Program Plan and Evaluation Project

Ariyana Canty, RDH

Master of Public Health, Old Dominion University

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Dr. Durgampudi

Executive Summary

Reasonable Resistance was created to investigate the effectiveness of school-based intervention programs on reducing drug abuse among teenagers compared to teenagers who do not participate in such intervention programs. According to the National Center for Drug Abuse Statistics (NCDAS), at least 1-in-8 teenagers have abused an illicit substance in the last year (NCDAS, 2022). Additionally, between 2016 and 2020 drug use went up 61% among 8th graders and 50% of teenagers have misused a drug at least once. This issue must be tackled efficiently and effectively because drug abuse at a young age correlates to more significant continued substance abuse problems later in life. School-based programs are effective because they use contemporary approaches to construct the intervention based on psychosocial theories on the etiology of adolescent drug use and targeting risk and protective factors that promote use initiation. Reasonable Resistance, the exposure, will consist of 12 weekly 60-minute classes. The curriculum, presented by teachers at the school and 2 guest speakers, will educate students on drugs and their harmful effects, the psychological effects of drug use, and social and personal skills to aid resistance. Participating students will also be given a pre-test questionnaire and post-test questionnaire to evaluate their likeliness to use drugs before taking the course and after. Drug abuse, the outcome variable will also be measured using a questionnaire. Questions will focus on the frequency of use of tobacco, marijuana, inhalants, and cocaine in the past 30 days, year, and one's lifetime. Data will also be gathered on socio-demographic factors, knowledge of drugs, beliefs and opinion on drugs, decision-making skills and refusal skills. Goals of the program include reducing the prevalence of drug use and abuse, ensuring the availability of school-based drug intervention programs in all New York City public schools, and identifying risk and predisposing factors that lead to drug abuse among teens. The budget for the program to operate at full capacity is $75,000. The program will be evaluated on a summative basis using an

independent t-test and multiple regression analysis. Data and findings from the Reasonable Resistance intervention can help the board of education, school systems, educational staff and providers understand their role in reducing drug abuse amongst teenagers. Results of this study can also be presented to parents as an educational resource to help them understand their role and contributing factors to drug abuse outside of school-based intervention programs.

Health Problem Statement

Statement

This program will be a school-based intervention program aimed at reducing the prevalence of drug abuse among teenagers in New York City, NY and tailoring decision-making and refusal skills.

Setting

The population will consist of students ages 14-18 from high schools across the five boroughs of New York City (NYC). This sample will allow for an accurate representation of NYC teenagers from different ethnicities, socioeconomic statuses (SES), and lifestyles.

Scope

Drug abuse amongst teenagers has become a significant health concern in America. This behavior describes the excessive use of pain medication and illicit drugs for additional purposes other than allowed or recommended. It also entails prescription drug misuse which is taking prescription drugs without a doctor's prescription one or more times during the past 12 months (NYCDHMH, 2022). The National Center for Drug Abuse Statistics (NCDAS) reported at least 1-in-8 teenagers have abused an illicit substance in the last year and 50% of teenagers have

misused a drug at least once (NCDAS, 2022). In 2019, there were 4,777 overdose deaths among 15 to 24-year-olds. Reports have also released data showing that 11.89 million 18 to 25-year-olds used drugs in the last month. Furthermore, overdose deaths due to opioids have increased 500% among 15 to 24-year-olds since 1999. In 2015, the World Health Organization (WHO) published data concluding that drug use accounts for 3.2% of the total of disability-adjusted-life-years (DALY).

Self-reported drug use among youth in New York City public high schools show that "14% of NYC public high school students have misused prescription drugs within the past year or had lifetime use of illicit drugs" (NYCDHMH, 2017). In regards to gender, prevalence of any drug use was higher among males (15%) than females (12%). As for ethnicity, White and Latino youth were more likely to use drugs of any sort compared to Black and Asian youth. A 2017 report stated that 1 in 10 NYC youth in public high schools reported any illicit drug use (NYCDHMH, 2019).

Over the years, data brief reports on self-reported drug use have shown a steady increase in drug use among youth. This issue must be tackled efficiently and effectively through prevention and treatment initiatives because drug abuse at a young age correlates to more significant continued substance abuse problems later in life.

Significance

As we know, crucial physical and intellectual growth takes place during teenage years and anything with negative health effects on the brain and body can interfere with these processes. Drug abuse can affect the brains ability to function in the present moment and further stunt development in the long term. In addition, youth are more likely to become addicted to illicit

drugs and make irrational decisions. Those youth will also more often than not drive reckless, drop out of school, establish a criminal record and become pregnant. Common health outcomes of drug-abusing teens include: brain shrinkage, altered socialization skills, amnesia and memory problems, strokes, seizures, and mental problems.

In terms of our economy, drug abuse is a costly expense and if left untreated becomes a universal burden. The last economic cost of drug abuse was estimated to be $193 billion in 2007 as reported by the Obama Administration (Office of National Drug Control Policy, 2007). That value includes funds associated with lost productivity due to labor participation costs, premature death, incarceration, healthcare costs for drug tests and drug-related medical consequences, and criminal justice costs to fund investigations and victim costs. Drug abuse has detrimental effects on not only the individual but business productivity as well.

Contribution Factors & Causes

A multitude of factors can lead to drug abuse at an early age. One of the main reasons youth use drugs are for the social benefits of seeming “cool” and being more accepted by their peers however other variables do exist. These can include: lack of parental guidance, SES, peer pressure, poor decision-making skills, coping mechanism, experimentation, perception of drug use, and many more.

Potential for Intervention

The implementation of a school-based intervention program can help reduce drug abuse and related behaviors among NYC youth. The program will offer lessons with information about drugs and their harmful effects, the psychological effects of drug use, and social and personal skills to aid resistance. Ideally, those who complete the program with full adherence will be less

likely to initiate drug use on their own, in the presence of others using drugs, and in the presence of their peers.

Program Description & Evidence Based Practices

A review of the best evidence-based practices to reduce drug abuse among teens was conducted before a school-based intervention was chosen.

1. School Based Practices

Universal school-based programs are designed to teach students in a given school (middle and high) about the problem and how to prevent it so they can lead a life free from violence, substance use, and other dangerous behaviors. These programs use contemporary approaches to develop the intervention based on psychosocial theories on the etiology of adolescent drug use and targeting risk and protective factors that promote the initiation and early stages of substance use (Hawkins et. al, 1992). The three types of contemporary approaches are social resistance skills training, normative education, and competence enhancement skills training. Social resistance skills are taught with the goal of "increasing adolescent's awareness of the various social influences that support substance use and teaching them specific skills for effectively resisting both peer and media pressures to smoke, drink, or use drugs" (Botvin, 2000). Normative education includes curriculum and resources to correct inaccurate perceptions about the increased prevalence of substance use. Competence enhancements programs teach personal and social skills and how to deal with daily life encounters or challenges. A Life Skills Training Program seeking to influence major social and psychological factors that promote substance use found that students were less likely to use drugs, there was a

slower increase in usage rates, and the program had effects on normative beliefs about substance use. Another intervention, Project Towards No Drug Abuse (TND) was a high school program designed to help high-risk students resist use and abuse. Students who participated and adhered to Project TND exhibited a 25% reduction is hard drug use, a 22% reduction in marijuana use at the one-year follow-up and 50% at the two-year. TND also produced effects on the risk of victimization and frequency of weapons carrying. School-based efforts are efficient because they can reach a large number of students and shape their programs based on the ever-changing influences youth encounter.

2. Family Based Practices

Family-based prevention approaches focus on providing parents with the necessary skills to help their children abstain from drug use. According to Griffin et. al, "These programs, provided to parents without children present, teach specific parenting skills such as ways to nurture, bond, and communicate with children; how to help children develop prosocial skills and social resistance skills; training on rule-setting and techniques for monitoring activities; and ways to help children reduce aggressive or antisocial behaviors." (Griffin, 2010). A second type of family-based prevention, focuses on teaching the parents and children together to improve family functioning, communication skills, family boundaries and policies and effective ways for the parents to enforce them. Family Matters, a program designed for all families with adolescents and implemented at home through educational booklets found that the intervention reduced prevalence among users and nonusers and reduced use initiation compared to the control group. Another program, Brief Strategic Family Therapy (BSFT) aimed to decrease individual and family risk factors through skills building and strengthening family relationships. BSFT was

implemented in the community in addition to at home and was proven to have greater reduction in usage, and less overall substance use. In addition, "BSFT was found to produce effects on other outcomes, including engagement in therapy, conduct problems and aggression, and family functioning." (Griffin, 2010). Based on the different types of programs and effects, interventions that focus on both parenting skills and family bonding appeared to be the most effective in reducing or preventing substance use.

3. Community Based Practices

Community-based prevention programs include school and family-based practices in addition to media campaigns and initiatives to reach as many individuals as possible. Due to the broad spectrum of this practice, these community programs "are often managed by a coalition of stakeholders including parents, educators, and community leaders" (Griffin, 2010). A community trials intervention to reduce substance use utilized environment strategies to increase community awareness, prevent underage substance use, and enforce laws regarding substance use and sales. Within the program, the focus was on reducing access, responsible services by distributors and the sales person, increased sobriety checkpoints and evaluations, and trained retailors. A replication of this community-based program was performed in support of the quality of research and they concluded that individuals from households in the intervention community had more significant reductions than those residing in comparison communities. Community-based programs that deliver a coordinated, comprehensive message about prevention can be effective in preventing adolescent substance use (Griffin, 2010).

Reasonable Resistance is a school-based drug use reduction program. The program will investigate the effectiveness of school-based interventions on reducing drug abuse among teenagers compared to teenagers who do not participate in such intervention programs. The exposure, Reasonable Resistance, will consist of 12 weekly 60-minute classes. The curriculum, presented by teachers at the school and 2 guest speakers, will educate students on drugs and their harmful effects, the psychological effects of drug use, and social and personal skills to aid resistance. The guest speakers will be individuals who have recovered and are clean from drug abuse. Each lesson will come with 4 to 6 activities addressing these topics on drug prevention. An instructor's handbook will be provided to the teachers highlighting objectives, lesson plans and procedures, required materials, and discussing the activities along with tips for success. The classes will be held once a week during the students' home room or seminar class period.

Goals & Objectives

Goal 1 – Reduce the prevalence of drug use and abuse among teens

- **Objective 1.1:** Establish innovative interventions by January 1, 2032, to aid risk reduction for at least 10,000 high-risk youth every year.
- **Objective 1.2:** By the end of 2024, reduce drug use incidence by 10% through educating youth about drugs and their negative effects.
- **Objective 1.3:** By 2025, increase the percentage of youths' literacy on drugs and drug-related behaviors by dispersing pamphlets about drugs to 10 NYC public schools every week.

Goal 2 – Ensure availability of school-based drug intervention programs in all public schools

- **Objective 2.1:** Increase the number of schools offering drug use intervention programs from 30 to 200 in the next 5 years by advertising the efficacy of school-based programs to Board of Education (BOE) members.
- **Objective 2.2:** Increase the number of NYC children actively participating and adhering to the school-based intervention program curriculum to 60% within 3 years by involving a parent, guardian, or caregiver.
- **Objective 2.3:** Identify factors preventing the presence of school-based intervention programs within the NYC public school system by meeting with the BOE, parents, and other stakeholders in the next 2 years.

Goal 3 – Identify risk/predisposing factors that lead to drug abuse among teens

- **Objective 3.1:** Partner with high-risk youth, their parent/guardian/caregiver, and healthcare providers to optimize communication regarding existing predisposing conditions that can make them more susceptible to drug use by December 31, 2023.
- **Objective 3.2:** Develop a valid and reliable questionnaire that can be used in school-based intervention programs to identify *(based on answers that will be categorized and ranked)* use and abuse risk factors within 5 years
- **Objective 3.3:** Within 12 years, establish quality data collection systems and methods to better analyze risk factors based on gender, location, socioeconomic status, and social determinants of health.

Implementation Plan

The population will be high school students ages 14-18 in New York City Public Schools. Participating students will be given a pre-test questionnaire and post-test questionnaire to evaluate their likeliness to use drugs before taking the course and after. Drug abuse, the outcome

variable will be measured using a questionnaire. Questions will focus on the frequency of use of tobacco, marijuana, inhalants, and cocaine in the past 30 days, year, and one's lifetime. In this case, the statement "drug abuse" refers to the use of prescribed or over-the-counter drugs in excess of the directions, and any nonmedical use of drugs. The questionnaire will combine questions from the European Drug Addiction Prevention Program (EU-DAP), "Unplugged", and the Drug Use Questionnaire from the National Institute on Drug Abuse in America. Using this, data will be gathered on socio-demographic factors, knowledge of drugs, beliefs and opinion on drugs, decision-making skills and refusal skills. Details of the questionnaire are listed in Table 1. Questions from the EU-DAP were incorporated because several studies prove its validity. A mixed methods study with quantitative and qualitative analyses conducted by Galvão et. al found that the questionnaire showed high factorial validity, reliability, and understanding by adolescents. Another study by Ramirez et.al assessed linguistic and cultural adaptation using focus groups and construct validity and reliability via confirmatory factor analysis. This cross-sectional study also found that the questions captured drug consumption, beliefs, risk perception and the effectiveness of drug use prevention interventions. Due to the fact that none of the researchers are residents of New York City, qualitative data will also be collected. Furthermore, this is necessary because we will be investigating human behavior. Qualitative data will help us understand social phenomena with the help of the perspectives and experiences of all of the participants. To do this, a focus group will be advantageous. Focus groups encourage discussion among participants which will provide the researchers insight into the participants knowledge and attitudes towards drugs. These groups work best when all participants are comfortable with each other, so there will be a group discussion held for males and females separately. During the forum, a moderator will pose a topic of discussion which will facilitate group interaction and the

exchange of ideas and comments on each other's experiences or points of view. There will be 2 focus groups composed of 8-12 females and males from each borough. A note-taker will also be present during each forum to thoroughly capture the comments, expressions, and statements with tone from each participant. Open-ended questions along with probes that will be discussed in the focus group are listed in Annex 1. A proposed budget for the first year of the program is highlight in Table 2.

Table 1: Reasonable Resistance Drug Use Questionnaire (self-administered)

1.	Gender: How do you identify?	M	F	Other
2.	What is your age group?	13-14	15-17	>18
3.	In which borough do you reside?	a. Bronx b. Brooklyn c. Queens d. Manhattan e. Staten Island		
4.	Is the effect of a drug increasing if one takes more of it?	Y	N	
5.	Do drugs affect all people in the same way?	Y	N	
6.	Are drugs more dangerous for females than males?	Y	N	
7.	Are there any drugs, which do not have a risk of getting addicted to?	Y	N	
8.	Will people like me more if I use drugs?	Y	N	
9.	Are drugs helpful in solving problems?	Y	N	
	These Questions refer to the past 30 days, year or lifetime			
10.	Have you used drugs other than those required for medical reasons?	Y	N	
11.	Have you used a drug in excess of the directions?	Y	N	
12.	Do you/Have you abuse more than one drug at a time?	Y	N	
13.	Have you ever used tobacco, marijuana, inhalants, cocaine or any other illegal substance on a single occasion?	Y	N	
	If you answered "N" to questions 10-13, you may select "N/A" for questions 14-20.			
14.	Are you unable to stop using drugs when you want to?	Y	N	N/A
15.	Have you ever had blackouts or flashbacks as a result of drug use?	Y	N	N/A
16.	Do you ever feel bad or guilty about your drug use?	Y	N	N/A
17.	Does your parents ever complain about your involvement with drugs?	Y	N	N/A

18.	Have you engaged in illegal activities in order to obtain drugs?	Y	N	N/A
19.	Have you ever neglected yourself whilst using drugs?	Y	N	N/A
20	Did you acquire your drug of choice from an adult (18+) or minor (<18)?	Adult	Minor	N/A

Annex (1): Reasonable Resistance Drug Use Questionnaire (self-administered) .. con't

Extra Details				
21.	Were you adopted?	Y	N	
22.	Have you been in foster care?	Y	N	
23.	Have you ever been homeless?	Y	N	
24.	Did you grow up in a single (1) or two (2) parent household?	1	2	
25.	Have you witnessed or do you think your parents use drugs?	Y	N	
26.	What are your parents' highest level of education?	a. < 12^{th} grade b. High School or GED c. Some college, No degree d. Associate's Degree e. Bachelor's Degree f. Post-graduate Degree		
27.	Have you ever witnessed your peers use drugs?	Y	N	

Annex 1: Reasonable Resistance Focus Group: Question Guide

- In what ways have drugs been offered to you in your community, if any?
    - In what ways can you access drugs in your community?
        - Give an example
        - Tell me more
        - How did it make you feel?
        - What was your response?

- What are some factors that promote drug abuse amongst people your age in this community?
- What role does social media play in drug abuse?
    - Social activities?
    - Peer Pressure?
- What can you recommend to address this drug misuse problem?
- What actions have you taken when you suspect someone is abusing drugs?
- How often do you encounter drugs?
- How do you perceive the health effects of drugs?
- In what ways do you feel the intervention could have helped students more?
    - What are some recommendations for improvement?
        - Examples of potential additions?
    - Things we should keep?
    - Thing we could have taken away?
- Why is drug abuse among teens a public health concern?
    - How do you feel about efforts to help with the problems?

Table 2: Budget for the First Year of the Program

Factor	No.	Amount
Teachers	2	$24,000
2 Guest speakers	2	$21,000
Logistics	N/A	$15,000
Revenue	N/A	$15,000
Total Cost	**N/A**	**$75,000**

Evaluation & Logic Model

Logic Model: School Based Intervention for Drug Abuse Among Teens

Inputs	Outputs		Outcomes – Impact		
	Activities	**Participation**	**Short Term**	**Mid Term**	**Long Term**
1. Students 2. Teachers 3. Board of Education Members (BOE)	1. Organize a drug use reduction program 2. Community supply donations 3. Collaborate with the students, parents, and	1. High School students ages 14-18 residing in NYC	1. Risk factors that lead to drug abuse have been identified	1. Students have the option to participate in school-based programs at	1. Reduce the prevalence of drug use and abuse 2. Reduce the incidence of

4. Materials 5. Technology 6. Parents 7. Curriculum 8. Instruction Supplies 9. Workshops 10. Focus Groups 11. Questionnaires 12. Evidence Based Practices 13. Peer Reviewed References 14. School/ Community Sites 15. Community Engagement 16. Funding	BOE members to identify priority of needs 4. Develop social media/ marketing campaigns to advertise to high-risk youth 5. Develop a risk reduction curriculum 6. Instructor training 7. Financing program costs 8. Identify key stakeholders involved in prevention efforts		2. Predisposing factors that increase susceptibility to drug use have been identified 3. Students have been instructed on intervention options and resources to help with drug use 4. Students in extenuating situations have been referred to healthcare providers 5. Students have taken a lecture on decision-making and refusal skills	their school or school nearby 2. A plan of action has been developed by the BOE to tackle the problem in schools 3. Youths' literacy on drugs and drug-related behaviors have increased 4. Factors prohibiting intervention effectiveness have been identified 5. Increased intervention compliance and adherence	drug use and abuse 3. All students attending NYC public schools are mandated to participate in school-based intervention programs 4. School-based, community-based, and family-based interventions all have significant effects on risk-reduction 5. Have specific interventions for specific risk-factors 6. Increase life expectancy of teens using drugs 7. Ensure availability of school-based drug intervention programs in all public schools

In order to determine the efficiency of the program the research will be based on an evaluation of the data collected pre and post Reasonable Resistance participation and full adherence. Data will be collected before the program is administered and at the end, therefore using the summative assessment approach. The evaluation will be done using the independent t-test to determine the effect of the intervention on the results of the project. The intervention will be the independent variable and the outcome based on the data collected at the end of the program will be the dependent variable.

The evaluation will use the multiple regression analysis to determine how a multitude of factors affect teenagers in the use of drugs and substances in the beginning of the intervention program which is also going to be helpful in designing the mitigation strategies towards the program and the problem of drugs and substance abuse among teenagers by the stake holders (National Center for Drug Abuse Statistics, 2022). For quantitative analysis, the data that will be used in the multiple regression analysis will be the socio-demographic factors, beliefs, opinion on drugs, knowledge on drugs and age. The none quantitative data will be coded to asses and determine the significance.

Program Plan (Reasonable Resistance)

Indicators	Data Collection Interval	Source	Frequency
Weekly Reasonable Resistance Classes Attended	At the end of the full semester Program	Class register	2
Use of drugs and Substances in the past 30 days, year and one's in a lifetime	In the beginning and at the end of the full semester Reasonable Resistance Program	Questionnaire	2

Knowledge on drugs	In the beginning and at the end of the full semester Reasonable Resistance Program	Questionnaire	2
The socio-demographic information	In the beginning and at the end of the full semester Reasonable Resistance Program	Questionnaire	2

Tracking Matrix

Student Unique number **M= Male** **F= Female**	**Number of lessons attended of the 144 available**	**Substance abuse data in the beginning of the Program (Questionnaire)**	**Substance abuse response at the end of the Program** **(Questionnaire)**
STM1	No. of lessons	Questionnaire score feedback	Questionnaire score feedback
STM2	No. of lessons	Questionnaire score feedback	Questionnaire score feedback
STM3	No. of lessons	Questionnaire score feedback	Questionnaire score feedback
STM4	No. of lessons	Questionnaire score feedback	Questionnaire score feedback
STM5	No. of lessons	Questionnaire score feedback	Questionnaire score feedback
STM6	No. of lessons	Questionnaire score feedback	Questionnaire score feedback
STM7	No. of lessons	Questionnaire score feedback	Questionnaire score feedback
STM8	No. of lessons	Questionnaire score feedback	Questionnaire score feedback

STM9	No. of lessons	Questionnaire score feedback	Questionnaire score feedback
STM10	No. of lessons	Questionnaire score feedback	Questionnaire score feedback
STM11	No. of lessons	Questionnaire score feedback	Questionnaire score feedback
STM12	No. of lessons	Questionnaire score feedback	Questionnaire score feedback
STF1	No. of lessons	Questionnaire score feedback	Questionnaire score feedback
STF2	No. of lessons	Questionnaire score feedback	Questionnaire score feedback
STF3	No. of lessons	Questionnaire score feedback	Questionnaire score feedback
STF4	No. of lessons	Questionnaire score feedback	Questionnaire score feedback
STF5	No. of lessons	Questionnaire score feedback	Questionnaire score feedback
STF6	No. of lessons	Questionnaire score feedback	Questionnaire score feedback
STF7	No. of lessons	Questionnaire score feedback	Questionnaire score feedback
STF8	No. of lessons	Questionnaire score feedback	Questionnaire score feedback
STF9	No. of lessons	Questionnaire score feedback	Questionnaire score feedback
STF10	No. of lessons	Questionnaire score feedback	Questionnaire score feedback
STF11	No. of lessons	Questionnaire score feedback	Questionnaire score feedback

STF12	No. of lessons	Questionnaire score feedback	Questionnaire score feedback

Summative outcome evaluation measurements

The performance of the program will be analyzed based on the responses of the questionnaires at the end of the program in comparison to determine the significant difference between the final data set and the data set at the beginning of the program before the implementation process. The analysis will be done based on the attendance of the students. This data will be used to determine the independent t-test for the two groups both in respect to the gender of the students and the cumulative performance of the students for a detailed insight on each group performance.

Formative outcome evaluation measurements

A multiple regression analysis will be done in the beginning of the program to determine the significance of previous knowledge about drugs, social demographic factors, beliefs, opinion on drugs and the questionnaire scores recorded in the beginning of the experiment of the program (Aggarwal & Ranganathan, 2017). The dependent variable will be the questionnaire feedback based on the codes. There will also be a qualitative analysis and the level of weekly attendance and the student's feedback during the intervention process (Weaver et al., 2017). The program will be consistent with the ethical values of NYC and the Federal program.

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