- Good control of emotions
- ~~Those who are~~