Evaluation of the Effectiveness of a Prescription Drug Abuse Prevention Curriculum for College Students

A Senior Project

Presented to the Faculty of the Kinesiology Department

California Polytechnic State University, San Luis Obispo

In Partial Fulfillment of the Requirements

for the Bachelor of Science Degree

by

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Abstract

The recreational use of prescription drugs has been increasingly common in university communities (Office of National Drug Control Policy, 2015). Students may abuse prescription drugs to get high, study longer or sleep. A survey conducted by Kinesiology students used snowball sampling to assess the number of Cal Poly students recreationally using prescription drugs and their knowledge of prescription drug abuse (Colangelo & Sepulveda, 2015). The assessment showed 30.7% of students had abused prescription drugs in the last six months. There was an increase in abuse between college freshmen (19.2%), college sophomores (41.4%) and juniors (44.3%) (Colangelo & Sepulveda, 2015). This prevalence indicates an intervention may be useful. A non-equivalent control group design was used to assess the effectiveness of a prescription drug abuse prevention curriculum for college students. Students enrolled in general education health courses during the Fall of 2015 participated in the study. The treatment group (n=88) received a classroom-based intervention designed to include information specific to prescription drug abuse. The control group (n=64) received the traditional intervention covering general information about drug abuse. The purpose of the study was to determine which intervention was most effective in influencing knowledge, perceptions of risk, and self-efficacy to prevent prescription drug abuse. Both groups were administered a pre-test and a post-test questionnaire online. The ANCOVA showed a significant positive association of the treatment intervention for: Knowledge of Prescription Drug Abuse and Misuse (Knowledge) ($p=0.001$) and Self-Efficacy for Preventing Prescription Drug Abuse and Misuse (Self-Efficacy) ($p<0.001$).

However, there was no significant association between treatment post-test scores for Perceived Risk of Prescription Drug Abuse and Misuse (Risk) ($p=0.224$).

Chapter 1

INTRODUCTION

The rise in the recreational use of prescription drugs has exponentially increased over the last decade. A priority population for this growth in use is college students. Many students may not understand the repercussions of using prescription drugs without a proper prescription from a health care professional (National Institute on Drug Abuse, 2010). A needs assessment was created in order to survey Cal Poly students about the college campus climate on the recreational use of prescription drugs. A needs assessment is done in order to find the problematic areas in a target population (McKenzie, J. F., Neiger, B. L., & Thackeray, R. (2009).From this needs assessment survey we have found students lacked knowledge in the difference between use, misuse and abuse of prescription drugs. Their knowledge on the legalities of prescription drug use was also ranked low. It was found that students did not know that although the drug may be legal, if you are not using it for its intended purposes, then it is considered illegal. Students did not understand how detrimental it is to mix prescription drugs with other prescription drugs, or even alcohol. From this needs assessment it was decided there needed to be a call to action. The aim of this study was to create an effective intervention to deliver to a general college health class in order to increase knowledge of prescription drugs as well as the legalities of possessing using and selling, while also increasing students' self-efficacy to avoid peer pressure.

Research Question

Which intervention is more effective in increasing knowledge of prescription drug abuse and misuse, perception of risk, and self-efficacy of resisting recreational prescription drug use?

Hypotheses

The theory based classroom intervention would be more successful for increasing knowledge, perception of risk and self-efficacy.

Participants

The participants in this study were self-selected into a general health education class at a medium sized public university in California.

Delimitations

Participants under 18 were excluded from the experiment. Only the data from participants who completed both the pre-test and post-test questionnaires were included.

Limitations

One limitation of this study is that attendance on the day of the intervention was self-reported on the post-test questionnaire. There was no way to verify that participants attended the day the treatment and control interventions were delivered. Subjects that did not answer all of the questions in the section, incorrectly typed their ID code, or failed to type in their ID code were excluded from data analysis. Additionally the survey platform

used, SurveyMonkey, was unable to download and separate student answers for some of the questions provided.

Definition of Terms

Prescription drugs are drugs prescribed by a doctor.

Recreational use (of prescription drugs) refers to the use of prescription drugs for a reason other than for which it was prescribed.

Misuse (of prescription drugs) denotes the use of prescription drugs in a manner other than it was prescribed; for example, taking a prescription drug intranasally instead of orally as prescribed.

Abuse (of prescription drugs) refers to the use of prescription drugs for a reason other than it was prescribed; for example, taking a prescription drug to get high instead of relieving pain.

Chapter 2

REVIEW OF LITERATURE

Current trends in the use of prescription drugs for recreational purposes by college students have become a cause for concern on university and college campuses nationwide. Prescription drug abuse is when an individual takes a medication that was prescribed for someone else or takes their own prescription in a way not intended by a doctor or for a different reason—like to get high (National Institute on Drug Abuse [NIDA], 2015). Any pharmaceutical that may induce psychoactive effects of any kind can be abused. Effects that may occur include relaxation, sedation, intoxication, euphoria, increased energy, and hallucinations (Reeves, Ladner, Perry, Burke & Laizer, 2015). According to the Center for Lawful Access and Abuse Deterrence, "Nearly 9 out of 10 poisoning deaths are caused by drugs—both illicit and prescribed. (Centers for Lawful Access and Abuse Deterrence [CLAAD], 2013). In 2009, there were nearly 4.6 million drug related emergency department (ED) visits of which about one half (49.8 percent, or 2.3 million) were attributed to adverse reactions to pharmaceuticals and almost one half (45.1 percent, or 2.1 million) were attributed to drug misuse or abuse (CLAAD, 2013). While students at Cal Poly, San Luis Obispo appear to abuse prescription drugs at a rate less than the national average (Healthy Minds Survey, 2014), an intervention would be useful to protect the health of those students who do misuse or abuse prescription drugs. A national sample reported that the most common source of prescription stimulants for college students was a friend with a legitimate prescription (≥ 73.9 percent annually) (CLAAD, 2013). The nonmedical use of prescription stimulants is more common among college students than high school

students. Studies have found that 4.1 percent to 10.8 percent of college students reported using prescription stimulants for nonmedical purposes during the past year (CLAAD, 2013). After marijuana and alcohol, prescription drugs are the most commonly abused substances by Americans age 14 and older (NIDA, 2015). It is clear the recreational use of prescription drugs represents a high risk behavior that should be monitored further and intervention efforts are needed to curb this form of drug use (McCabe, Knight, Teter & Wechsler, 2005).

Many of the issues regarding a form of drug abuse in the Cal Poly community usually involve alcohol and binge drinking; however, an article in Mustang News, suggests that there is a rise in the recreational use of prescription drugs on this campus. In the article "Adderall: The Demands and Dangers On Campus" author Jonathan Chodzko stated, "30% of students abuse Adderall at some point in their college career; Full- time college students are twice as likely to abuse adderall as their peers who aren't in college." Students are turning to prescription drugs whether it is used to perform better in school or stay up later. They also report using other drugs to help them sleep after a stressful day or relax during times of tension. The article conveyed that adderall seems to be more sought after than cocaine. Unfortunately, students also are unaware of the side effects of prescription drugs that are not prescribed to them. Mixing prescription drugs with alcohol or other medications they may currently take can be detrimental to their health. For example, "the students who do abuse Adderall are more prone to have high blood pressure, causing risk for heart attack. It can also cause hair and weight loss, anxiety and paranoia" (Chodzko, 2015).

A previous needs assessment conducted in Winter 2015 by Kinesiology 434 students. The survey asked a few questions on the participants' experience with prescription drugs and knowledge of the legal consequences prescription drug abuse. The survey questions also asked demographic questions such as biological sex, year, college, and housing community to analyze and find trends of prescription drug abuse among subpopulations of the Cal Poly student body. This survey was active for seven days and received 217 responses, 186 of which were complete. the most important findings came from the questions asking about the participants' baseline level of knowledge of the legality of prescription drug abuse. The data showed that nearly 1 in 3 Cal Poly students had abused prescription drugs in the last 6 months, but less than 20% of surveyed students knew the legal consequences for doing so (Colangelo & Sepulveda, 2015). This data showed a huge disparity between knowledge and behavior and we realized that an educational intervention was exactly what Cal Poly needed.

Ultimately, the rise in the use of prescription drugs may be due to the idea that students believe the drugs are safer because they are legal. Most students reported they did not understand the legal consequences of possessing, selling or sharing drugs without a prescription or with those who did not have a prescription. One of the biggest issues are that students are unaware and uneducated. When implementing a curriculum to help students realize the health issues and legalities of illegally possessing, consuming or selling prescription drugs, it may lessen the recreational use.

This study utilized the Health Belief Model, Theory of Planned Behavior, and Self-Efficacy Theory. The Health Belief Model attempts to explain and predict health behaviors

by focusing on individual attitudes and beliefs (Hochbaum, G., Rosenstock, I., & Kegels, S. (1952). The Theory of Planned Behavior discusses the personal beliefs or perceptions influence behavior (Ajzen, I., 1991). The Self- Efficacy Theory comes from the Social Cognitive Theory and was created by Bandura in 1977. The concept of self-efficacy refers to an individual's confidence in completing a specific task or behavior, that a person will only try what they think they can do. The idea of self-efficacy is a construct in the Health Belief Model, the Theory of Planned Behavior and is utilized in many health based interventions such as smoking cessation and alcohol abstinence (Haukkala, A., Uutela, A., Vartiainen, E., McAlister, A., Knekt, P., 2000) In a study called, " The Challenge study: theory-based interventions for smoking and weight loss" (C. M. King, A. J. Rothman and R. W. Jeffery, 2001), the researchers are evaluating the the effects of an intervention that focuses on participants' benefits for quitting smoking. The control group receives factual information on quitting cigarette smoking and the treatment group receives information on the benefits of quitting smoking. The study incorporated is the Theory of Planned Behavior. The constructs primarily in this study were attitude and the attitudes that lead to the intention and ultimately the behavior of smoking. Researchers felt that by creating an intervention for the treatment group that relayed the positive and beneficial aspects would reduce the intention of smoking and inturn smoking in general.

Another theory based intervention included the Health Belief Model and Self-Efficacy Theory. This study is called "A theory-based online health behavior intervention for new university students: study protocol (Epton, T., Norman, P., Sheeran, P., Harris, P. R., Webb, T. L., Ciravegna, F. & Petroczi, A., 2013). This study aimed to use an online intervention to change

college students' beliefs, motivation and confidence in eating healthier and exercising more. The invention asked subjects about their diet and exercise habits, recreational drug use, alcohol use, academic performance and BMI among many other factors. This study found that the incorporation of a theory based intervention was helpful in changing individuals attitudes, beliefs and confidence in making health changes to their daily lives. These theories were used to inform the curriculum design by targeting key motivational factors that aid positive health behaviors.

The purpose of this study is to determine if a theory based drug education curriculum showed significant improvement in students' knowledge of prescription drugs, knowledge of drug law, perception of risk, and self-efficacy when facing opportunity for prescription drug abuse. The current drug education curriculum has been used for several years. Participating students took a pre-test questionnaire before their drug education and took a post-test questionnaire afterwards. Pre-test and post-test scores will be calculated for each of the four testing variables. The hypothesis is that the students will show significant improvement in their scores after the specialized prescription drug education curriculum is given, and the treatment group students will show significant improvement in their scores in contrast to the control group students.

Chapter 3

METHODS AND PROCEDURES

Design

The study used a quasi-experimental non-equivalent control group design. Subjects were students that had enrolled in three different sections of a general education health course, each taught by a different professor, therefore the participants could not be perfectly randomized. One of these three intact groups was randomly assigned as the treatment group. All three groups received a drug education curriculum. The treatment group received the intervention while the control groups received the standard drug education curriculum that had been taught for several years. The intervention was designed to increase knowledge and perception of risk of recreational prescription drug use and increase students' self-efficacy in resisting recreational use. The three dependent variables were scored before and after the groups' respective curriculums were presented using pre- and post-test questionnaires.

Subjects and Sampling Procedures

Subjects were enrolled in separate sections of a general education health course at Cal Poly, San Luis Obispo during the Fall quarter of 2015. Each section was presented a 10-minute pitch describing the research study and the need for participants, eligibility requirements, time-commitment, and instructions on how to participate. The pitch also included the incentive of extra credit in each class section in exchange for participation. Other equally attractive extra credit opportunities were made available to all students to meet the approval of the Institutional Review Board. The students in each section were required to complete pre- and post-treatment

questionnaires and attend class on the day their drug education curriculum was presented. The questionnaire was preceded by an informed consent form mandatory for participation in the study. Subjects under 18 years of age and subjects that did not give their informed consent were excluded from data collection. Subjects that did not complete all three parts and subjects that did not input their identification code were excluded from data analysis.

Instrumentation

Three questionnaires and one curriculum were developed for this research project. One pre-treatment questionnaire was created for the entire pool of participants (n=152), and two post-treatment questionnaires were created for treatment (n=88) and control groups (n=64). The intervention curriculum was developed using the Health Belief Model (Hochbaum, Rosenstock and Kegels,1952), Theory of Planned Behavior (Ajzen, I., 1991), and Self-Efficacy Theory (Bandura, 1977) and presented to the treatment group; the control group received a standardized substance abuse curriculum that had been used previously in the course. Data were collected via three questionnaires: one given before the curriculum (pre-treatment instrument) and two given afterwards (post-treatment instruments). The questionnaires were constructed on SurveyMonkey.com. The pre-treatment questionnaire was sent to all participants via HTML link in an email sent by each section's professor. Multiple reminders with the link and instructions were sent out every few days by email as well. The questionnaire was deployed 10/23/16 and closed on 10/30/16, after which the treatment and control groups received a drug education program. The subjects were given at least one week to complete the questionnaires at their leisure; the post-test questionnaires were deployed immediately via e-mail after the groups'

respective drug education curriculums were presented. The post-test questionnaires were deployed 11/13/16 and closed on 11/20/16.

The first questionnaire, titled "Prescription Drug Prevention Research Survey: Part 1" was given to both the treatment and control groups. The questionnaire asked questions regarding exclusionary criteria, demographics, and the creation of an identification code in order to later match pre- and post-treatment responses while maintaining subject anonymity. The ID code was made by the subjects using the last 3 digits of the subjects' phone number, the subjects' mother's first and last name initials, and the subjects' shoe size. The questionnaires also included questions about the three dependent variables: Knowledge, Perception of Risk, and Self-Efficacy.

The post-treatment questionnaires, titled "Prescription Drug Prevention Research Survey: Part 2"(Control Intervention) and "Prescription Drug Prevention Research Survey: Part 2" (Treatment Intervention) Class Survey" were sent to the control and treatment groups, respectively via e-mail. The post-treatment instruments included the same questions as the pre-treatment questionnaire, with the exception of many of the demographic questions and the questions asking students to construct their identification code. This was done so as not to make the questionnaires repetitive and due to the fact that the identification code could be used to trace demographical data. The control group received a separate post-treatment questionnaire link from the experimental group in separate emails so as not to cause confusion. The only difference between the two post-treatment questionnaires was that the treatment group's questionnaire included the question "Did you attend class on Monday, November 2nd? (This was the day the

Treatment Intervention was implemented.) Your answer will NOT have any effect on you receiving your extra credit." In contrast, the control group's post-treatment questionnaire included the question "Did you attend class on the day your professor discussed substance abuse and drug education? Your answer will NOT have any effect on you receiving your extra credit." This difference of wording was due to the control group professors not having a designated drug education class day, in comparison to the treatment group.

Intervention

The control group received the standard drug education program while the treatment group received the specialized prescription drug abuse education program. The drug education programs were presented to all KINE 250 sections regardless of participation in the study simply because drug education is part of the KINE 250 course. The drug education program and specialized prescription drug abuse education program were presented to the subjects between the deadline for the pre-test instrument and the start of the post-test instrument. Subjects in the control group attended class as usual and received the standard drug education program that had been taught in KINE 250 classes for several years. Subjects in the treatment group received a 90-minute presentation explicitly describing prescription drugs' use, abuse, and misuse, statistical reasons for abuse and misuse, mental and physical dangers of abuse and misuse, legal consequences of abuse and misuse, and healthy alternative and resources for those participating in prescription drug misuse and abuse. The treatment included brief in-class discussion, the use of the subjects' cell-phones to anonymously answer lecture questions, and a worksheet completed during the presentation. If subjects did not attend the drug education lecture, the

subjects' data was excluded from analysis whether or not they were in the treatment or control group. The total participant pool was made up of 152 students, 88 of which were in the treatment group.

Data Collection Procedures

SurveyMonkey.com saves anonymous responses to be later analyzed. It can be downloaded as an Excel file or made into graphs and charts. Data collection was taken through an Excel file, cleaned of excluded participants and faulty responses, and used for data analysis.

Analysis Procedures

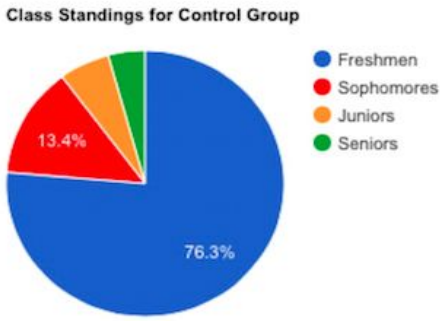
An analysis of covariance (with the covariate being the pre-test score) was used to adjust for preexisting differences between the Treatment and Control groups was used to analyze pre- and post-test scores, while adjusting for pre-tests score and look for significant changes. Statistical tests were chosen based on the quasi-experimental non-equivalent design; an analysis of covariate test allowed for the inherent differences between the groups. Frequency tables were constructed to display the demographics of the participants by year, gender, and residence, and to compare the rankings of the most influential reason for recreational prescription drug use between the groups before and after their respective interventions.

Chapter 4

ANALYSIS OF DATA AND RESULTS

An analysis of covariance (ANCOVA) was used to determine which intervention had the most influence on the variables of Knowledge, Perception of Risk and Self-Efficacy. The scores on the pre-test questionnaire were used as the covariates to adjust for the pre-existing differences in these intact groups. Demographic characteristics of the participants are reported in Figures 1 and 2 depicting the distribution of freshmen, sophomores, juniors, seniors, females, and males that participated in the study. Freshmen were the largest class reported with a rather even split between males and females; this was ideal considering freshman of both genders were the target population for the intervention. The needs assessment for recreational prescription drug use education reported that upperclassmen were more likely to misuse and abuse prescription drugs, therefore the goal of the experiment was to intervene early in the students' undergraduate career (Colangelo & Sepulveda 2015). The intervention reached its target population regardless of the inability to randomize the subjects or alter the intact groups.

Figure 1: Class Standings for Treatment and Control Groups



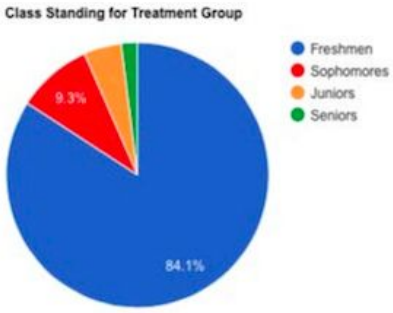
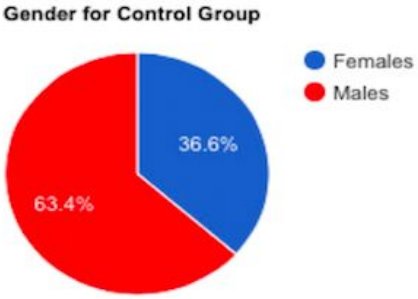


Figure 2: Genders of Treatment and Control Groups



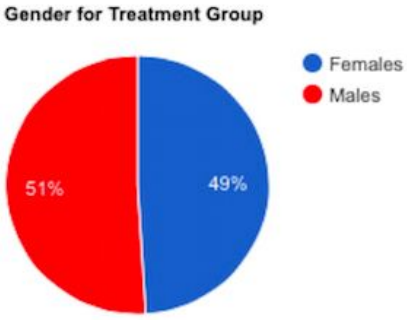
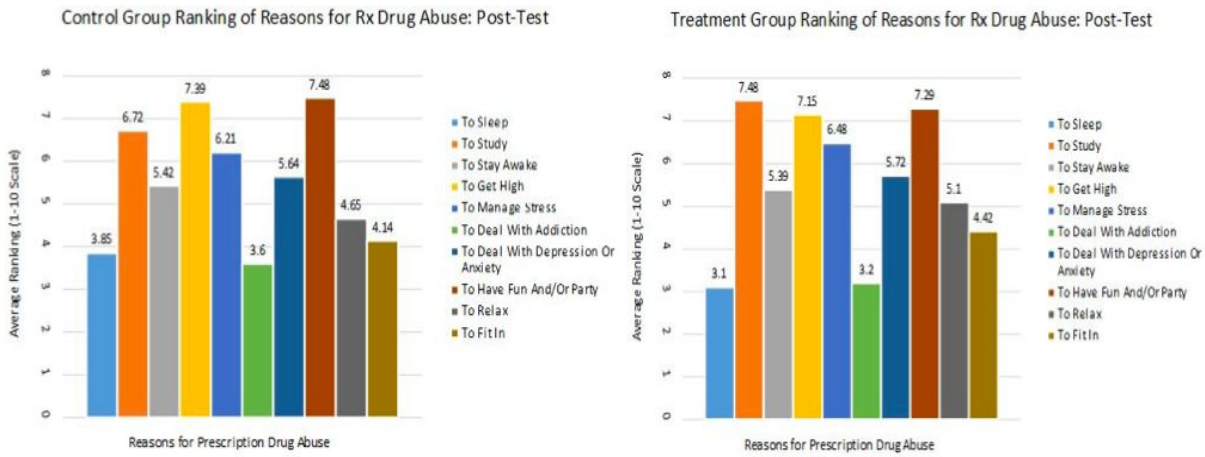


Figure 3 consists of descriptive statistics showing the three most influential reasons for recreational prescription drug use as ranked by the treatment and control groups before and after the respective drug education curriculums. The treatment group showed a distinct increase in ranking for studying as the most influential reason for recreational prescription drug use. The intervention was geared towards college students and may have unintentionally skewed the treatment group's responses. Recreational prescription drug use, however, is a reoccurring issue on college campuses as a study aid and other uses, and may have further adverse effects due to its links to illegal "hard" drugs, such as heroin.

Figure 3:



There was a positive association on the post-test scores for Knowledge and Self-Efficacy with the treatment**.** The treatment intervention group showed a significant increase in scores for Knowledge (p=0.001), which is displayed in Table 1. The intervention covered the types of prescription drugs and the effects on the human body, including when multiple drug types were used at the same time.

Table 1: Regression Analysis for KNOWLEDGE					
PostTest Know = 6.08 + 0.263 PreTest Know + 1.37 TreatKnow					
Predictor	Coefficient	SE Coefficient	T	P	VIF
Constant	6.0817	8.5412	11.24	0.00	
Pretest KNOWLEDGE	0.26254	0.06242	4.21	0.00	1.004
Treatment KNOWLEDGE	1.3745	0.3986	3.45	.001*	1.004
S = 2.42179 R-Sq = 17.4% R-Sq(adj) = 16.3%					

There was also a significant positive association for Self-Efficacy (p=0.000) as reported in Table 2. The intervention discussed techniques to resist peer pressure, healthy alternatives, and resources for prescription drug addiction.

Table 2: Regression Analysis for Self-Efficacy					
PostTest Self = 5.35 + 0.493 PreTest Self + 2.28 TreatSelf					
Predictor	Coefficient	SE Coefficient	T	P	
Constant	5.3491	0.9814	5.45	0.00	
Pretest SELF	0.49312	0.06451	7.64	0.00	
Treatment SELF	2.2836	0.4145	5.51	0.000	
S = 2.52282	R-Sq = 37.1%	R-Sq(adj) = 36.3%			

No significant association between the treatment intervention and the variable of Perception of Risk (p=.0244), was found. (Table 3). The post-test scores in the treatment group were not significantly higher than those of the control group. The intervention described the links between prescription drug abuse and misuse with acute and chronic physical health problems as well as adverse social and psychological effects, but must be reviewed and modified if it is to increase Perception of Risk; however, fear of prescription drugs and its effects during recreational use is not necessarily indicative of decreased abuse and misuse of prescription drugs. Modification of the intervention may be unnecessary.

Table 3: Regression Analysis for Perceived Risk					
PostTest Risk = 13.3 + 0.412 PreTest Risk + 0.622 TreatRisk					
Predictor	Coefficient	SE Coefficient	T	P	
Constant	13.299	1.939	6.86	0.00	
Pretest RISK	0.41189	0.07498	5.49	0.00	
Treatment RISK	0.6222	0.5320	1.17	0.244	
S = 3.21140	R-Sq = 16.9%	R-Sq(adj) = 15.8%			

The intervention was useful increase Knowledge and Self-Efficacy about prescription drug abuse across multiple class levels and both genders. It can now be used in Cal Poly's general education health courses with evidence that it is successful.

Chapter 5

SUMMARY AND CONCLUSIONS

This experiment was created to examine the intervention for effectiveness. The results clearly show that the intervention is successful in increasing knowledge and self-efficacy; however, it did not increase Perception of Risk. The descriptive statistics in Fig. 8 show that the treatment group ranked "to study," "to have fun and/or party," and "to fit in" as the top three most influential reasons for recreational prescription drug use. The control group's top three were "to fit in," "to get high," and "to study," in that order. It is clear that these three reasons for abuse and misuse are consistent among both groups. The curriculum was successful in demonstrating the effectiveness of the Health Belief Model, Self-Efficacy Theory and the Theory of Planned Behavior. The data suggests students would be better at resisting recreational prescription drug use and more knowledgeable about the topic after being exposed to this curriculum.

Future research should examine if either increased knowledge or increased perception of risk has greater effect on college student recreational drug use. Further research should examine if fear-mongering is a successful method of teaching new behaviors, or if knowledge and self-efficacy are more effective. Future interventions should focus on decreasing prescription drug use in order to study, have fun and/or party, and get high, as those are consistently the top three reasons for abuse and misuse. General education health course professors may want to incorporate this new intervention into the lesson plan.

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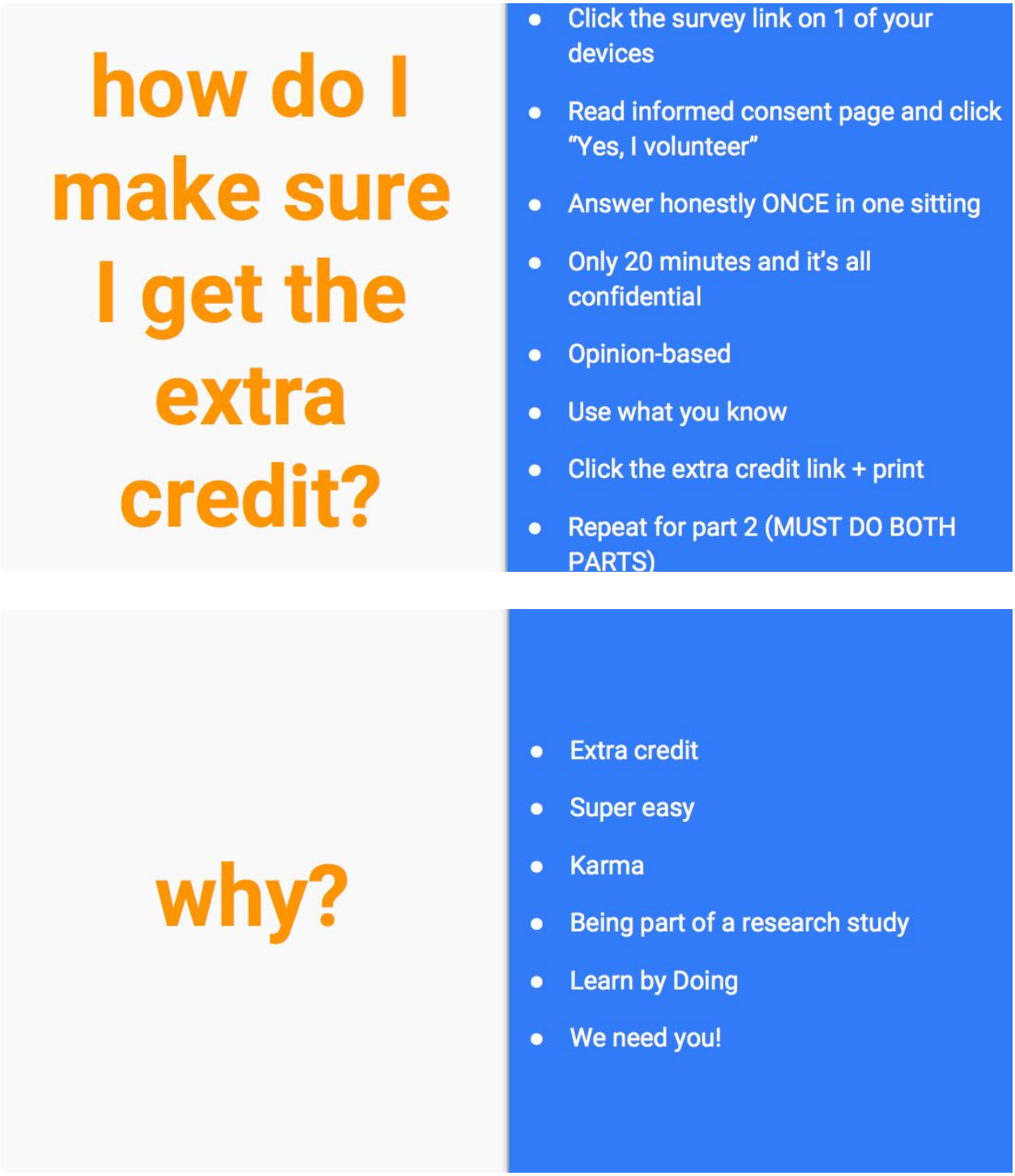
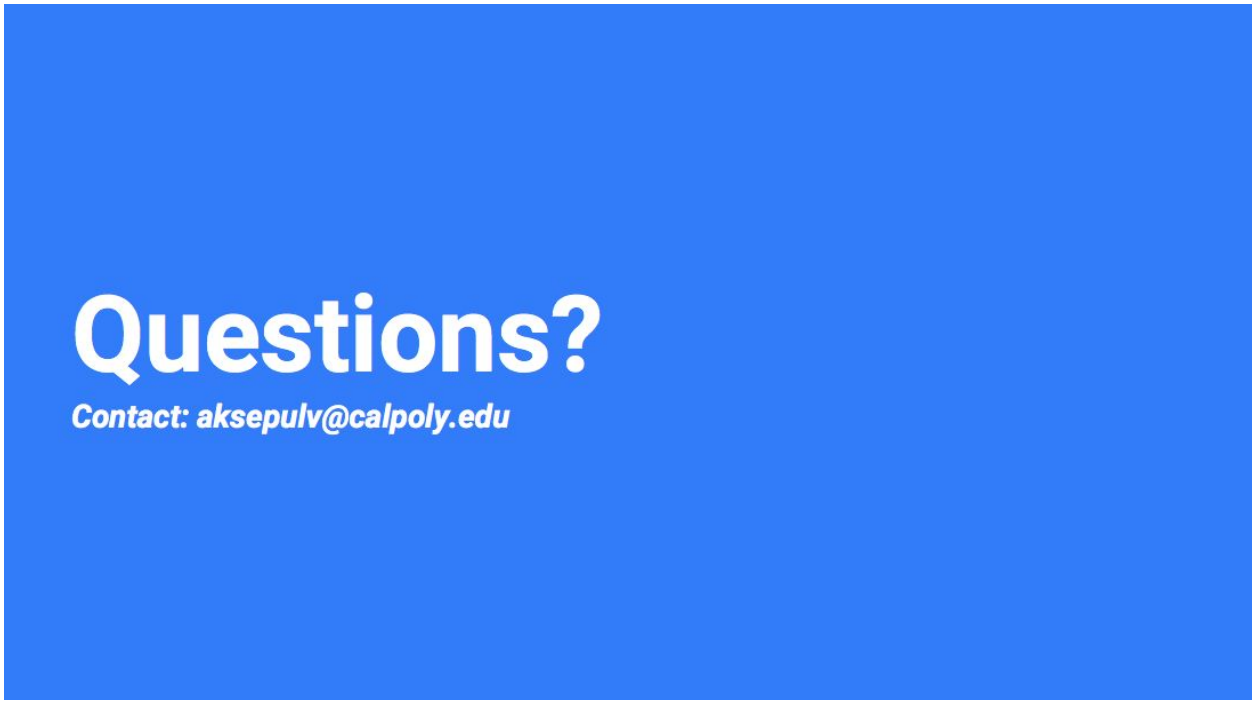
Appendices

Appendix A: Recruitment Script


EXTRA CREDIT


Take part 1 survey and extra credit survey #1.
Chill
Print end page and submit.
Step 1
Step 2
Step 3
Step 4
Step 5
Print end page and submit before midterm.
Take part 2 survey and extra credit survey #2.


how do I make sure I get the extra credit?
Click the survey link on 1 of your devices
Read informed consent page and click "Yes, I volunteer"
Answer honestly ONCE in one sitting
Only 20 minutes and it's all confidential
Opinion-based
Use what you know
Click the extra credit link + print
Repeat for part 2 (MUST DO BOTH PARTS)
why?
Extra credit
Super easy
Karma
Being part of a research study
Learn by Doing
We need you!


Questions?
Contact: aksepulv@calpoly.edu

Appendix B: Control and Treatment Group Pre-treatment Questionnaire

Appendix D: Pre-Intervention Survey Questions

This study takes data from your pre- and post-intervention responses. In order to enable us to match your pre- and post-intervention responses, we need your assistance to create a unique code just for you.

Please input your last 3 digits for your phone number.

For example: 805-756-2981 would be input as 981

Please input your mother's first and last name initials.

For example: Jane Doe would be input as JD

Please input your shoe size.

For example: Size 7 would be input as 7.0; size 10 ½ would be input as 10.5

1. What is your gender?
Male
Female
Transgender

2. What is your age? (if you are under the age of 18 please discontinue this survey)
19
20
21
22
23
24
25
26
27 or older

3. What is your major? Please write it out e.g. Biology Write-in:_____

4. What year are you in college?
Freshman
Sophomore
Junior
Senior
Graduate/Credential

5. Do you live on- or off-campus?
On-campus
Off-campus

6. Are you a first generation college student? (In other words, are you the first person in your immediate family to go to college?)
Yes
No

7. How likely are you to participate in Greek Life this coming academic year?
Never
Not Likely
Possibly
Very Likely
Definitely
Don't Know/Not Sure

8. How likely are you to participate in NCAA collegiate athletics this coming academic year?
Never
Not Likely
Possibly
Very Likely
Definitely
Don't Know/Not Sure

9. Have you been prescribed a medication in the last 6 months?
Yes
No
I don’t know
I cannot remember
Decline to state

10. Why do you believe that some college students use prescription drugs recreationally? Please rank the following choices from most influential (“4”) to least influential (“1”).
To relax

To have fun
To fit in
To party
Other: Write-in

11. Why do you believe that some college students use prescription drugs recreationally? Please rank the following choices from most influential ("4") to least influential ("1"), just as you did in the previous question.
To sleep
To study
To stay awake
To get high
To manage stress
To deal with addiction
To deal with depression or anxiety
Other: Write-in

12. In your opinion, how risky is it to a person's body to use prescription drugs recreationally?
Not at all Risky
Risky
Extremely Risky
Don't know/Not Sure

13. When using prescription drugs recreationally, how risky is it to a person's body to combine prescription drugs and alcohol?
Not at all Risky
Risky
Extremely Risky
Don't know/Not Sure

14. When using prescription drugs recreationally, how risky is it to a person's body to combine prescription drugs and caffeine?
Not at all Risky
Risky
Extremely Risky
Don't know/Not Sure

15. When using prescription drugs recreationally, how risky is it to a person's body to combine more than one prescription drug at a time?
Not at all Risky
Risky
Extremely Risky
Don't know/Not Sure

16. In your opinion, what percent of Cal Poly students use prescription drugs recreationally?
Less than 5%
6-10%
11-20%
21-30%
31-40%
41-50%
51%+

17. In your opinion, how difficult do you think it would be to obtain prescription medication on or around campus without a prescription?
Extremely difficult
Difficult
Neither easy or difficult
Easy
Extremely Easy

18. In your opinion, how likely is it that a student at Cal Poly will experience pressure from others to use prescription drugs recreationally?
Not at all Likely
Likely
Extremely Likely

19. How addictive are Adderall and other ADHD medications?
Not Addictive
Somewhat Addictive
Highly Addictive
I don't know

20. How addictive are Xanax and other anti-anxiety medications?

Not Addictive
Somewhat Addictive
Highly Addictive
I don't know

21. How addictive are prescription painkillers such as Vicodin or Oxycontin?
Not Addictive
Somewhat Addictive
Highly Addictive
I don't know

22. Which of the following best describes the term “drug use”?

Taking the proper dosage of a medication at the right times in a day or week in which it is prescribed or advised.

Crushing up a pill (that was meant to be taking orally) in order for it to be snorted through your nose.

Your teammate tore their ACL during last season’s game against UCSB. You notice she has been taking at least 5 to 6 painkillers everyday for the last 6 weeks.

23. Which of the following best describes the term “drug abuse”?

Taking the proper dosage of a medication at the right times in a day or week in which it is prescribed or advised.

Crushing up a pill (that was meant to be taking orally) in order for it to be snorted through your nose.

Your teammate tore their ACL during last season’s game against UCSB. You notice she has been taking at least 5 to 6 painkillers everyday for the last 6 weeks.

24. Which of the following best describes the term “drug misuse”?

Taking the proper dosage of a medication at the right times in a day or week in which it is prescribed or advised.

Crushing up a pill (that was meant to be taking orally) in order for it to be snorted through your nose.

Your teammate tore their ACL during last season's game against UCSB. You notice she has been taking at least 5 to 6 painkillers everyday for the last 6 weeks.

For questions 25-29, please answer to the best of your ability. Please do not look up the answer and please select all that may apply.

25. Kristen's mom leaves her Valium (anti-anxiety medication) on the passenger seat of her car. When Kristen takes her car to the store, she gets pulled over for rolling through a stop sign. What is the penalty to **KRISTEN** for having her mother's prescription medication in the car?
No Penalty
Infraction charge (punishable by fine)
Misdemeanor charge (punishable by jail time)
Felony charge (punishable by prison time)
Other (please specify)
I don't know

26. Mike sold his Zoloft (an anti-depressant medication) to a student, then that student decided to mix the Zoloft with other drugs, causing them to die from complications. What is the penalty to **MIKE** for providing the student his prescription medication?
No Penalty
Infraction charge (punishable by fine)
Misdemeanor charge (punishable by jail time)
Felony charge (punishable by prison time)
Other (please specify)

27. Tom's roommate is struggling studying for a big exam. He shares one of his ADHD pills with his roommate. What is the penalty to **TOM** for providing his prescription medication to his friend?
No Penalty
Infraction charge (punishable by fine)
Misdemeanor charge (punishable by jail time)

Felony charge (punishable by prison time)
Other (please specify)

28. Kyle was prescribed a painkiller for a knee surgery and kept the leftover pills. He then sold them to John in order to make a profit. What is the penalty to **JOHN** for buying prescription medication from Kyle?
No Penalty
Infraction charge (punishable by fine)
Misdemeanor charge (punishable by jail time)
Felony charge (punishable by prison time)
Other (please specify)

29. Sarah has been studying for 6 hours straight because she took a 25 mg Adderall pill (ADHD medication). She decides she deserves to go out drinking with her friends. How harmful is this for **SARAH's** health?
Very harmful
Moderately harmful
No opinion
Not harmful
I don't know

30. In your opinion, does using prescription drugs in ways other than prescribed (injecting, smoking, orally, anally, intranasally), have greater or lesser effects on the body?
Greater effect
Lesser effect
Equal effect
Depends on the drug type
Unknown

31. If an individual who has a prescription for a drug and takes more than the dosage prescribed, how much of the prescribed amount would you consider abuse?
Twice the prescribed dosage
3 times the prescribed dosage
4 times the prescribed dosage
5 times the prescribed dosage or more
All of the above
None of the Above

32. How harmful do you believe abusing prescription drugs are to the body?
Very harmful
Moderately harmful
Little to no harm

33. In your opinion, is the recreational use of illegal drugs more, less, or equally harmful to the body than the recreational use of prescription drugs?
More harmful
Less harmful
Equally harmful
Not harmful at all

34. How confident are you in your ability to explain concepts of prescription drugs to others?
Not at all confident
Moderately confident
Very confident
Unsure

35. If you were presented with the opportunity to use prescription drugs recreationally, how confident are you in your ability to refuse?
Not at all confident
Moderately confident
Very confident
Unsure

Appendix C: Control Group Post-treatment Questionnaire

1. To enable us to match your post-test response to your pre-test responses, please input your unique code. It should be made up of the last 3 digits of your phone number, your mother's first and last name initials, and your shoe size.

For example, 981JD7.0

2. Did you attend class on the day of the prescription drug presentation?

3. How likely are you to participate in Greek Life this coming academic year?

Never
Not Likely
Possibly
Very Likely
Definitely
Don't Know/Not Sure

4. Have you been prescribed a medication in the last 6 months?

Yes
No
I don't know
I cannot remember
Decline to state

5. Why do you believe that some college students use prescription drugs recreationally? Please rank the following choices from most influential ("4") to least influential ("1").

To relax
To have fun
To fit in
To party
Other: Write-in

6. Why do you believe that some college students use prescription drugs recreationally? Please rank the following choices from most influential (“4”) to least influential (“1”), just as you did in the previous question.
To sleep
To study
To stay awake
To get high
To manage stress
To deal with addiction
To deal with depression or anxiety
Other: Write-in

7. In your opinion, how risky is it to a person’s body to use prescription drugs recreationally?
Not at all Risky
Risky
Extremely Risky
Don’t know/Not Sure

8. When using prescription drugs recreationally, how risky is it to a person’s body to combine prescription drugs and alcohol?
Not at all Risky
Risky
Extremely Risky
Don’t know/Not Sure

9. When using prescription drugs recreationally, how risky is it to a person's body to combine prescription drugs and caffeine?
Not at all Risky
Risky
Extremely Risky
Don’t know/Not Sure

10. When using prescription drugs recreationally, how risky is it to a person’s body to combine more than one prescription drug at a time?
Not at all Risky
Risky

Extremely Risky
Don’t know/Not Sure

11. In your opinion, what percent of Cal Poly students use prescription drugs recreationally?
Less than 5%
6-10%
11-20%
21-30%
31-40%
41-50%
51%+

12. In your opinion, how difficult do you think it would be to obtain prescription medication on or around campus without a prescription?
Extremely difficult
Difficult
Neither easy or difficult
Easy
Extremely Easy

13. In your opinion, how likely is it that a student at Cal Poly will experience pressure from others to use prescription drugs recreationally?
Not at all Likely
Likely
Extremely Likely

14. How addictive are Adderall and other ADHD medications?
Not Addictive
Somewhat Addictive
Highly Addictive
I don't know

15. How addictive are Xanax and other anti-anxiety medications?
Not Addictive
Somewhat Addictive
Highly Addictive
I don't know

16. How addictive are prescription painkillers such as Vicodin or Oxycontin?
Not Addictive
Somewhat Addictive
Highly Addictive
I don't know

17. Which of the following best describes the term “drug use”?

Taking the proper dosage of a medication at the right times in a day or week in which it is prescribed or advised.

Crushing up a pill (that was meant to be taking orally) in order for it to be snorted through your nose.

Your teammate tore their ACL during last season’s game against UCSB. You notice she has been taking at least 5 to 6 painkillers everyday for the last 6 weeks.

18. Which of the following best describes the term “drug abuse”?

Taking the proper dosage of a medication at the right times in a day or week in which it is prescribed or advised.

Crushing up a pill (that was meant to be taking orally) in order for it to be snorted through your nose.

Your teammate tore their ACL during last season’s game against UCSB. You notice she has been taking at least 5 to 6 painkillers everyday for the last 6 weeks.

19. Which of the following best describes the term “drug misuse”?

Taking the proper dosage of a medication at the right times in a day or week in which it is prescribed or advised.

Crushing up a pill (that was meant to be taking orally) in order for it to be snorted through your nose.

Your teammate tore their ACL during last season's game against UCSB. You notice she has been taking at least 5 to 6 painkillers everyday for the last 6 weeks.

For questions 20-23, please answer to the best of your ability. Please do not look up the answer and please select all that may apply.

20. Kristen's mom leaves her Valium (anti-anxiety medication) on the passenger seat of her car. When Kristen takes her car to the store, she gets pulled over for rolling through a stop sign. What is the penalty to **KRISTEN** for having her mother's prescription medication in the car?
No Penalty
Infraction charge (punishable by fine)
Misdemeanor charge (punishable by jail time)
Felony charge (punishable by prison time)
Other (please specify)
I don't know

21. Mike sold his Zoloft (an anti-depressant medication) to a student, then that student decided to mix the Zoloft with other drugs, causing them to die from complications. What is the penalty to **MIKE** for providing the student his prescription medication?
No Penalty
Infraction charge (punishable by fine)
Misdemeanor charge (punishable by jail time)
Felony charge (punishable by prison time)
Other (please specify)

22. Tom's roommate is struggling studying for a big exam. He shares one of his ADHD pills with his roommate. What is the penalty to **TOM** for providing his prescription medication to his friend?
No Penalty
Infraction charge (punishable by fine)
Misdemeanor charge (punishable by jail time)
Felony charge (punishable by prison time)
Other (please specify)

23. Kyle was prescribed a painkiller for a knee surgery and kept the leftover pills. He then sold them to John in order to make a profit. What is the penalty to **JOHN** for buying prescription medication from Kyle?
No Penalty
Infraction charge (punishable by fine)
Misdemeanor charge (punishable by jail time)
Felony charge (punishable by prison time)
Other (please specify)

24. Sarah has been studying for 6 hours straight because she took a 25 mg Adderall pill (ADHD medication). She decides she deserves to go out drinking with her friends. How harmful is this for **SARAH's** health?
Very harmful
Moderately harmful
No opinion
Not harmful
I don't know

25. In your opinion, does using prescription drugs in ways other than prescribed (injecting, smoking, orally, anally, intranasally), have greater or lesser effects on the body?
Greater effect
Lesser effect
Equal effect
Depends on the drug type
Unknown

26. If an individual who has a prescription for a drug and takes more than the dosage prescribed, how much of the prescribed amount would you consider abuse?
Twice the prescribed dosage
3 times the prescribed dosage
4 times the prescribed dosage
5 times the prescribed dosage or more
All of the above
None of the Above

27. How harmful do you believe abusing prescription drugs are to the body?
Very harmful

Moderately harmful
Little to no harm

28. In your opinion, is the recreational use of illegal drugs more, less, or equally harmful to the body than the recreational use of prescription drugs?
More harmful
Less harmful
Equally harmful
Not harmful at all

29. How confident are you in your ability to explain concepts of prescription drugs to others?
Not at all confident
Moderately confident
Very confident
Unsure

30. If you were presented with the opportunity to use prescription drugs recreationally, how confident are you in your ability to refuse?
Not at all confident
Moderately confident
Very confident
Unsure

Appendix D: Treatment Group Post-treatment Questionnaire

Post-Intervention Survey Questions

1. To enable us to match your post-test response to your pre-test responses, please input your unique code. It should be made up of the last 3 digits of your phone number, your mother's first and last name initials, and your shoe size.

For example, 981JD7.0

2. Did you attend class on the day of the prescription drug presentation?

3. How likely are you to participate in Greek Life this coming academic year?

Never

Not Likely
Possibly
Very Likely
Definitely
Don't Know/Not Sure

4. Have you been prescribed a medication in the last 6 months?
Yes
No
I don't know
I cannot remember
Decline to state

5. Why do you believe that some college students use prescription drugs recreationally? Please rank the following choices from most influential ("4") to least influential ("1").
To relax
To have fun
To fit in
To party
Other: Write-in

6. Why do you believe that some college students use prescription drugs recreationally? Please rank the following choices from most influential ("4") to least influential ("1"), just as you did in the previous question.
To sleep
To study
To stay awake
To get high
To manage stress
To deal with addiction
To deal with depression or anxiety
Other: Write-in

7. In your opinion, how risky is it to a person's body to use prescription drugs recreationally?
Not at all Risky
Risky
Extremely Risky

Don’t know/Not Sure

8. When using prescription drugs recreationally, how risky is it to a person’s body to combine prescription drugs and alcohol?
Not at all Risky
Risky
Extremely Risky
Don’t know/Not Sure

9. When using prescription drugs recreationally, how risky is it to a person's body to combine prescription drugs and caffeine?
Not at all Risky
Risky
Extremely Risky
Don’t know/Not Sure

10. When using prescription drugs recreationally, how risky is it to a person’s body to combine more than one prescription drug at a time?
Not at all Risky
Risky
Extremely Risky
Don’t know/Not Sure

11. In your opinion, what percent of Cal Poly students use prescription drugs recreationally?
Less than 5%
6-10%
11-20%
21-30%
31-40%
41-50%
51%+

12. In your opinion, how difficult do you think it would be to obtain prescription medication on or around campus without a prescription?
Extremely difficult
Difficult
Neither easy or difficult

Easy
Extremely Easy

13. In your opinion, how likely is it that a student at Cal Poly will experience pressure from others to use prescription drugs recreationally?
Not at all Likely
Likely
Extremely Likely

14. How addictive are Adderall and other ADHD medications?
Not Addictive
Somewhat Addictive
Highly Addictive
I don't know

15. How addictive are Xanax and other anti-anxiety medications?
Not Addictive
Somewhat Addictive
Highly Addictive
I don't know

16. How addictive are prescription painkillers such as Vicodin or Oxycontin?
Not Addictive
Somewhat Addictive
Highly Addictive
I don't know

17. Which of the following best describes the term “drug use”?

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Crushing up a pill (that was meant to be taking orally) in order for it to be snorted through your nose.

Your teammate tore their ACL during last season’s game against UCSB. You notice she has been taking at least 5 to 6 painkillers everyday for the last 6 weeks.

19. Which of the following best describes the term “drug misuse”?

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Your teammate tore their ACL during last season’s game against UCSB. You notice she has been taking at least 5 to 6 painkillers everyday for the last 6 weeks.

For questions 20-23, please answer to the best of your ability. Please do not look up the answer and please select all that may apply.

20. Kristen’s mom leaves her Valium (anti-anxiety medication) on the passenger seat of her car. When Kristen takes her car to the store, she gets pulled over for rolling through a stop sign. What is the penalty to **KRISTEN** for having her mother’s prescription medication in the car?
No Penalty
Infraction charge (punishable by fine)
Misdemeanor charge (punishable by jail time)
Felony charge (punishable by prison time)
Other (please specify)
I don’t know

21. Mike sold his Zoloft (an anti-depressant medication) to a student, then that student decided to mix the Zoloft with other drugs, causing them to die from complications. What is the penalty to **MIKE** for providing the student his prescription medication?

No Penalty
Infraction charge (punishable by fine)
Misdemeanor charge (punishable by jail time)
Felony charge (punishable by prison time)
Other (please specify)

22. Tom's roommate is struggling studying for a big exam. He shares one of his ADHD pills with his roommate. What is the penalty to **TOM** for providing his prescription medication to his friend?
No Penalty
Infraction charge (punishable by fine)
Misdemeanor charge (punishable by jail time)
Felony charge (punishable by prison time)
Other (please specify)

23. Kyle was prescribed a painkiller for a knee surgery and kept the leftover pills. He then sold them to John in order to make a profit. What is the penalty to **JOHN** for buying prescription medication from Kyle?
No Penalty
Infraction charge (punishable by fine)
Misdemeanor charge (punishable by jail time)
Felony charge (punishable by prison time)
Other (please specify)

24. Sarah has been studying for 6 hours straight because she took a 25 mg Adderall pill (ADHD medication). She decides she deserves to go out drinking with her friends. How harmful is this for **SARAH's** health?
Very harmful
Moderately harmful
No opinion
Not harmful
I don't know

25. In your opinion, does using prescription drugs in ways other than prescribed (injecting, smoking, orally, anally, intranasally), have greater or lesser effects on the body?
Greater effect
Lesser effect

Equal effect
Depends on the drug type
Unknown

26. If an individual who has a prescription for a drug and takes more than the dosage prescribed, how much of the prescribed amount would you consider abuse?
Twice the prescribed dosage
3 times the prescribed dosage
4 times the prescribed dosage
5 times the prescribed dosage or more
All of the above
None of the Above

27. How harmful do you believe abusing prescription drugs are to the body?
Very harmful
Moderately harmful
Little to no harm

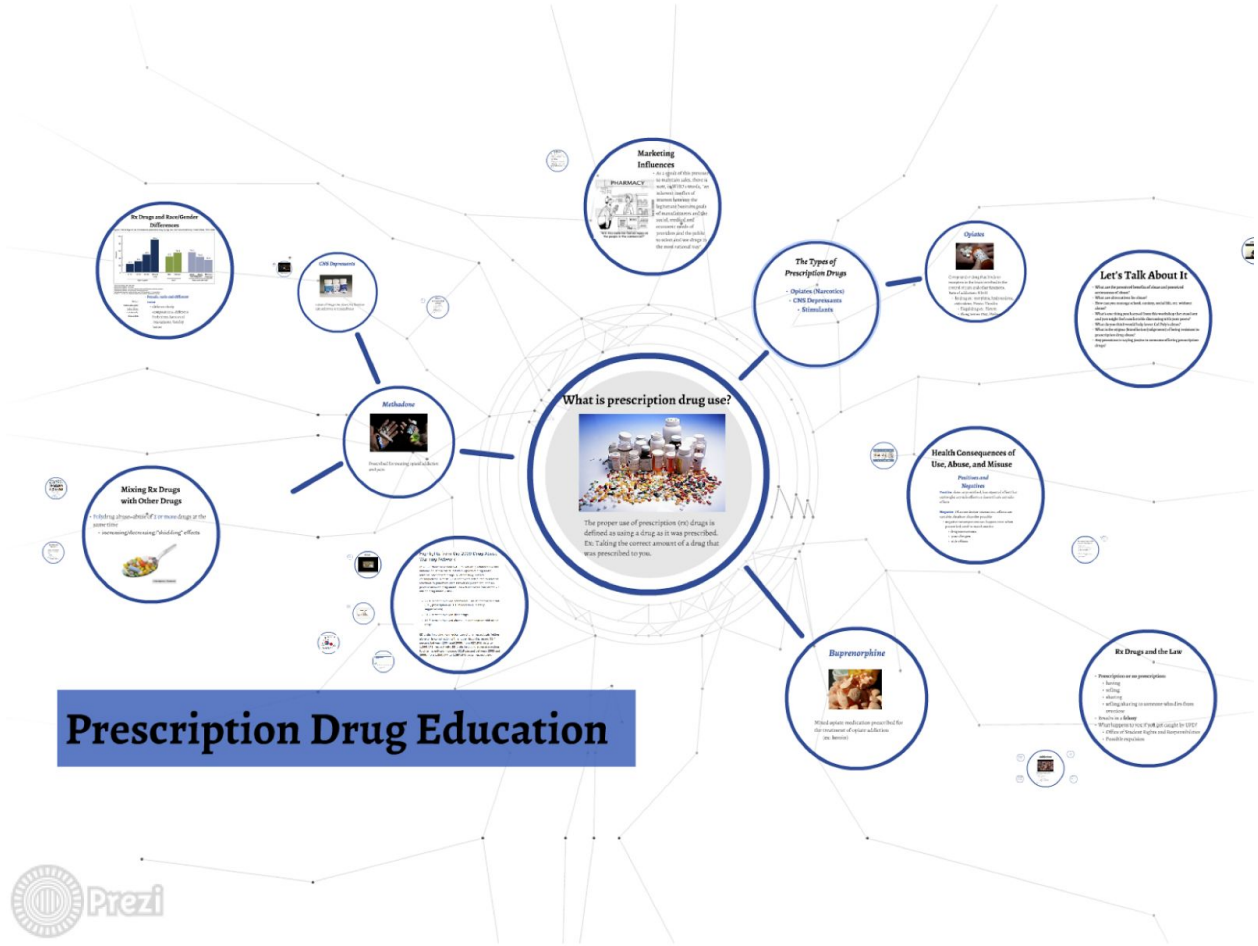
28. In your opinion, is the recreational use of illegal drugs more, less, or equally harmful to the body than the recreational use of prescription drugs?
More harmful
Less harmful
Equally harmful
Not harmful at all

29. How confident are you in your ability to explain concepts of prescription drugs to others?
Not at all confident
Moderately confident
Very confident
Unsure

30. If you were presented with the opportunity to use prescription drugs recreationally, how confident are you in your ability to refuse?
Not at all confident
Moderately confident
Very confident
Unsure

31. Did you attend class on the day of the Prescription Drug Curriculum was administered?
Yes
No

Appendix D: Intervention



To view entire Prescription Drug Intervention refer to the provided link:

http://prezi.com/n98cmuxgw3zf/?utm_campaign=share&utm_medium=copy

Appendix E: Statistical Tests

Analysis Results

Regression Analysis: PostTest Risk versus PreTest Risk, TreatRisk

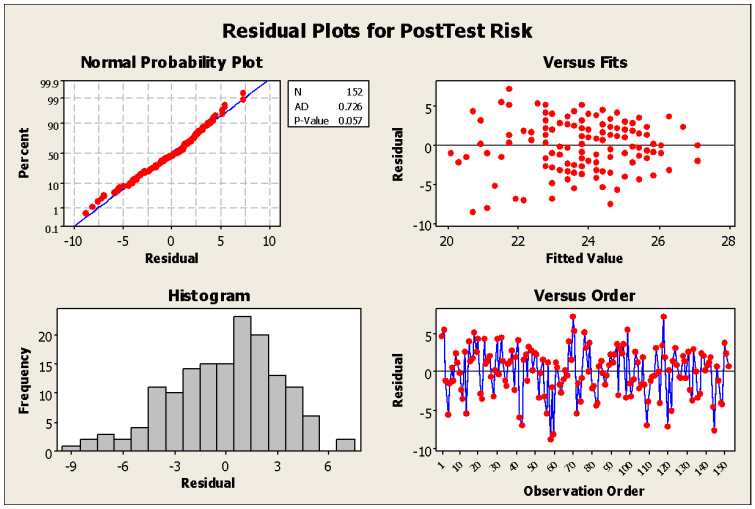
```
The regression equation is
PostTest Risk = 13.3 + 0.412 PreTest Risk + 0.622 TreatRisk

Predictor        Coef  SE Coef      T      P    VIF
Constant       13.299    1.939   6.86  0.000
PreTest Risk  0.41189  0.07498   5.49  0.000  1.017
TreatRisk      0.6222   0.5320   1.17  0.244  1.017

S = 3.21140   R-Sq = 16.9%   R-Sq(adj) = 15.8%

Analysis of Variance

Source           DF       SS      MS      F      P
Regression        2   313.45  156.72  15.20  0.000
Residual Error  149  1536.65   10.31
Total           151  1850.10
```



No significant association between treatment and post-test score in Risk (p = .244), when adjusting for pre-test score.

Examine Impact of 90-Minute Curriculum Intervention on Knowledge

Regression Analysis: PostTest Know versus PreTest Know, TreatKnow

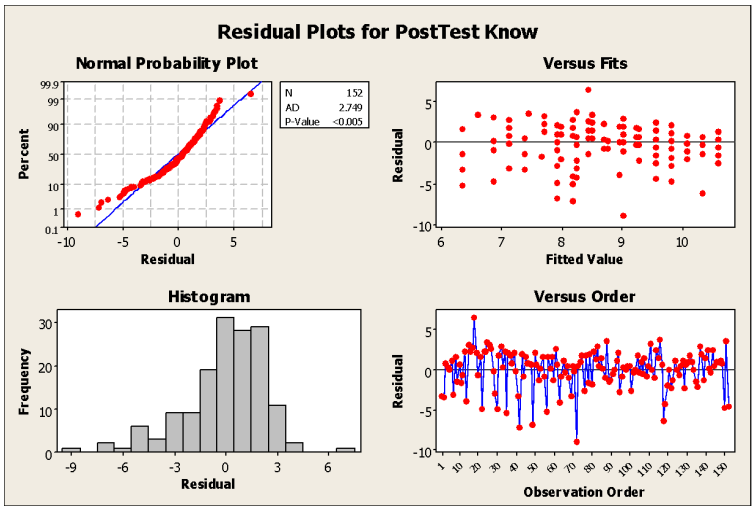
```
The regression equation is
PostTest Know = 6.08 + 0.263 PreTest Know + 1.37 Treatnow
```

Predictor	Coef	SE Coef	T	P	VIF
Constant	6.0817	0.5412	11.24	0.000	
PreTest Know	0.26254	0.06242	4.21	0.000	1.004
TreatKnow	1.3745	0.3986	3.45	0.001	1.004

S = 2.42179 R-Sq = 17.4% R-Sq(adj) = 16.3%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	2	184.311	92.156	15.71	0.000
Residual Error	149	873.892	5.865		
Total	151	1058.204			



Significant positive association between treatment and post-test score in Knowledge (p = .001), when adjusting for pre-test score.

Examine Impact of 90-Minute Curriculum Intervention on Self-Efficacy

Regression Analysis: PostTest Self versus PreTest Self, TreatSelf

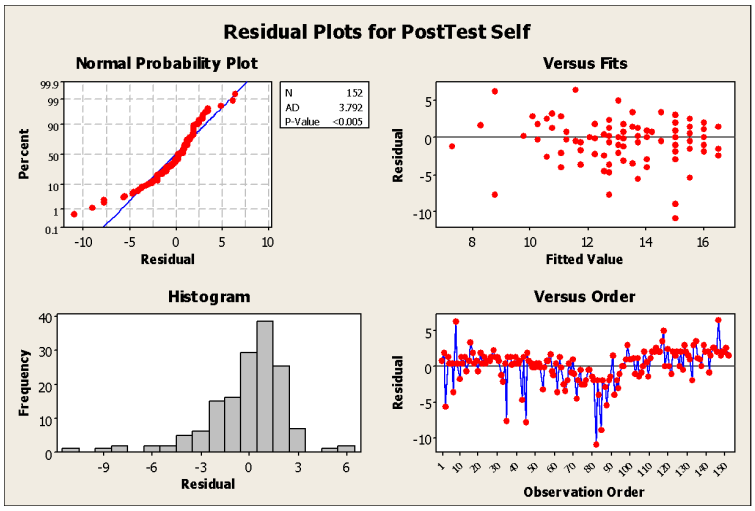
The regression equation is
PostTest Self = 5.35 + 0.493 PreTest Self + 2.28 TreatSelf

Predictor	Coef	SE Coef	T	P	VIF
Constant	5.3491	0.9814	5.45	0.000	
PreTest Self	0.49312	0.06451	7.64	0.000	1.000
TreatSelf	2.2836	0.4145	5.51	0.000	1.000

S = 2.52282 R-Sq = 37.1% R-Sq(adj) = 36.3%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	2	559.67	279.83	43.97	0.000
Residual Error	149	948.33	6.36		
Total	151	1507.99			



Significant positive association between treatment and post-test score in Self-Efficacy ($p < .001$), when adjusting for pre-test score.

Appendix H: Research Poster