Characteristics and Patterns of Drug Use by Clients at a Detoxification Centre in Ontario

By

Rosarie Planetta
Stacey Dowling, M.A.

A Thesis Submitted to the School of Community Services in Partial Fulfillment of the Requirements for the Honours Bachelor of Behavioural Psychology

St Lawrence College
Kingston, Ontario
Canada
April 15, 2018

Honours Bachelor of Behavioural Psychology
CHARACTERISTICS OF DETOX DRUG USE

Abstract
This descriptive study completed a statistical analysis of 40 months of archival data from a non-medical Detoxification Centre in southern Ontario. A data recording sheet was utilized to collect information from client files to investigate potential trends in the population. A total of 1445 client files were included in this study, with admissions from September 2013 to December 2015. The information analyzed was partitioned into three sections: (1) Client characteristics; (2) Drug use; and (3) Use of services. Comparison graphs were created based on a randomized sample of 100 client files. Six hypotheses were tested: (1) The age of clients will be positively skewed; (2) The client age will have a positive correlation with the number of detox visits; (3) There will be a greater population of male to female clients; (4) The will be a greater population of urban to rural clients; (5) Alcohol will be the most frequently used substance; (6) More than 50% of clients will have poly-drug use. The first five hypotheses were supported; however, the final hypothesis did not show a statistically significant difference in single verses poly drug use.

Key words: Statistical analysis, addiction, detoxification centres, patterns, drug use, client characteristics, use of services

Acknowledgements
Thank you to my college supervisor, Stacey, my second reader, Dawn, my placement supervisor, and all of the staff at the detox center. Your ideas helped to improve this thesis, and more importantly who you are as professionals helped me to improve as well. You continued to push me to develop further, supported me when my confidence grew weak, and helped my passion of working in the addiction field to grow. Thank you for giving me a strong foundation as I start my journey in the professional world.
# Table of Contents

Abstract ........................................................................................................................... ii
Acknowledgements ......................................................................................................... iii
Table of Contents ............................................................................................................. iv

Chapter I: Introduction ................................................................................................. 1

Chapter II: Literature Review ....................................................................................... 3

Chapter III: Methodology .............................................................................................. 8
  Participants, Selection, and Consent ........................................................................... 8
  Research Design .......................................................................................................... 8
  Variables ....................................................................................................................... 8
  Setting ......................................................................................................................... 8
  Materials ...................................................................................................................... 8
  Measures ...................................................................................................................... 8
  Implementation Procedures ......................................................................................... 9

Chapter IV: Results ...................................................................................................... 10
  Individual Results ....................................................................................................... 10
  Drug Use ..................................................................................................................... 15
  Use of Services ........................................................................................................... 21
  Comparison Graphs .................................................................................................... 23

Chapter V: Discussion ................................................................................................. 28
  Summary ..................................................................................................................... 28
  Strengths .................................................................................................................... 29
  Limitations .................................................................................................................. 29
  Multilevel Challenges to Service Implementation .................................................... 30
  Hypothesis One .......................................................................................................... 30
  Hypothesis Two ......................................................................................................... 30
  Hypothesis Three ....................................................................................................... 31
  Hypothesis Four ........................................................................................................ 31
  Hypothesis Five ......................................................................................................... 32
  Hypothesis Six ........................................................................................................... 32
  Implications for the Behavioural Psychology Field ................................................... 33
  Future Research ........................................................................................................ 35

REFERENCES .................................................................................................................. 37

Appendices ..................................................................................................................... 40
Appendix A: Raw Data Collection Sheet.................................40
Appendix B: Number of Clients by Age in 2012........................41
Appendix C: Number of Clients by Age from 2013 to 2015........42
Appendix D: Age of Clients and Number of Admissions............43
Appendix E: Sex of Clients................................................44
Appendix F: Residents of Clients........................................45
Appendix G: Number of NFA Clients.....................................46
Appendix H: Number of Clients with Health Issues..................47
Appendix I: Health Issues and Trend Line..............................48
Appendix J: Number of Clients with Depression and General Anxiety........49
Appendix K: Employment of Clients....................................50
Appendix L: Type of Drugs Being Used................................51
Appendix M: Stimulant Drugs Used.....................................52
Appendix N: Hallucinogenic Drugs Used.................................53
Appendix O: Types of Depressants Used...............................54
Appendix P: Poly-drug Use...............................................55
Appendix Q: Classes Within Poly-use....................................56
Appendix R: Number of Opioids Being Used.........................57
Appendix S: The Most Used Opioids....................................58
Appendix T: Rate of Use....................................................59
Appendix U: Number of Clients...........................................60
Appendix V: Percent of Clients with Less than 10 Admissions.....61
Appendix W: Length of Stay in Days....................................62
Appendix X: Treatment After Clients’ Discharge.....................63
Appendix Y: Marital Status and Residents of Clients..................64
Appendix Z: Number of Admissions and the Number of Drugs Used..65
Appendix AA: Source of Income and Use of Alcohol..................66
Appendix BB: Number of Drugs and the Use of Opioids............67
Appendix CC: Number of Drugs and the Use of Alcohol.............68
Appendix DD: Alcohol Use and Opioid Use...........................69
Appendix EE: Mutual-Help Groups and Psychological Health Needs.70
Characteristics of Detox Drug Use

Chapter I: Characteristics and Patterns of Drug Use by Clients at a Detoxification Centre in Ontario

What makes you different from everyone else who reads this study? The concept of humans existing as individuals lies in our differences; we all have different characteristics, strengths, and needs resulting in our individuality. Different strengths displayed by different people result in the requirement of different approaches being needed for individuals to improve upon their strengths. The different forms of weaknesses and past events result in us receiving different forms of pain. The different pain we acquire through our lives then results in the use of different coping mechanisms, whether they are healthy or not. For some individuals, one of these unhealthy coping mechanisms is substance abuse. The treatment for the substance abuse then has to look at clients on a case-by-case method that builds on the client’s strengths and helps to overcome his or her weaknesses.

Addiction is a mental health disorder that affects all populations. Even though problem drug use exists within all populations, there are still differences that exist between these populations. Variations between populations may require different approaches within treatment to maximize the benefit to the client. To plan for effective treatment, it is essential for addiction agencies to have access to comprehensive data on the characteristics of the client population being served and the patterns of drug use. This study will provide descriptive statistics on the clients that have been admitted to a detoxification centre in Southern Ontario between the start of September 2015 to the end of August 2017. The aim of the study is to utilize an exploratory analysis method using archival data from previous clients’ files. The study will provide an overview of the characteristics of clients and patterns of the clients’ drug use from all clients whose final admission at the Detoxification Centre, to date, was within the previous five years. There are six hypotheses for this study which are as follows:

1) The age of clients will be positively skewed. This means that there will be more people who are 39 years of age or younger than there will be of people who are 40 years of age or older.
2) The age of the client will have a positive correlation with the number of detox visits. The older that a client is, the more times he or she has been admitted to this detox.
3) There will be a greater percentage of male clients than female clients.
4) There will be more clients who live in urban areas than clients who live in rural areas.
5) The most frequently used drug at the Detoxification Centre will be alcohol.
6) More than 50% of clients will have poly-drug use; they use two or more drugs.

The results of this study may benefit the agency by providing information on the clients’ characteristics and drug use patterns. Having more information on their client population as a whole can allow for an increase in general information about the individual clients as well. For example, there would be more information about the female population of clients which could aid the detox centre in treating female clients. This will allow the centre to facilitate effective treatment planning and referrals to other community services. The addiction field as a whole may benefit from the identifying of general patterns.

The patterns that are found in this study could have three different ways of interacting with patterns found in past studies. The new patterns could confirm past finding or could contradict them. This study could also find new patterns that have not been mentioned in past research. The relationship between the findings of this study and the findings of past
studies is an important factor in determining how much impact this study will have on the addiction field.
Chapter II: Literature Review

Introduction
Detox centres often act as the first step for people who wish to recover from substance abuse. It allows people to have a safe and supportive environment as they go through the acute withdrawal of their substances. For drugs like alcohol which can have an increased risk of a seizure, having a safe place to withdraw is extremely important and could be the difference in whether or not the individual survives the acute withdrawal.

There are multiple other treatment options that have been developed to assist with withdrawal, including Anesthesia-Assisted Rapid Detoxification (AAROD), which Teplin et al. (2005) compared to traditional treatments, including detox. Teplin found that AAROD provides clients with a shorter and less intense withdrawal period than treatments like detox. Fischer et al. (2016), who compared treatments, including detox, to methadone maintenance treatment (MMT), argues that detox, tapering, and behavioural treatments are less intrusive and less costly. Due to this, Fischer et al. (2016) argue that traditional treatments should be developed and investigated further. This study will allow for further investigation of detox centres as a whole by taking a micro approach with one detox centre. The results may be able to be generalized to other detox centres. The six hypotheses will be the main focus; however, this study will also look at any other patterns that may appear within the data.

Age
Age is a characteristic which provides different needs from treatment, whether the client is older, youth, or a young adult; both the first and second hypothesis relate to the age of clients. In 2006, Chrome et al. (as cited in Ayres, Eveson, Ingram, & Telfer, 2012) identified that individuals who are 40 years of age or older are only 16% of the individuals who access addiction services. Chrome et al. (as cited in Ayres et al., 2012) also stated that as a result of young people using addiction services, the number of 40-years-olds and older who use these services is also increasing. Ayres et al. (2012) noted that the older population of individuals who use drugs require more attention than in the past and notes unique barriers that are faced by individuals who are 55 years of age and older. One of these unique barriers is the stigma and shame the older clients felt over still having an addiction (Ayres et al. 2012). Although Ayres et al. did not discuss the physical health concerns that may result in a decrease of likelihood that older clients will make use of addiction services, it is another potential barrier. It also stands to reason that this shame felt by older clients could be increased from more frequent use of services because of more years spent accessing addiction services. The second hypothesis states that there will be a positive correlation between the age of the clients and the number of admissions; this would could be supported by Ayres et al.’s work. Isenhart (1993) found that for males with alcohol abuse, there is less stress of job inadequacy for men who are married. Isenhart also states that this may be due to married men tending to be older than single men. A negative correlation between job inadequacy and age would also lead to different focuses for different ages since the major stress factors change with age. Rosenkranz, Muller, and Henderson (2014) found evidence for a correlation between youth with substance abuse disorder and complex PTSD and suggest that addiction treatment for youth should also incorporate treatment for complex PTSD.

Sex
The third hypothesis states that there will be more males than females. The sex of a client can affect rate of use of services and rate of comorbid disorders. There were more males
than females in all the samples in both the study by Stein, Anderson, and Bailey (2015) and the study by Witbrodt and Romelsjo (2010). Malekshahi, Tioleco, Ahmed, Campbell, and Haller (2015) found that a greater number of males use atypical antipsychotic drugs. This could very likely be due to more males then females participating in programs such as, detox and mutual-help groups. The importance of noting the differences in male to female ratios is demonstrated in Witbrodt and Romelsjo’s (2010) study. When Witbordt and Romelsjo (2010) compared males to females, females tested higher in the areas of family/social, psychiatric, and medical on the Addiction Severity Index (ASI). It was also more likely that females who are in mutual-help groups will also be involved in a romantic relationship at the time of treatment than males are (Witbrodt & Romelsjo, 2010). Stewart, Grant, Ouimette, and Brown (2006) found that although there is a much larger percentage of females than males with post-traumatic stress disorder (PTSD) in the general public, the rate between the two sexes becomes even within the population of individuals with substance abuse disorder. Torchalla et al. (2014) found evidence that contradicts the findings of Stewart et al. (2006). Torchalla et al. (2014) completed a study that looked at PTSD, substance abuse disorder, and clients with no fixed address (NFA). They found that there is a significant difference in the rates of PTSD and substance abuse in female clients that matched the pattern of PTSD in the general population; their results found the more women in the population of addiction had PTSD than men. They also found that PTSD was correlated with other symptoms within clients, such as somatic concerns. Torchalla et al. (2014) suggest that treatment of substance abuse for NFA clients should also address PTSD, if applicable to the client, and that clients may benefit from sex-specific aspects of treatment. An example of a sex-specific treatment may be treatment for a group of male clients that touches on how being vulnerable interacts with your perceived manhood since society has a harmful stereotype that men should not show any vulnerability.

Area of Residence

Hypothesis four looks at differences in clients from urban vs rural areas; it is believed that there will be more clients from urban areas who have used the detoxification centre. Studies have found evidence of the clients’ place of residence impacting their preferred treatment option. Stein et al. (2015) state that individuals who are homeless tend to prefer residential forms of treatment, which would include detox. With the homeless population preferring residential treatments, it is possible many clients in the detox centre are from the city. Schoeneberger, Leukefeld, Hiller, and Godlaski (2006) conducted a study that compared drug use in rural areas to very rural areas. Their study found that there is less substance abuse in more rural areas than there is in more urban areas. Based on the results of their study, Schoeneberger et al. (2006) suggested that living in a more rural area acts as a protective factor against drug use when compared to less rural areas of living. Schoeneberger et al.’s (2006) findings support the idea that there will be less clients from rural areas. Although living in more rural areas may act as a protective factor, for those who use and live in rural areas, there may be additional factors to consider, as found by Young, Havens, and Leukefeld (2010) who compared the route of administration between opioid uses from rural and urban areas. Young et al. found that the most common way people from urban areas use is by swallowing pills, whereas people from rural areas most frequently either snort or inject, depending on which opioid was their drug of choice. With Young et al.’s findings, one can also consider other possible health risks for clients from rural areas as a result of increased use of injections. Injection has a much higher potential for negative outcomes than
swallowing due to a few reasons. The injection sites could become infected, there is an increased risk of transferring diseases such as HIV, and since the drug is going directly into the bloodstream, the body has less of a chance to break down any harmful elements that might be mixed with the drug. This leads to additional health concerns that may need to be a larger focus with clients who live in rural areas.

**Drug Use**

Hypothesis five focuses on patterns of drug use instead of characteristics of the clients; it is believed that the most used drug will be alcohol. Treatment for withdrawal requires research on drug use. The Canadian Alcohol and Other Drug Use Monitoring Survey (McGill University, 2012) found that the most frequently consumed drug in Canada for both youths and adults is alcohol. More people attend Alcoholics Anonymous meetings than any other self-help group, including: Narcotics Anonymous, Cocaine Anonymous, Methadone Anonymous, Self-Management and Recovery Training, Secular Organizations for Sobriety, LifeRing, and Women for Sobriety combined (Herie, Skinner, & Maté, 2014). Alcohol use is the most frequent substance of choice; therefore, the detox centre can expect many of its clients to be going through alcohol withdrawal.

In addition to high rates of alcohol use, studies have also reported on high rates of poly-drug use, whereby individuals utilize two or more drugs. The sixth and final hypothesis is that more than 50% of the clients will have poly-drug use. Hickson, Bonell, Weatherburn, and Reid’s (2010) study, which examined drug use in gay men in England and Wales, found that rates of poly-drug use were high, but did not define what was considered a high rate. Kuo, Shamsian, Tzemis, and Buxton (2014) found that out of a sample of Canadian harm reduction treatment patients, 70% of participants reported poly-drug use. Based on these studies, it is suspected that poly-drug use is common, which would add an additional challenge to treatment since there are now multiple addictions that need to be treated. A study completed by Brunelle, Barrett, and Pihl (2006) showed an increase in potential complications during the treatment of withdrawal. They found that individuals who have used stimulants drugs within the past year have been shown to have significantly high heart rates during alcohol use when compared to individuals who have never used stimulus drugs. This demonstrates that in poly-drug use the different drugs interact with each other even if the intoxication occurs at different times.

**Additional Patterns**

This study is also looking for any additional patterns that the data may show. Other studies have commented on other patterns within client groups and patterns of drug use. Wells et al. (2015) found that there is a positive correlation between drinking before going to a bar and both the amount of alcohol consumed at the bar and level of intoxication. This study indicates that the pattern of use impacts the rate of use.

Successful treatment requires that the individual characteristics of individuals with a substance abuse is taken into consideration. This study will identify some of the typical characteristics of clients. Since studies have shown that tailoring to individual differences is important to a successful treatment, the results of this study can lead to improvements in treatment quality. Substance abuse is a disorder that effects a heterogeneous group of individuals, just as Rychtarik, Koutsky, and Miller (1999) state about alcoholism. As a result, clients have individual needs that have to be addressed during treatment. Rychtarik et al. (1999) completed a study that used statistical analysis to different groups of individuals with
alcoholism to each other. They identified and then compared different clusters of data points that formed in the results and numbered each cluster. During their study, Rychtarik et al. (1999) found that even if two groups of clients use alcohol for a similar purpose, the two groups can have very different characteristics. Therefore, Rychtarik et al. (1999) argue that best practice requires treatment to be carefully tailored to each client’s individual characteristics. Richer, Lee, and Born (2016) also found that members of the military who drink alcohol all have different characteristics; however, the participants who were classified as problem drinkers had the poorest physical and mental health out of all participants in the study.

**Readmissions**

As part of tailoring to individual needs, multiple studies have examined the rates and characteristics of individuals who frequently readmit to detox centres and why the current services may not be giving these individuals the maximum possible benefit. Richman and Neumann (1984) stated that high readmission rates result in multiple problems, including draining of resources, and states the importance of research into treatment options that tailor to the characteristics of these clients. Smart, Gray, Finley, and Carpen (1977) found that there is no correlation between clients being admitted into their preferred method of treatment and lower recidivism rates. They also found that there was no difference in recidivism and whether or not a client completed the treatment program. This would imply that the type of program has no effect on the client’s recovery. In their study on readmissions to a medical detox, Li, Sun, Marsh, and Anis (2008) found that clients who leave against the advice of the medical staff of detox were more likely to readmit within 1 month of discharge. Li et al. (2008) also found that risk factors for readmission within 2 to 12 months of discharge include the following: having hepatitis C, use of multiple drugs, or, drug of choice being alcohol. Clients with NFA less likely to request to be readmitted between 2 to 12 months after discharge (Li et al., 2008). Li et al. (2008) may have found an area of insight into how to be of better service for clients who currently do not receive much benefit from detox as a result of identifying patterns within this population. If the findings from this study further support Li et al. findings, then these traits could act as a strong starting point for a future investigative studies

**Client Dropouts and Motivation of Clients**

Studies have also examined characteristics of clients that may affect rates of treatment attrition. Li, Sun, Marsh, and Anis (2013) found that Aboriginal individuals have an increased chance of dropping out of detox treatment than other ethnicities. Within the aboriginal population in detoxification centres, the likelihood of client dropout was increased if the client was female or NFA. For other ethnicities, the likelihood of client dropout increased if the client was male, younger, or drug of choice was alcohol or opiates (Li et al., 2013).

Individual characteristics have also been shown to affect a client’s motivation for treatment. Rosenkranz, Henderson, Muller, and Goodman (2012) found that there is a relationship between motivation for treatment and abuse in childhood; emotional abuse had the strongest correlation. They also stated the importance of incorporating treatment for a client’s past trauma into the treatment for the client’s substance abuse.

**Conclusion**

Within the addiction field there are multiple factors that need to be considered when
providing treatment. The patterns of drug use affect possible complications in recovery as drugs interact with each other. Patterns of drug use are even more important for a detox centre since there are variations in the withdrawals from different substances. Treatment should also tailor to individual characteristics of the clients since different characteristics can affect how effective a treatment is for different clients and whether a client is at a higher risk of dropping out of treatment. This study will look for patterns that will benefit the detox centre to be aware of.
**Chapter III: Method**

The detoxification centre (detox) that is being examined in this study is a non-medical facility which has 22 beds, 6 female and 16 male. There is a minimum of two staff on at all times. Clients are provided a safe and clean environment to assist with the acute withdrawal from any substance or substances. At times a client may be required to gain medical clearance from the partnered hospital to ensure that it is safe for the client to go through withdrawal in a non-medical agency. Short preventative stays are also offered to clients who feel at risk of using; a preventative stay is one night long. The staff offers support to clients and can give the clients numbers for different counseling agencies and rehabilitative centres if the client is desirous of these services. The centre also has a 24/7 support phone line which people can access. Clients can ask to be admitted themselves, or receive a referral from another agency, such as a hospital, the police, or a shelter. All stays at the centre are completely voluntary.

**Participants, Selection, and Consent**

The data from an intake file on all clients admitted at a Detoxification Centre in Southern Ontario through the start of September 2015 to the end of August 2017 was used for this study. The intake information can be found in the client’s file that is kept in a locked cabinet at the Detoxification Centre. Since the data used for this study only included archival data, client’s consent was not obtained.

**Research Design**

This study used a descriptive research design.

**Variables.**

The variables investigated were divided into three categories: (1) individual characteristics, which includes sex, age, living in urban or rural area, other physical or mental health conditions, marital status, living with children under the age of 18, and employment or Ontario Disability Support Program; (2) drug use, which included the type of drug, specific drug of choice, duration of drug use, use of other drugs, and age of first use; and (3) use of services, which included the number of times admitted to the Detox Centre, use of rehabilitation services, use of mutual-help groups like Alcoholics Anonymous, mental health services, and duration of stay at the Detox Centre. Other variables were considered based on information available in the client’s intake files.

**Setting**

All archival data are kept in client files in a locked room in locked cabinets. All information is kept in hard copies at the Detox Centre.

**Materials**

No materials are needed other than data sheets to record the intake information and a pen to record with. An example of a recording sheet can be found in Appendix A.

**Measures**

Almost all data that was collected was either on a ratio scale, such as age of client, or nominal scale, such as sex of client. Archival data was taken from intake information that was kept in client files and entered on the data collection sheets found in the appendices. The Clients’ intake files stayed at the Detox Centre.

A descriptive research design was used for this study. The collection of observed variables from the clients’ intake files were transferred onto data collection sheets which allowed for the analysis of clients’ common characteristics and pattern of drug use. Data was
presented in graphs to visually demonstrate common characteristics and/or pattern of drug use.

**Implementation Procedures**

The intake forms were reviewed in a private room in the Detox Centre by the researcher and any relevant information was recorded using the data collection sheets provided in the appendices. In order to protect confidentiality, instead of the names of clients being recorded, a code number was entered on the data sheets, for example, participant one. The intake forms will not leave the Detox Centre and will be returned to the locked cabinet immediately following data collection.
Chapter IV: Results

Individual Characteristics

Hypothesis one.

Since the year 2012 only had the last four months recorded, it had far less clients than the other three years which had all 12 months. As a result, the age of the clients from 2012 were presented in a different graph from the other years. The graph displays a positive skew showing that the majority of the clients in the last months of 2012 were young, 39 years of age or younger. This supports the hypothesis.

Figure 1: Number of clients by age in 2012.

Similarly to figure one, 2013, 2014, and 2015 all display a positive skew in the age of the clients. This acts as strong evidence for the hypothesis.

Figure 2: Number of clients by age from 2013 to 2015.
Hypothesis two.

The age and number of visits from the clients of the year 2015 had a Pearson correlation of 0.12 which is a positive correlation; however, it is a small correlation. A value of 0.12 is a weak correlation. These findings weakly support the hypothesis.

Hypothesis three.

Figure 3: Age of client and the number of visits to this detox in 2015.

The age and number of visits from the clients of the year 2015 had a Pearson correlation of 0.12 which is a positive correlation; however, it is a small correlation. A value of 0.12 is a weak correlation. These findings weakly support the hypothesis.

Figure 4: Sex of clients

Every month there is more male than female clients being admitted to the Detox Centre. On average, there were 9.85 female clients and 26.05 male clients who were admitted every month. The trend line for female clients also appears to be slightly decreasing while the trend line for the male clients appears to be on a steady increase. This supports the hypothesis.
Hypothesis four.

On average, every month had 19.48 clients admitted from urban areas and 15.88 clients admitted from rural areas. Even though there are months where there are more clients from rural areas than there are from urban areas, on average there are more clients from urban areas. The trend line for urban clients is also constantly at a greater value than the trend line for clients from rural areas; however, the trend line for rural clients has a steeper increase than the trend line for urban clients. Both the average values and the trend lines appear to be evidence that the hypothesis is correct.

Other graphs.

Figure five: Residents of clients.

Figure six shows the number of clients with no fixed address (NFA) who were at the detox centre. There is a large amount of variance. The average number of clients a month was 5.7 and 5 was the medium. The trend line shows that the number of NFA is increasing
over the years.

The majority of clients most months at the detox centre have both a psychological and a physical health issue in addition to having an addiction. The medium values per month are as follow: 7 clients with psychological health issues, 9 clients with physical health issues, and 13 clients with both health issues.

There is a positive slope of 0.15 to the trend line for clients who are admitted with both a physical and psychological health issue. This shows that the number of clients with both health issues are increasing over time; however, there is a large amount of variance.
The most common mental health issues were as follows; depression, general anxiety, ADHD, PTSD, bipolar, and schizophrenia. In total over the 40 months observed, there were 457 clients with depression, 339 clients with general anxiety, ADHD 104 clients with ADHD, 98 clients with PTSD, 97 clients with bipolar disorder, and 45 clients with schizophrenia. Figure 9 shows the two most common disorders, depression and general anxiety. There is a lot of variance in both and both trend lines have a positive slope.
Figure 10 shows whether clients are employed, students, or receiving ODSP or OW as a percent. On average, 30.17% of clients are employed, 36.43% are on ODSP or OW, 4.71% are students, and 28.67% do not belong to any of the three categories. The other or none category includes clients with either no income or clients who have an income but does not fit into the other categories. These clients include individuals on the Department of National Defense (DND) Disability plans or retired clients.

Drug Use

Hypothesis five.

Figure 11 shows the number of clients who use each of the three different types of drugs, depressants, stimulants, and hallucinogens. The trend lines for all drug types have a positive slope. Depressants is the most commonly used class of drug. On average, every
month there were 12.78 clients using stimulants, 30.85 clients using depressants, and 12.13 clients using hallucinogens. Alcohol is a depressants which shows early support for hypothesis five. This is further investigated through the following three graphs.

Figure 12: Stimulant drug use.

Figure 12 shows how many clients were using different drugs in the stimulant class. The trend line for crystal methamphetamine has a positive slope while the trend line for cocaine and crack has a negative slope. The drugs that were placed in the other category were speed, Concerta, Ritalin, nicotine, biphentin, viagra, steroid, and methylphridate. On average, every month had 7.53 clients who used cocaine/crack, and 5.25 clients who used crystal methamphetamine.

Figure 13: Hallucinogenic drug use.
Figure 13 shows the drugs used by clients that are in the hallucinogenic class. Cannabis is the most common and has a trend line with a positive slope. The other category included the following drugs: ecstasy, mescaline, phencyclidine, LSD, mushroom, MDA, MDMA, acid, and hash. On average, there were 11.9 clients who used cannabis every month.

Figure 14 shows the number of clients using different drugs in the depressant class. Alcohol is the most common and has a positive slope. Opioids has a flat slope. On average, every month had 23.53 clients using alcohol, 9.7 using opioids, and 1.53 using benzodiazepines. Drugs in the other categories include the following: Gravol, NSAID, Lyrica, antidepressant, sleeping meds, antipsychotics, Zopiclone, Ketamine, anticonvulsant, Baclofen, cyclopyrrolone, terfenadine, imovane, and GHB-Q. On average, there are more clients using alcohol than any of the other common drugs that were used by clients in the detox centre. This supports the hypothesis.
Hypothesis six.

Figure 15 shows the number of clients who have poly-use behaviour, clients who only use one drug, and preventative stays (staying at the detox centre for a night in order to avoid using). Both poly and signal drug use have positive trend lines; however, poly-use has a steeper slope. On average, there are 17.38 clients who use one drug, and 17.90 clients who engage in poly-use drug use. There is a difference between the means of clients who engage in polyuse and clients who use one drug. In order to determine if this difference is statistically significant a t test for two independent samples was used. The calculations are below.

\[
s_1^2 = \frac{SS_1}{df_1} = \frac{12579}{39} = 322.54
\]

\[
s_2^2 = \frac{SS_2}{df_2} = \frac{13796}{39} = 353.74
\]

\[
s_{(M_1-M_2)} = \sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}} = \sqrt{\frac{314.475}{40} + \frac{353.74}{40}} = \sqrt{8.06 + 8.84} = \sqrt{16.90} = 4.11
\]
CHARACTERISTICS OF DETOX DRUG USE

$$t = \frac{(M_1 - M_2) - (\mu_1 - \mu_2)}{s(M_1 - M_2)}$$
$$= (17.375 - 17.9) / 4.11$$
$$= -0.524/4.11$$
$$= -0.1277$$

Based on the results of the t test, although there is a difference in the mean values, there is no statistical significance. Hypothesis six is not supported.

**Other graphs.**

Figure 16 shows the percent of drug classes used by clients who engage in poly use. Most clients who poly-use will use drugs from two different classes.

Figure 17 shows the number of opioids that are being used by clients in the detox.
centre each month. Please note that this is different from the information in figure 14 since this graph show the number of opioids being used, and not the number of clients using opioids. If a client was using two different opioids for example, then that client would add a value of two to the total number of opioids being used by clients that month. The median number of opioids that are being used by clients in the centre is 12 opioids a month. The graph also has a trend with a positive slope showing that the number of opioids being used is increasing over time.

![Graph showing the number of clients using opioids per month](image)

*Figure 18: Rate of the top four most used opioids.*

Figure 18 displays the rates of use of the four most commonly used opioids, hydromorphine, morphine, percocets, and oxycodone. Similar to figures 10 through 13, this graph shows the number of clients using each opioid. If a client used both hydromorphine and morphine for example, then a value of one would be added to the total score for both of those opioids. The median values for the number of clients using each opioid every month are as follow, 3 clients used hydromorphine, 2 used morphine, 2 used percocets, and 1.5 used oxycodone. Hydromorphine was the most commonly used opioid. This graph displays a large amount of variance.
Figure 19 shows the percentage of clients every month who have certain rates of use. In recording clients’ rate of use, the most detailed and frequent rate of use was recorded; for example, if a client used alcohol daily but had binge used cocaine, that client would be recorded as having daily use since it is more detailed and at a higher frequency than binge use. As a result, less frequent rates of use may display a false negative. The majority of clients had a daily rate of use, with an average of 85.52% of clients admitted every month having a daily rate of use.

Use of Services

Figure 20 shows the total number of clients admitted to the detox centre every month. The trend line has a positive slope. On average, this detox centre will admit 30.08 clients each month.
Figure 21: Percent of clients with less than 10 past admits

Figure 21 shows that the majority of clients only have one admission. This trend is repeated every year.

Figure 22: Average and medium length of stays.

Both the trend line for average and medium lengths of stays have a positive slope. The range for the average stay is 2.88 days to 5.26 days; whereas the range is 2 to 4 days for median.
Once a client was discharged from the detox centre, any plans for further treatment at the time of discharge was recorded in his or her file. Figure 23 shows the data on post-discharge treatment plans. The other or no treatment category included clients with no plan for treatment, and clients who did not fit in the other categories, such as clients who were referred to the psychiatric floor of the hospital upon discharge from the detox centre. The counselling category included both clients who were enrolled in private counselling as well as clients who planned on attending group counselling. On average, every month 5.93 clients went to rehabilitation centre after discharge, 13.03 clients planned on going to a MHG (mutual help group), 1.5 clients went to counselling, and 17.5 clients had other or no treatment plans upon discharge.

**Comparison Graphs**

All comparison graphs are based on a random sample of 100 clients which was taken from the recorded data. Clients for the sample were selected by rolling a 30-sided dice.
Almost twice as many single clients live in urban areas instead of rural ones. For clients who are married, the majority tend to also live in rural areas; however, a large percentage of married clients also live in urban areas.

Figure 24: Comparison of marital status and residents of clients.

Figure 25 compares the number of admissions a client has to the number of drugs he or she uses. Clients with only one admission tend to only use one drug, while the majority of clients with two or three admissions tend to engage in poly drug-use behaviour.
Figure 26: Comparison of source of income to the use of alcohol.

Figure 26 compares the income of the client to whether he or she uses alcohol. Most clients use alcohol, which is true for most of the income categories. For clients who are on either ODSP or OW, or clients with an income that does not match any of the other categories, the majority do not use alcohol.

Figure 27: Comparison of the number of drugs used to the use of opioids.

Figure 27 compares the number of drugs a client uses to whether he or she uses opioids. As the number of drugs increases, so does the percent of clients who use opioids. The majority of clients who use opioids use three different drugs.
Figure 28: Comparison of the number of drugs used to the use of alcohol.

Figure 28 is similar to figure 27; however, in this graph it is alcohol that is being compared to poly-drug use. The number of clients who use alcohol decreases as the number of drugs used increases. The majority of clients who do not have poly-use behaviour use alcohol. The majority of clients who have poly-use behaviour do not use alcohol. However, this may be a false negative since the detox centre would only record substance use that was recent enough for the client to be in acute withdrawal during his or her stay at the detox centre. As a result, a client could use alcohol, but not within a week before being admitted, and would; therefore, be recorded as not using alcohol.

Figure 29: Comparison of alcohol use to opioid use.

Figure 29 compares the use of alcohol to the use of opioids. There is a strong tendency for clients who are using alcohol to not use opioids. The majority of clients who do not use alcohol do use opioids. There is a small percent of clients who use both alcohol and opioids.
Figure 30 compares clients who plan on attending mutual-help groups (MHG) after discharge from the detox centre to clients who have a psychological health issue. Although the values are close for clients who do not plan on attending MHGs, the majority of clients who do plan on attending MHGs have a psychological health issue.
Chapter V: Discussion

Summary
This study aimed to complete a statistical analysis of five years of archival data from a non-medical detoxification centre in southern Ontario. There were six hypotheses that were tested during this study:

1) The age of clients will be positively skewed. The data would be positively skewed if there were more people who are 39 years of age or younger than there will be of people who are 40 years of age or older.

2) The age of the client will have a positive correlation with the number of detox visits. The older that a client is, the more times he or she has been admitted to this detox.

3) There will be a greater percentage of male clients than female clients.

4) There will be more clients who live in urban areas than clients who live in rural areas.

5) The most frequently used drug at the Detoxification Centre will be alcohol.

6) More than 50% of clients will have poly-drug use; they use two or more drugs.

Hypothesis one.
Since only the last four months of 2012 were recorded, that year was shown on a different graph than the other three years to avoid the different scales interfering with the presentation of the graph. All four years constantly display a positive skew in figures one and two. This statistical analysis strongly supports the first hypothesis that there would be a positive skew to the age of the clients.

Hypothesis two.
There was a slight positive correlation of 0.12 between the age of the client and the number of admissions, as seen in figure three. Even though this is a positive correlation, it is a weak one. Most likely the weak correlation is due to the majority of clients only having one admission, regardless of age. As shown in figure 17, there is a steep decline in the percent of clients who have two admissions to the centre when compared to clients with only one admission.

Hypothesis three.
As seen in figure four, there were consistently more male than female clients. The slope in the trend line for males also has a fairly strong positive slope whereas the female trend line appears to have no slope or possibly a very slight negative slope. This suggests that the male to female client ratio will increase over time. Hypothesis three appears to have strong evidence to support it.

Hypothesis four.
Figure five shows a large amount of variance, which may be reflective of the heterogeneous nature of the target population. The mean for urban areas is 19.48 clients and 15.88 clients a month from rural areas, showing that even though there is month to month variance, there tends to be more clients from the urban areas than the rural areas. The trend line for urban clients is also consistently at a greater value than the trend line for rural clients, further strengthening the hypothesis. Both trend lines have a positive slope; however, the trend line for clients from rural areas has a steeper slope than that of clients from urban areas. If this trend continues than in the future it may be the norm for the majority of clients to be from rural areas instead of urban. It is possible that although living in a rural area may have acted as a protective factor a few years ago, there is now a change in society that has caused this to no longer be a protective factor. There is evidence for this hypothesis; however, more
research is needed.

**Hypothesis five.**

The average number of clients using different drugs shows support for hypothesis five since a much greater number of clients admitted every month use alcohol. On average, there are 23.53 clients admitted every month who use alcohol. The slope for alcohol use also shows that the use of alcohol is increasing. Not only is hypothesis five supported, but it also appears that the trend of alcohol being the most frequently used drug is growing stronger.

**Hypothesis six.**

On average, there were more clients with poly drug use than clients who only use one drug admitted every month, 17.90 clients compared to 17.38 clients respectively. A t-test showed that this difference is not statistically significant. Even though there are slightly more clients with poly drug use admitted on average, since the difference is not significant, the results do not support hypothesis six.

**Strengths**

The main strength of this study is the large volume of data that was collected. The files from the entire target population of clients admitted over the period of 40 months was able to be analyzed. Most current studies examine the results of detox centres compared to other forms of treatment. There are few studies that focus on the statistical analysis of the clients and drug use, as this study does. Having such a large number of clients’ files be examined also allowed for the validity of the identified trends to be stronger and shows how those trends have changed over time.

The other strength was that this study provided an in-depth topography of potential clients. The detox centre can use this information to create more focused treatment approaches, which would allow for an improved success rate. These results could also be used to create or improve antecedent interventions for individuals who may be at a greater risk of developing substance abuse behaviours.

**Limitations**

The main limitation of this study was the time constraint. As a result of the time constraints only 40 months of data was recorded, spanning from September 2012 to December 2015, instead of the originally planned five years.

A second limitation is the information available in the client files. It was not uncommon to find files that did not have all the information filled in. This was very common in the files of client’s who only stayed for an hour or two after being admitted to the detox centre. There is also information that typically is not recorded about the clients at this detox centre. Two of those would be if the client uses nicotine or if the client has children. Since the detox centre has a smoking area, the clients who use nicotine would not go into nicotine withdraw if they brought cigarettes with them. The staff typically did not record if the client had children unless there were additional conditions such has the child being taken into child custody.

A third limitation is that the detox centre had more than double the number of male than female beds. This may have led to a false positive for the third hypothesis since a much larger number of female clients could have tried to be admitted, but were turned away due to a lack of available female beds.

A fourth limitation is that the information on the history and current substance use by the clients is based on self-report. There could be false data as a result of clients giving false
or inaccurate information about their drug use.

Multilevel System Challenges

Hypothesis one.

Client.

With the majority of clients being 39 years of age or younger, clients who are admitted to the detox centre and are of ages 60 or more may face different obstacles to treatment. As discussed in the literature review, elder clients may end up with more feelings of shame due to the age difference between them and the other clients.

Program.

Since the staff at the detox centre know that the majority of their clients are young, they can plan for programs that appeal to a young adult population. At the same time, when a client who is no longer a young adult is admitted to the detox centre, the program can be adjusted to fit the needs better, such as addressing if there is shame surrounding using at their age as suggested in the literature review.

Organization.

The detox centre could use these findings to know where to set up more services. For example, since the majority of clients are young adults, if a city is going to build a detox centre, it could be done in an area that is easily accessible to young adults.

Societal.

The stereotype of young people doing drugs may be reinforced by these findings. Not only could that result in discrimination against young adults due to the stereotype of drug use within that population, but it could also increase the shame felt by people 60 years of age or older who have an addiction. It is important to educate the public so that they know that even though this is a trend, addiction affects people of every age. Educate is important against the formation and strengthening of stereotypes.

Hypothesis two.

Client.

The majority of clients get the benefit that they need from the first admission to the detox centre and do not admit a second time. For the clients who have a need to return a second time though, they tend to have more and more admissions as they get older. It is possible that if a client has to continually return to the detox centre that a sense of learned helplessness may develop or that they could start to develop feeling of frustration with the services being provided. This would add another level to treatment that would need to be addressed.

It is also possible that some clients will admit to the detox centre to have a safe place to withdraw, but they do not follow up with any other recovery-related goals. As a result they have an increased risk of relapse and then readmit to the detox centre.

Program.

The results showed that regardless of the age of the client, the majority of clients only have one admission, which played a role in the weak correlation. Programs should focus on giving clients fast access to resources that are needed to help with recovery since the data shows that the majority of clients will not return to the detox centre.

Organization.

As an organization, it is important to discover causational factors for frequent admissions by the same client. Correlation is not necessarily causation, and the correlation
found was very weak, therefore more research will be needed. Once factors are found though, the organization will need to address those factors with clients so that the client can benefit from treatment sooner, and there will be less drain on the organization’s resources.

**Societal.**
The majority of clients only have one admission to the detox centre. This may be due to the first treatment being successful; however, it could also be due to the influence of society. Some clients may still require additional admissions to the detox centre in order to recover from their addiction but chose not to because of judgement from society during and after the first admission. There could be stigma faced by the client during his or her first admission to the detox centre, either for having an addiction, or for seeking treatment, depending on if the clients surrounded by people who use or do not use. A client may chose not to readmit in the future as a way to avoid reliving the judgement from society.

**Hypothesis three.**

**Client.**
Since the majority of clients are male, this may lead to some female clients feeling uncomfortable during their stay at the detox centre. This risk may increase with female clients who have been victimized by domestic violence. These feelings of discomfort may then limit the potential benefit female clients can receive from treatment.

**Program.**
As discussed in the literature review, males tend to display emotions, including shame, differently than females due. It is important to have programs that are able to recognize and treat these emotions accordingly.

It is also important to note that these results suggest that being male is a risk factor for addiction. Based on this, there should be some preventative programs that are designed to target the male population.

**Organization.**
The detox centre can, and does, have more beds in house for males in order to accommodate the larger percent of male clients. In order to accommodate potential discomfort felt by female clients, the detox centre provides female only lounge.

**Hypothesis four.**

**Client.**
The clients from rural areas may end up choosing to not attend at the detox centre due to obstacles they face that are not faced by clients who live in urban areas, or there might have been protective factors against drug abuse that resulted from living in rural areas. Due to the steeper slope of clients from rural areas being admitted, it appears that the obstacles or protective factors are weakening. There seems to be a change occurring with clients from rural populations. It is also important to note that transportation issues may result in less clients from rural areas being able to access the detox centre since they would not be able to
take a bus or taxi like a client from an urban area could.

Program.
There may be a possibility that the change in the difference between clients from urban areas and clients from rural areas admitting to the detox centre is due to changes that have been occurring within the programs offered by the detox centre. A change in programs could have also included better advertising for the treatment being introduced. This may have led to individuals in rural areas gain access to new information about services. The increase in awareness may have led to the increase in clients from rural areas.

Organization.
With the increase in rural clients, research should be done to see if there are any barriers that they face when using the services. An example of this would be that at the detox centre there is no parking provided for clients. Urban clients who live in the same city can take the bus or a taxi to the detox centre, but the bus is not an option for clients from rural areas and a taxi for that distance can be very expensive. As a result, it can be more difficult for rural clients to make use of the services due to lack of transportation.

Societal.
As suggested by the literature, the rate of clients from rural areas admitting to the detox centre are increasing. It is possible the literature is correct in suspecting that increased drug exposure through the media has resulted in rural life no longer being a protective factor against drug abuse.

Hypothesis five.
Client.
The clients who are entering withdrawal from alcohol are at an increased risk of having a seizure due to the effects of alcohol withdrawal. Due to this risk it is very important that individuals who are trying to detox from alcohol do not do this alone and instead admit to a detox centre where staff can call for an ambulance if a seizure occurs.

Program.
Since the majority of clients use alcohol, it is important that detox centres have programs like AA that address problem alcohol use.

Organization.
With the dangers of alcohol withdrawal, it is important that detox centres are prepared for clients who have a seizure during their stay. The detox centre has policies in place for this situation and staff are trained in how to respond accordingly if a client has a seizure during his or her stay.

Societal.
Society’s view on alcohol use may have an influence over the high rate of alcohol use among clients at the detox centre. It is common in Canadian culture for alcohol to be associated with celebrations and social gatherings.

Hypothesis six.
Client.
The results not being statistically significant may be a result of the heterogeneous nature of the population. It is important to remember that each client is an individual person.

Program.
Given that there appears to be a similar number of clients with poly drug use as there are single drug use who admit to the detox centre, it is important for the detox centre to
design programs that are applicable to a variety of different drug use patterns.

*Organization.*

For clients who engage in poly drug use, it is important for staff to know that the withdrawal from the different drugs could interfere with each other. For example, if someone was going into a withdrawal from both a stimulant and a depressant, then it is possible that the withdrawal from the depressant would not appear until after the withdrawal from the stimulant is complete.

*Societal.*

The peer influence that clients may face could influence whether or not the clients engage in poly drug use. For example, if the client is friends with people who binge drink every weekend but do not use any other drugs, than he or she may be less likely to engage in poly-drug use than a client who is friends with people who use multiple drugs.

**Implications for the Behavioural Psychology Field**

There are a couple of graphs with results that may impact the behavioural psychology field.

**Hypothesis one.**

The findings from this study are consistent with previous work. Treatment and preventative programs should target a younger population since the majority of clients are young adults.

**Hypothesis two.**

The hypothesis was supported; however, the correlation was so weak that it appears that the field may benefit more from changing this question. Instead of looking for a correlation between age and readmission rates, it may be of more benefit to compare clients with only one admission to clients with multiple admissions. This provides a research opportunity for the future.

**Hypothesis three.**

The results found are consistent with the current research; there are more male than female clients. This may show that there are risk factors for drug use that are linked to one’s sex.

**Hypothesis four.**

The findings are consistent with the current research. Not only are there more clients from urban than rural areas, the slope for clients from rural areas is also much steeper. This shows that Schoeneberger et al. (2006) may have been correct in their theory that living in a rural area no longer acts as a protective factor against drug use.

**Hypothesis five.**

The results found are consistent with the current research. Alcohol is the most commonly used substance among individuals who are admitted to the detox, and there is a positive slope. The results show that problem alcohol use continues to be a growing problem in Canadian society.

**Hypothesis six.**

On average, there are slightly more clients admitted each month who have poly drug use compared to clients who only use one drug. The difference between the two is not great enough to be statistically significant. As a result, the findings are not consistent with the current research, nor does the data contradict the current research. More research is needed.

**Figures seven and eight.**
The majority of clients have both physical and psychological health issues. Figure seven shows that the number of clients with both types of health issues who are admitted is greater than the number of clients with just one health issue who are admitted. These results show that treating clients with addiction is a problem with multiple factors to consider. For the majority of clients, instead of only treating for an addiction, the counsellor must also work with the client for treatment of additional psychological health issues and also work with a medical team to address the physical health issues. The interaction between the different health issues and the addiction also adds to the complexity of treatment.

Based on the results shown in figure eight, it also appears that this trend is increasing. More research is needed to see if this is true for other detox centres and what implications this would have on treatment for these clients.

**Figure 12.**

Figure 12 shows the use of stimulant drugs; what is interesting is the interaction between the use of cocaine/crack and the use of crystal methamphetamine. As seen through the trend lines, the use of cocaine/crack is declining over the years while the use of crystal methamphetamine is increasing. By the end of the study, the use of crystal methamphetamine is greater than the use of cocaine/crack. More research is needed to see if this trend continues into further years and if these findings are constant in other areas of Ontario. Future research could also investigate possible reasons for this change and the impact that it has on the community.

**Figures 20 and 21.**

Figure 20 shows the number of clients admitted every month. As seen by the trend line, the number of clients who are admitted is increasing. This may mean that more funding is required for the detox centre to be able to accommodate an increasing number of clients. Figure 21 shows that the majority of clients who are admitted to the detox centre only have one admission. The low rate of readmission implies that the treatment being provided at the detox centre is effective as an early step in recovery. This further shows the importance of detox centres and why such programs should receive financial support.

**Figure 23.**

It is interesting that the number of clients who either plan on attending MHGs or have other or no plans for further treatment upon discharge is almost consistently greater than the number of clients who plan on going to a residential treatment facility or counselling. The greater number of clients who attend MHGs could be due to the accessible nature of that treatment. MHGs are affordable and typically have no wait lists; this makes MHGs a form of treatment that is very accessible to clients.

The greater number of clients who have no plan for further treatment upon their final discharge may show that there were additional factors other than problem drug use that affected their need to use the detox centre. Although some of the clients in this group would simply not readmit to the detox centre due to the nature of their discharge, such as being discharged to the psychiatric ward or police custody, other clients simply had no plan of continuing with any form of treatment. More research is needed in this area to determine if there are common external factors other than drug use that impact this group of clients and to see if there is a better way to accommodate them.

**Figure 25**

Figure 25 shows the number of times a client has been admitted to the detox centre
compared to the number of drugs that he or she uses. The work by Li et al. (2008) would suggest that as the number of admissions increased, so would the percentage of poly-drug use. Instead, the data shows no real pattern in the relationship between poly-drug use and readmissions. Li et al.’s (2008) were not supported in this study. More research is needed.

**Figures 27 and 28.**

Figure 27 shows the relationship between alcohol use and poly-drug use. The bars represent the number of clients who do or do not use alcohol; this is then divided into categories on the x-axis based on the number of drugs that the client uses. Figure 28 does the same thing but with opioid use instead of alcohol use. It appears that as the amount of poly-drug use increases, the percent of clients who use alcohol decreases. The more drugs that a client is using, the less likely he or she is to use alcohol. The opposite appears to be true for clients who use opioids; as the number of drugs being used increases, so does the percentage of clients who use opioids. More research is needed to investigate if there are connections between these factors, and if so what implications these connections have.

**Figure 30.**

Figure 30 compares clients who attend or do not attend MHGs to clients who do or do not have a mental health issue. As seen in the graph, for clients who do not plan on continuing with MHGs, there is almost an equal percentage of clients who have a mental health issue and clients who do not have a mental health issue. A large percentage of clients who do plan on attending MHGs, however, do have a mental health issue. It may be possible that the group environment also works at providing the needed connections for someone who is living with a psychological health issue. This may also be due in part to the high rates of depression and general anxiety, as seen in figure nine. More research is needed.

**Future Research**

The recommendations for future research after this current study would be to take a more in depth look at certain results from this study. An example would be that if the results of this study showed that a client who has admitted to the detox 20 times is in the top 2% of admit rates, then a future study can focus on clients who have been admitted 20 times or more. It is the recommendation from this study that a more pointed approach to research be attempted to find additional patterns in admissions that have been missed. Another possible future study is to create an investigative study based on the results of this study. If the current study, for example, were to show that less than 20% of clients lived outside of the city, a future study could investigate the possible reasons behind these results.

Future research should continue to investigate the trends that were found in this study. More statistical analysis should be done to see if these trends are consistent across other detox centres. Researchers can also investigate the trends identified in this study to see if there is a causational relationship between factors, or if there are external events that are affecting the trends shown in this study. It would also be beneficial for future research to create and implement new best practices within detox centres.

Although figure 14 does not show a rise in opioid use, figure 27 shows that the percent of opioid users increases as the number of drugs used increases. Since figure 27 implies that there is a connection between poly-drug use and opioid use, being that once someone uses opioids, he or she is at a greater risk of poly-drug use, future research can further investigate this trend. More research is also needed to investigate current rates of opioid use; since this study only show data till the end of the year 2015, it is possible that the
research stopped just before the increase in opioid use.
References


### Appendix A: Data Collection Sheet

#### Raw Data Sheet

<table>
<thead>
<tr>
<th>Category</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Month and Year</td>
<td>____________________________</td>
</tr>
<tr>
<td>Client</td>
<td>_____</td>
</tr>
<tr>
<td>Gender</td>
<td>M / F / Other or Unknown</td>
</tr>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>Urban / Rural</td>
<td></td>
</tr>
<tr>
<td>Health Issue</td>
<td>Y / N</td>
</tr>
<tr>
<td>Marital Status</td>
<td>M / CL / R / S</td>
</tr>
<tr>
<td>Children</td>
<td>Y / N</td>
</tr>
<tr>
<td>Employment / ODSP / Neither</td>
<td></td>
</tr>
<tr>
<td>Type of Drug</td>
<td>S / D / H</td>
</tr>
<tr>
<td>Stim</td>
<td>Cocaine / Crystal / Nicotine / NA / Other: ________</td>
</tr>
<tr>
<td>Dep</td>
<td>Alcohol / Opioids / Benzos / NA / Other: ________</td>
</tr>
<tr>
<td>Hal</td>
<td>Cannabis / LSD / Mushrooms / NA / Other: ________</td>
</tr>
<tr>
<td>Days of Use</td>
<td>Weekends / Weekdays / Both</td>
</tr>
<tr>
<td>Number of Drugs</td>
<td></td>
</tr>
<tr>
<td>Age When Started</td>
<td></td>
</tr>
<tr>
<td>Detox Visits</td>
<td></td>
</tr>
<tr>
<td>Rehab</td>
<td>Y / N</td>
</tr>
<tr>
<td>Mutual-help</td>
<td>Y / N</td>
</tr>
<tr>
<td>Psyc</td>
<td>Dep / BP / G. Anx / PTSD / NA / Personality / Eating / Other Mood / Other Anxiety / Schizophrenia / Other: ________</td>
</tr>
<tr>
<td>Length of Stay</td>
<td></td>
</tr>
</tbody>
</table>
Appendix B: Number of Clients by Age in 2012

Figure 1: Number of clients by age in 2012.
Appendix C: Number of Clients by Age from 2013 to 2015

Figure 2: Number of clients by age from 2013 to 2015.
Figure 3: Age of client and the number of visits to this detox in 2015.
Appendix E: Sex of Clients

Figure 4: Sex of clients
Figure 5: Residents of clients.
Figure 6: Number of NFA clients.
Appendix H: Number of Clients with Health Issues

Figure 7: Number of clients with health issues.
Appendix I: Number of Clients with Both Health Issues and Trend Line

Figure 8: Number of clients with both health issues and trend line.

\[ y = 0.0036x - 137.01 \]
\[ R^2 = 0.1527 \]
Appendix J: Number of Clients with Depression and General Anxiety

Figure 9: Number of clients with depression and general anxiety.
Appendix K: Employment of Clients by Percent

Figure 10: Employment of clients.
Appendix L: Types of Drugs Being Used

Figure 11: Type of drugs being used.
Appendix M: Stimulant Drug Use

Figure 12: Stimulant drug use.
Appendix N: Hallucinogenic Drug Use

Figure 13: Hallucinogenic drug use.
Appendix O: Types of Depressants Used

Figure 14: Types of depressants that are used.
Appendix P: Rate of Poly-Drug Use

Figure 15: Poly-drug use.
Appendix Q: Classes of Drugs within Poly-Use

Figure 16: Classes within poly-use.
Appendix R: Number of Opioids that are Being Used

Figure 17: Number of opioids that are being used.
Appendix S: Rate of Use of the Four Most Used Opioids

Figure 18: Rate of the top four most used opioids.
Appendix T: Percent of Clients with Different Rates of Use

Figure 19: Percentage of clients with different rates of use.
Appendix U: Number of Clients to Admit

Figure 20: Number of clients
Appendix V: Percent of Clients with less than 10 Past Admission

Figure 21: Percent of clients with less than 10 past admits
Appendix W: Average and Medium Length of Stays

Figure 22: Average and medium length of stays.
Appendix X: Number of Clients in Different Treatment Programs after Being Discharged from the Detox Centre

Figure 23: Number of clients in different treatment programs after being discharged from the detox centre.
Appendix Y: Comparison of Marital Status and Residents of Clients

Figure 24: Comparison of marital status and residents of clients.
Appendix Z: Comparison of the Number of Admissions to the Number of Drug Use

Figure 25: Comparison of the number of admissions to the number of drugs used.
Appendix AA: Comparison of Source of Income to the Use of Alcohol

Figure 26: Comparison of source of income to the use of alcohol.
Appendix BB: Comparison of the Number of Drugs Used to the Use of Opioids

Figure 27: Comparison of the number of drugs used to the use of opioids.
Appendix CC: Comparison of the Number of Drugs Used to the Use of Alcohol

Figure 28: Comparison of the number of drugs used to the use of alcohol.
Appendix DD: Comparison of Alcohol Use to Opioid Use

Figure 29: Comparison of alcohol use to opioid use.
Appendix EE: Comparison of Clients who Attend Mutual-Help Groups to Clients with Psychological Health Needs

Figure 30: Comparison of clients who attend mutual-help groups to client with psychological health needs.