**Evaluation of Possible Influences to Use Pain Relivers Not Directed By Dr**

**An Observational Study**

**ABSTRACT**

The aim of this study is to compare the variables: age, gender, education level, employment status and over health with the using pain relievers without dr. prescription. Data collected from the National Survey on Drug Use and Health 2019, Substance Abuse and Mental Health Data Archive (SAMHDA). This is observational study based on research method descriptive analysis and based on the data from the national survey on drug use and health 2019 as well as reviews of relevant literature. A subset was created from the sample data with the responsible variable PNRNMLIF (using pain relievers not directed by Dr) and explanatory variables: WRKDPSTWK (employment status), CATAG3 (age categories), IRSEX (gender), IREDUHIGHST2 (education level), QD12 Health (Overall health). The age group 18 or older is taken for this observational study, gender male and female is taken. High school diploma, some college credit but no degree, associate degree, college graduate or higher is taken in an educational level for this study. Joint frequency distribution table and chi-square p-value is used to make decision. The result of the study shows that 26-34 years old group more likely to use pain reliever not directed by doctor than the other age groups. The male gender is more likely to use pain reliever not directed by doctor than the female. From the joint frequency distribution table, we saw that some college credit, but no degree group more used pain reliever not directed by doctor than the other education level group, but chi-square p-value shows that there is no relationship between the education level and pain reliever used not directed by doctor. The employment people more likely to take pain reliever not directed by doctor than the unemployment people. When see the health group, the good health and fair health group used more pain reliever not directed by doctor than the excellent, very good and poor health group. From the joint frequency distribution table, we saw that the percentage of people misusing pain relievers are less than the percentage of people who not misusing pain relievers, however, pain reliever misuse remains a public health concern because even as use declines, the number of deaths from overdoses and the number of admissions to substance use treatment involving pain relievers have increased.

1. **INTRODUCTION**

Pain relievers are medicines that reduce or relieve headaches, sore muscles, arthritis, or other aches and pains. There are many different pain medicines, and each one has advantages and risks. Some types of pain respond better to certain medicines than others. Each person may also have a slightly different response to a pain reliever. Pain relievers are just one part of a pain treatment plan. After eating pain relievers that located in many areas of our body like the brain, spinal cord, and other organs in the body, especially those involved in feelings of pain and pleasure. When pain relievers attach to these receptors, they block pain signals sent from the brain to the body and release large amounts of dopamine throughout the body. This release can strongly reinforce the act of taking the drug, making the user want to repeat the experience.

Pain relievers are generally safe when taken for a short time and as prescribed by a doctor, but they can be misused. People misuse pain relievers by taking the medicine in a way or dose other than prescribed, taking someone else's prescription medicine, taking the medicine for the effect it causes-to get high. When misusing a pain reliefers, a person can swallow the medicine in its normal form. Sometimes people crush pills or open capsules, dissolve the powder in water, and inject the liquid into a vein. Some also snort the powder. Older adults are at higher risk of accidental misuse or abuse because they typically have multiple prescriptions and chronic diseases, increasing the risk of drug-drug and drug-disease interactions, as well as a slowed metabolism that affects the breakdown of drugs. Sharing drug injection equipment and having impaired judgment from drug use can increase the risk of contracting infectious diseases such as HIV and from unprotected sex. Repeated misuse of pain relievers can lead to a substance use disorder, a medical illness which ranges from mild to severe and from temporary to chronic. Addiction is the most severe form of substance use disorder. Substance use disorder develops when continued misuse of the drug changes the brain and causes health problems and failure to meet responsibilities at work, school, or home.

People addicted to use pain relievers who stop using the drug can have severe withdrawal symptoms that begin as early as a few hours after the drug was last taken. These symptoms include muscle and bone pain, sleep problems, diarrhea and vomiting, cold flashes with goose bumps, uncontrollable leg movements, severe cravings. These symptoms can be extremely uncomfortable and are the reason many people find it so difficult to stop using pain relievers. So, there are many reason people want to use the pain relievers without Dr. prescription but taken without a physician's direction and oversight, these medications can cause serious adverse consequences and can lead to a substance use disorder, overdose, or death.

Nonmedical use of pain relievers has been the second most common type of illicit drug use in the United States for more than a decade.The percentage of people misusing pain relievers has declined; however, pain reliever misuse remains a public health concern because even as use declines, the number of deaths from overdoses and the number of admissions to substance use treatment involving pain relievers have increased.My project’s outcome variable will be focused on used pain relievers. Nowadays, the population who use pain relievers (not directed by doctors) is increasing because of many reasons. In this busy world, many people don’t get time to go to the doctor to ask to use pain relievers in nice way and some people don’t want to read the direction of proper way to use and many people just want to buy it themselves and use it in their own way. The objective of this study is to compare the variables: age, gender, education level, employment status, overall health, and its effect on people using pain relievers without dr. prescription. My aim to do this observational study is to find out some information about, is their significant relationship or not between pain reliever use not directed by doctor and age, gender, education level, employment status, overall health. My research method will be descriptive analysis and will be based on the data from the national survey on drug use and health as well as reviews of relevant literature.

1. **METHODS**
   1. Data Source:

This study is based on the data collected from the National Survey on Drug Use and Health 2019, Substance Abuse and Mental Health Data Archive (SAMHDA). The target population was noninstitutionalized citizens of the United States, who were 18 years or older at the time the survey was conducted. People who qualified as homeless, active military personnel, individuals in prison, nursing homes, institutionalized, or in long term hospital care were not included in the survey. The interviews for the purpose of the survey were conducted in person.

* 1. Study Sample:

The sample data and the related information was retrieved from the following URL from the SAMHSA website

<https://www.datafiles.samhsa.gov/sites/default/files/field-uploads-protected/studies/NSDUH-2019/NSDUH-2019-datasets/NSDUH-2019-DS0001/NSDUH-2019-DS0001-info/NSDUH-2019-DS0001-info-codebook.pdf>

A subset was created from the sample data with the responsible variable PNRNMLIF (using pain relievers not directed by Dr) and explanatory variables: WRKDPSTWK (employment status), CATAG3 (age categories), IRSEX (gender), IREDUHIGHST2 (education level), QD12 Health (Overall health). The numeric variables were converted to factor variables, and data with missing, blank or refuses values were removed from the data set. The age categories that were under the age of 18 (12-17 years) were also removed from the data as underage of 18 were less likely to use pain relievers without directed by Dr. because they can’t buy pain reliever by themselves and parents also careful of their children about how they take pain relievers. For the education level, all data that was less than a high school diploma was removed from the data set. The resulting subset size was 21065.

* 1. Study Variables:

**Age and use pain relievers not directed by Dr:** From Previous studies, annual average of 2.9 million young adults aged 18 to 25, and 6.6 million adults aged 26 or older misused prescription pain relievers in the past year. The most common source of the prescription pain relievers they had most recently misused was from a friend or relative. This was a more common source for young adults aged 18 to 25. It can be dangerous situation to use pain reliever without directed by doctor. So, I want to study about, is there significant relationship between age and use pain relievers not directed by Dr or not. I want study which age group has statistically significant relationship with pain relivers not directed by doctor. This observational study about age can give some information about which age is affected more to use pain relievers not directed by doctor.

**Gender and use pain relievers not directed by Dr:** Previous studies shows that, annual average of 5.7 million men and 5.0 million women misused prescription pain relievers in the past year. For males and females, the most common source of the prescription pain relievers they had most recently misused was from a friend or relative. However, this was a more common source for females than for males. Here we have the risk factor that they are using pain reliever not directed by doctor. So, I want to study, is there significant relationship between gender and use pain relievers not directed by Dr or not. I want study which gender has statistically significant relationship with pain relivers not directed by doctor so this observational study can provide some information about specific gender may be need treatment.

**Education level and use pain relievers not directed by Dr:** The higher educated people less likely to use pain reliever not directed by Dr. rather than the lower educated people. The more educated a person is, the more likely they are to understand the negative effects of using pain reliever not directed by doctor. This variable was important in our study to see if the higher the education level, the more likely someone is to not use pain reliever not directed by doctor. I want to study; the education affects or not to take pain reliever not directed by doctor. Aim of this observational study is find out, is there significant relationship between education level and pain reliever use, not directed by doctor.

**Employment Status and use pain relievers not directed by Dr:** Declining labor market opportunities and worsening employment conditions for less-skilled workers have been explored as one of the reasons for the spike in the use of pain medication (Case and Deaton, 2015; Krueger, 2018). One reason for the ambiguous findings is that a higher employment rate can affect pain reliever use in two opposite ways. It can increase physical pain from workplace injuries, which is correlated with a larger demand for pain medication; at the same time, it can improve mental health, which is correlated with lower demand for pain medication for substance abuse. Employment statuses increase the demand for pain relievers. Because of Stress, mentally pain and physical pain of the work, the employer wants to take the pain relievers to do work nicely and after finished work, to take rest nicely but they don’t have enough time to go to the doctor. They just want to buy it from drug dealers or somewhere else and wants to use in their own way, which can be dangerous situation, so I want to study about, is there significant relationship between employment status and use pain relievers not directed by Dr or not.

**Overall health and use pain relievers not directed by Dr:** Bad health people usually use the pain relivers to feel a sleep or take a rest. The person who doesn’t have good mental health wants to take it frequently to relief from mentally pain. Because of physical or mental pain, people used it in hurry and many people forgot to follow direction. Using it without directed by Dr can be dangerous situation. I want to study about, is there significant relationship between health condition and use pain relievers not directed by Dr or not, so this observational study can provide some information about it.

2.4 Data Analysis:

The 5 explanatory variables (age, gender, education level, employment, overall health) were compared with the outcome variable (using pain reliever not directed by Dr). The SPSS software was used for the analysis. The descriptive statistics were recorded via frequency distribution.

1. **RESULTS**

**Age:** The age group 26-34 years had the highest percentage (18.2%) of using pain reliever not directed by doctor. Adults aged 35-49 years were more likely than 18-25 years and over 50 group aged to indicate that they used the pain relievers not directed by doctor. Young adults 18-25 were less likely (12.2%) than other aged group to indicate that they used the pain relievers not directed by doctor. From the chi-square test p < 0.05 so there is sufficient evidence to support that there is statistically significant relationship between the age group and using pain reliever not directed by doctor.

**Gender:** Males were more likely (14.8%) than females to indicate that they used pain reliever not directed by doctor. Previous study also shows that Males were more likely than females to obtain their misused prescription pain relievers from more than one doctor. Males were also more likely than females to indicate that they bought the prescription pain relievers they had most recently misused from a drug dealer or other stranger. Here the difference between gender who used pain reliever not directed by doctor is 4.1%. The results of Chi-square Test determined the P < 0.05 so there is statistically significant relationship between age group and used pain reliever not directed by dr.

**Education level:** Here Some college credit but no degree (13.2%) and high school diploma groups(12.9%) used little bit more pain reliever than the group associate degree(11.9%) and college graduate or higher groups(11.9%). Here p= 0.086 > 0.05 so we concluded that there is no relationship between the education level and used pain reliever not directed by doctor.

**Employment Status:** Here employed group used more (13.8%) pain reliever not directed by doctor than the people who are not employed (9.8%). Here p < 0.05 so there is significant relationship between the employment status and the using pain reliever not directed by doctor.

**Overall Health:** The age group who has excellent health (10.4%) used less than the group who has very good (12.8%) health, and the very good health group used less than the group who have good and fair health (13.4%). The poor health group (10.4%) were surprising result that they less likely to use pain reliever not directed by doctor. From the chi-square test we get p < 0.05, so there is enough evidence to support that there is statistically significant relationship between health groups and used pain reliever not directed by doctor.

Table 1. Joint Frequency Distribution of Used Pain Reliever Not Directed By Doctor According to Age, Gender, Education, Employed, Health

**Used Pain Reliever Not Directed By Dr**

|  |  |  |
| --- | --- | --- |
| N = 21065 | Yes | No |
| **Age** |  |  |
| 18-25 | 625 (12.2%) | 4485 (87.8%) |
| 26-34 | 824 (18.2%) | 3704 (81.8%) |
| 35-49 | 835 (13.2%) | 5481 (86.8%) |
| 50+ | 345 (6.8%) | 4766 (93.2%) |
| **Gender** |  |  |
| Female (12020) | 1290 (10.7%) | 10730 (89.3%) |
| Male (9045) | 1339 (14.8%) | 7706 (85.2%) |
| **Education** |  |  |
| High School Diploma/GED | 674 (12.9%) | 4563 (87.1%) |
| Some College Credit but no Degree | 761 (13.2%) | 5016 (86.8%) |
| Associate degree | 298 (11.9%) | 2201 (88.1%) |
| College Graduate or Higher | 896 (11.9%) | 6656 (88.1%) |
| **Employed** |  |  |
| Yes | 1960 (13.8%) | 12244 (86.2%) |
| No | 669 (9.8%) | 6192 (90.2%) |
| **Health** |  |  |
| Excellent | 449 (10.4%) | 3883 (89.6%) |
| Very Good | 1063 (12.8%) | 7254 (87.2%) |
| Good | 820 (13.4%) | 5297 (86.6%) |
| Fair | 260 (13.4%) | 1684 (86.6%) |
| Poor | 37 (10.4%) | 318 (89.6%) |

1. **CONCLUSION**

Nonmedical use of pain relievers has been the second most common type of illicit drug use in the United States for more than a decade.The percentage of people misusing pain relievers has declined; however, pain reliever misuse remains a public health concern because even as use declines, the number of deaths from overdoses and the number of admissions to substance use treatment involving pain relievers have increased.

The objective of this study was to compare age, gender, education level, employment status, overall health with the pain reliever used not directed by doctor. The result of the study shows that 26-34 years old group more likely to use pain reliever not directed by doctor than the other age groups. The male gender is more likely to use pain reliever not directed by doctor than the female. From the joint frequency distribution table, we saw that some college credit but no degree group more used pain reliever not directed by doctor than the other education level group, but chi-square p-value shows that there is no relationship between the education level and pain reliever used not directed by doctor. The employment people more likely to take pain reliever not directed by doctor than the unemployment people. When see the health group, the good health and fair health group used more pain reliever not directed by doctor than the excellent, very good and poor health group. Overall, we saw that there is significant relationship between age, gender, employment status, health and pain reliever used not directed by doctor. Most people who used pain relievers not directed by doctor may be obtained pain reliever from a friend or relative or seller. So, Policymakers may want to consider this situation that where people can buy and easily sell the pain reliever and can use it without directed by doctor. And people also may have to careful to share their pain relievers to other. Therefore, reduce the availability of pain relievers for nonmedical use may be solution of this situation but this was not observed in our study.

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