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Carlos Borges
cborges2319@uri.edu

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The Public Health Crisis of Alcoholism: What Could Be Done Better in Rhode Island?

Carlos Borges

Jason Kolbe

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Abstract

Alcoholism is a chronic issue that affects over 3 million people per year in the United States. It is characterized by an individual who is physiologically dependent on alcohol to the point where they cannot carry out common social activities such as having friends or holding down a job. Approximately 88,000 people die per year due to alcohol related events. The economic impact due to hospital bills, criminal justice costs, and lost productivity of the abuser is estimated at \$400 billion annually. Alcohol abuse can be used as a coping mechanism in adolescents who are struggling with behavioral health issues that could eventually lead to long-term abuse and lowered life expectancy. Given the harsh effects alcohol use can have on society, it is important to address this issue from a public health point of view where we can confront the direct causes of these issues and put in place prevention and treatment programs at the national, state, and local level. Rhode Island is a densely populated state that has issues with substance abuse and alcohol abuse in particular. A 2015 CDC study showed that 17% of Rhode Island adults admitted to binge drinking in the past month. This is in between the highest (North Dakota at 24.9%) and lowest (Utah at 11.4%) prevalences. The focus of this research is to understand alcohol abuse disorder and research the causes, complications, and treatment options. An overall theme is to understand what Rhode Island could do better in terms of prevention and treatment options. The research done in this article will be supplemented by interviews with healthcare workers who work directly with alcohol abuse patients. Studies have shown that screening children for alcohol abuse risk factors, implementing more residential inpatient treatment centers and decreasing alcohol outlets may lower the alcohol abuse prevalence.

Introduction

Alcoholism is when an individual is physiologically dependent on alcohol to the point where they are not able to carry out basic life functions. This can be diagnosed by a healthcare professional as alcohol use disorder (AUD). These patients have a chronic issue where they have abused alcohol to the point where they need large amounts of this substance to maintain themselves. Their body becomes physiologically dependent on it due to the copious effects it can have on the neurological system. When an individual abstains from alcohol use, their body will begin to shut down and cause withdrawal symptoms such as anxiety, tachycardia, irritability, muscle pain, seizures and in some cases death. It becomes hard for these individuals to be functioning members of society because they spend too much time being under the influence. They may not be able to do normal activities such as hold down a job or maintain family

relationships. Individuals who suffer from AUD should seek professional treatment where they can be placed in a suitable environment for them to detoxify their body from the harmful effects of alcohol and then be treated for their cause of alcohol abuse such anxiety, depression, trauma or chronic medical conditions.

Alcoholism remains a problem all around the world and particularly the United States. According to a study¹, around 95,000 people die per year from incidents linked to alcohol misuse. The only lifestyle choices that kill Americans more are tobacco-related issues and poor diet. In 2016, the Surgeon General's report on alcohol, drugs and health² showed that 1 in 10 working adults die from alcohol misuse per year. A CDC study³ explains that in 2012, 1 out of every 6 adults admitted to binge drinking in the past year. That same study showed in 2010 that the overall prevalence in the United States of people who binge drink was 17.1% with a frequency 4.4 of drinking events per month. In each drinking event there were about 7.9 drinks consumed. These numbers do not seem like a problem if they are drinking only around 4 times per month, however, the drinking is clearly not in moderation and could lead to chronic issues. Not only does it affect the country from a health point of view, but there are also economic consequences. The Surgeon General's report on alcohol, drugs and health also showed that alcohol misuse-related healthcare costs, lost productivity and criminal justice costs the United States \$400 billion annually². Some of these costs include people who are fined by the criminal justice system for drunken disorderly conduct or charged by the hospital for an emergency room visit. There are occasions where homeless people who abuse alcohol do not have the money to pay for these charges. This results in revenue lost and never ending debt to those who are charged.

A public health crisis is defined as a health issue that affects a large group of people at a national, state and local level. A crisis that not only hurts people, but can have dangerous effects on the economy as a whole. Based on the above information it is safe to label alcoholism a public health crisis. There are statistics or data completed to encompass all the effects alcohol can have on society such as alcohol-related assaults, sexual assaults, unintended pregnancy, liver issues and much more. A public health crisis is often complex and does not have straight forward answers. When one issue is fixed, another set of problems needs to be addressed. That is why, in the United States, there are guidelines implemented at the state and local level to address specific causes or impacts of alcohol abuse. The goal of this research is to understand (1) how alcoholism is affecting the state Rhode Island, (2) what the state currently does to address the issue of alcoholism and (3) what more can be done to address the issues in Rhode Island. A part of answering these research questions is understanding the direct causes of alcoholism and treatment programs available. Once this is understood, we will know what can be implemented at state and local levels to prevent and treat alcoholism. It is important to understand how other states are affected by alcoholism and what their responses are because we need to be able to make comparisons with Rhode Island. If they have an issue that is similar to that of Rhode Island and they have a prevention method that Rhode Island is not using. Then we can use this as a way of suggesting what Rhode Island could do better.

Methods:

In order to answer these research questions, information was gathered from primary and secondary source literature found from literature search databases such as Google Scholar and URI library databases such as PubMed and EMBASE . The data that were found for this research focuses on studies conducted in the United States at the national level using federally run

websites, such as Substance Abuse and Mental Health Services Administration (SAMHSA), National Institute of Alcohol Abuse and Alcoholism (NIAAA) and the Centers of Disease Control (CDC). In order to supplement this research with Rhode Island specific information, local healthcare providers who work directly with patients suffering from AUD were interviewed. This was approved by the institutional review board at the University of Rhode Island on February 23rd, 2021 under the project number 1722122-1. Before being interviewed, they were given a letter introducing the topic and explaining that their participation in this study is completely anonymous. Each individual who was interviewed answered the same questions in order to make comparisons or differences to each interviewer's opinions about their work with patients who abuse alcohol. The research done for this project was carried out during the Spring 2021 semester.

Results:

_____Alcohol is a drug that can have a variety of effects on the body's neurological functions. Similar to opiates, this is a drug that the body can become physiologically dependent on. The actual alcohol found in beverages is ethanol ($\text{CH}_3\text{CH}_2\text{OH}$). Ethanol in particular works on neurotransmitters inhibiting certain receptors or mimicking neurotransmitters. Specifically, it can affect the function of N-methyl-D-Aspartate (NMDA)⁴, which is a receptor found in the nervous system that plays a role in memory formation. When alcohol is present in the system, the neurotransmitter Glutamate is highly suppressed. The lack of memories that are formed while intoxicated can be attributed to the effects alcohol has on suppressing glutamate and other studies show how this contributes to physiological dependence. Dopamine is another neurotransmitter that is found to be released right before you do something you perceive enjoyable. It is a part of the major excitatory pathway where the act of drinking alcohol will trigger dopamine to release.

This has a role in withdrawal symptoms because if alcohol is abused by a patient, they will have low levels of dopamine when abstaining. Patients that experience low levels of dopamine often suffer from depression and anxiety. They know drinking will give them a comforting feeling so oftentimes people turn to alcohol. Low dopamine levels have also been noted to cause people to relapse after undergoing treatment.

Alcoholism is developed through intense alcohol exposure over a long period of time. During that period of time, alcohol is not being properly removed or metabolized by the liver allowing it to attack every organ system. The liver becomes scarred and swollen which accompanies a long list of medical complications. The effects of chronic alcohol abuse on the cardiovascular system include high blood pressure, tachycardia, and arrhythmias which could lead to life threatening effects such as a myocardial infarction or stroke. Digestive organs can become inflamed and worn down after chronic exposure to alcohol making it increasingly difficult to absorb nutrients and may even disturb the pancreas's function to produce insulin. Effects on the neurological are plentiful and are not limited to effects mentioned earlier.

The effects of excessive alcohol intake is clearly dangerous and may be enough to deter an individual who is thinking about drinking, but what causes or leads an individual to abuse alcohol? Three key elements have been found to determine the likelihood that an individual will take up drinking alcohol. The first factor to consider when assessing the likelihood that someone will abuse alcohol or any substance is their overall mental health. Alcohol is often a coping mechanism or medication for people who are depressed or have other medical issues.

Alcoholism is often a symptom of other underlying issues that need to be addressed. Sexual assault, abuse, anxiety or other medical conditions could all be reasons for abusing alcohol. We can then look at factors that contribute to someone's mental health. An obvious factor is looking

at an individual's home life. Whether or not a person has two parents or guardians that care for them can play a role in their overall mental health⁵. If they have guardians that are abusive or not present, they may grow up to have behavioral health complications such as depression, anxiety, and post traumatic stress disorder. Life at home is crucial for mental health development of children. Another factor is the community in which an individual lives. How accessible alcohol is within a community can play a role in whether or not they will eventually abuse alcohol. If alcohol is cheap and found everywhere, more people will be consuming it. If adults are willing to give alcohol to minors, then that would be a huge risk factor to developing AUD. None of these risk factors will overall determine that an individual will abuse alcohol, but it will increase their susceptibility to using alcohol as a coping mechanism for an underlying issue.

Many reasons can contribute to chronic alcohol use. Depending on the specific reason someone is abusing alcohol will require a specific treatment plan that will address that reason. There are no treatment plans that work for every single person. Treatment programs must be tailored to work for an individual and their associated issues. The treatment for someone who drinks alcohol because they are depressed will be drastically different for someone who drinks alcohol to numb their chronic back pain. Before anyone can be treated for their AUD, they need to undergo detoxification⁶. Detoxification is not a treatment but is essential to the overall care. Individuals who seek detoxification will be placed in an environment where they are safe and isolated from alcohol. They are watched by a medical staff who will intervene if withdrawal symptoms occur such as seizures. In some cases they are given medications which are titrated down until they no longer need the substance alcohol physiologically. Once their body has been cleansed of alcohol and their body no longer has withdrawal symptoms, they are ready to start their treatment. It is important for detoxification programs to encourage patients to seek

treatment and in some cases set up the next step of going to a treatment program.. When they are finished detoxing, they still have the underlying issue that made them abuse alcohol in the first place. If these underlying issues are not addressed, then they are much more likely to relapse

There is a large list of treatment programs that people can choose from. There are residential inpatient treatment programs that place individuals in a safe environment where they can live their life and take the time to address any underlying mental health issues. They are given 24-hour medical attention while going through withdrawal symptoms and cravings. They are able to meet with psychologists and perform exercises to improve their mental health. The length of these programs can be anywhere from 30 days up to 6 months. There are also inpatient programs that are not residential but are located in a hospital. These may be less appealing and unnecessary for people who don't require intensive medical care. Another type of program is partial outpatient programs. In this program, people spend 10-12 hours at a facility where they can address their problems and meet with professionals. They can work with others going through the same type of treatment plans or substance abuse issue and come up with solutions. This program allows individuals to return home and even try out their newly acquired skills and life lessons. People may gravitate towards this program if they have people to take care of at home. Along with these programs are support groups that work together to make sure these individuals who have suffered from alcoholism stay sober. An example of a support group is Alcoholics Anonymous.

The state of Rhode Island offers many treatment and rehabilitation programs for people struggling with alcohol. Rhode Island offers 12 inpatient programs for AUD. The most common ones are Phoenix House, Adcare, Butler Hospital, Roger William Medical Center, and Veterans Affairs, each with various locations in the state. There may be others in the state, but they are

private and are harder to access⁸. According to the National Survey of Substance Abuse and Treatment Services, there are 47 outpatient programs set up throughout the state as well.

In order to develop plans to prevent alcoholism in Rhode Island, the state as a whole needs to be assessed to see if there are any areas that can be improved. One CDC study suggests that overall 17% of Rhode Island adults admitted to binge drinking within the past month alone⁷. The effect mental health has on vulnerability to alcohol abuse cannot be understated. SAMHSA released a report in 2015⁵ where it measured the mental health in the state of Rhode Island and compared it to the average of the country as a whole. They found that in 2014 there were 10,000 adolescents ages 12-17 who admitted to having a major depressive episode within the past year. That is 12.9% of adolescents in Rhode Island, which is higher than the national prevalence of 11%. This study also found that out of all the participants in the survey with any mental illness, only 47.5% were actually receiving treatment. That leaves more than half left untreated. If mental health is a major contributor to alcohol abuse, this could be a possible point of prevention that could be incorporated. In Rhode Island approximately 69,000 people over the age of 12 reported that they abused alcohol, which is 7.7% of the people who took the survey. Lastly, this report shows us that 51.8% of people who were being treated for their mental health were unemployed. Another study from the CDC in 2015¹¹ showed that the prevalence of binge drinking in Rhode Island is 17% amongst adults. The intensity of each binge drinking event in Rhode Island was 7 drinks. Utah is the state with lowest prevalence of binge drinking amongst adults (11.4%) and North Dakota has the highest prevalence of binge drinking amongst adults (24.9%). This puts Rhode Island in the middle of the pack compared to the rest of the country in prevalence.

In 2006, a law was passed by US Congress called the Sober Truth on Preventing (STOP) Underage Drinking ACT. This law requires each state to do a report on their progress to implement and enforce laws regarding underage drinking. This report from 2018⁹ states that within the past month of the report, the age group of 12-20 years showed a 28.7% use of alcohol. Also the report states that within the past month of this research being conducted, there were 10 alcohol-related fatalities, all of which were people under the age 21. The report further goes on to explain the laws that Rhode Island implements to prevent underage drinking. In Rhode Island, it is not illegal for a minor to drink or have internal possession of alcohol which is also the federal law. There are no laws specifically requiring that alcohol outlets be a certain distance from college campuses. The excise tax on 5% (alcohol concentration) beer is \$0.11 cents, 12% wine is \$1.20, and 40% spirits is \$5.40. At the time that the STOP underage drinking act was passed in 2006, a study was conducted to estimate the costs of excessive alcohol consumption¹². They found that Rhode Island had \$827.4 million in costs due to excessive alcohol consumption and the total cost per drink at that time was \$1.74. The state with the lowest amount of costs was North Dakota with \$419 million when the total cost per drink was \$1.36. The state with the highest amount of costs was California with \$31,856 million when the total cost per drink was \$2.25.

The prevention strategies that Rhode Island has implemented at this point in time are centered around strict legislation on underage drinking. These laws were suggested by the Communicative Preventive Services Task Force in 2013. They take evidence-based studies that have proven to be effective in other states. Their main suggestion was to increase the excise tax on beer, wine and spirits in Rhode Island. They found that increasing the tax on these products will lead to less people consuming alcohol. Furthermore, they believe there should be more laws

in place to hold alcohol outlet owners responsible for selling to minors or intoxicated adults who may be a danger to themselves or others. Finally, they believe that alcohol outlet density can be correlated with excessive drinking in an area. Implementing laws requiring outlets to be a certain distance away from each other could be beneficial.

Table 1. Interview questions and answers with healthcare professionals who specialize in substance abuse: This table shows the questions that were asked during interviews with healthcare professionals who work directly with substance abuse patients. It also shows the paraphrased answers to each question. The interviews were both long and conversational, but the key answers were paraphrased to capture their views. This table does not display any names or affiliations of the individuals who were interviewed. Both interviewees were in agreement that one of the things Rhode Island lacks is another inpatient residential facility where patients can go through detoxification and be directly brought to a treatment program. The only facility we have at the moment is Butler Hospital. They also agreed that underage drinking does not mean that young adults will grow up to abuse alcohol, but factors such as their community, home life and mental health have a role to play in how they use alcohol. Lastly, interviewees both explained how important support groups are to young adults and people currently trying to become sober from alcohol. This support has proven to be especially successful through outpatient services such as peer recovery coaches and Alcoholics Anonymous.

Questions	Interviewer 1.	Interviewer 2.
Do you think that RI has more issues in terms of alcoholism compared to other states? Anything we can do better?	There are very few residential programs which hurts. A peer recovery coach is also important for outreach on a long term basis. Bridgemark, Womens road to recovery, mens road to recovery, phoenix house. Also there are recovery based sober living environments like the Salvation Army which doesn't allow people to be on recovery supportive medication such as suboxone.	It is truly hard to quantify how Rhode Island does compared to other states. Especially in situations where one patient can enroll several times in detox/treatment programs. More research would have to be done specifically comparing.

<p>Are there any types of prevention programs that should be implemented in RI to lower prevalence?</p>	<p>Loaded question, a resource issue is the staples, life balance when individuals are recovering and stopping relapse. For the homeless patients how can they have life balance? When you fix one problem you may have more problems that come up that need to be addressed. Individuals need to help themselves and recognize areas of growth. It's important to understand why they are vulnerable to relapse.</p>	<p>Educational programs on the importance of strong family attachments and independence may be lacking. Parents may defer to letting the school counselor take care of their kid's problem. It's about building strong resilient children and that starts with healthy parents.</p> <p>Laws and programs do not form healthy attachments, people who care about other people do, but one needs to enforce personal responsibility for our choices in society.</p>
<p>What effect does underage drinking have on long term alcohol abuse?</p>	<p>There still needs to be a lot of research on that. There are a lot of changes the body goes through at younger ages, and the effect alcohol can have is still a grey area. Not all the time do these people end up abusing alcohol. It falls on the schools to place prevention programs. What are the genetic factors or do they have a family history of abuse? Are they adaptive enough to not develop alcohol use as a stress reliever?</p>	<p>What I do suspect is a person who has poor self worth, poor attachment, poor social supports, will be more vulnerable to seeking refuge from a substance or some other poor coping mechanism (pot, SU, exercise, sex, gambling, sky diving). Something that will ping the brain dopamine centers for a sense of happiness. Children with trauma that was never addressed/treated/ may have more psychological stressors. If people have strong role models and attachments, he/she may be less likely to pick up.</p>
<p>What are the qualities of an individual who is most likely going to go through treatment and stay sober? Who is more likely to relapse?</p>	<p>Individuals who talk about how abuse affects them, but are able to understand that it is a part of their life. They are able to integrate new ways of coping without thinking alcohol abuse is their defining factor.</p>	<p>Those folks who are likely to succeed in remaining sober have to view sobriety as an active working everyday part of their life. The help is out there, but I think those who do not succeed, for whatever barrier, they do not</p>

	<p>Clinicians try to explain to them that abuse isn't any different from any other condition they have to manage so it doesn't get worse such as diabetes or hypertension. Understanding that this is a part of their life that they don't like will better help them stay clean and know what to do to manage their problem.</p>	<p>fully grasp that, this is hard work. They need to actively live their defined life values & defined life goals so they are more likely to release from alcohol. This is how one stays sober (not everyone has the resources, mental capacity (of other BH diagnosis). The amount of social support they have whether it be support groups or family members, will contribute to long term sobriety.</p>
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Discussion

Alcoholism in Rhode Island is a public health issue that needs stronger prevention and treatment options. Compared to the other 49 states, Rhode Island falls in the middle of the states with the highest prevalence, fatality and regular binge drinking. The prevalence in 2015 was 17% which is right in the middle of the lowest and highest prevalences among states for that year. In 2006, excessive alcohol use cost the state a total of \$827.4 million which was much lower than California (\$31 billion). That study was from 2006 before the STOP law was passed, which increased alcohol prevention laws as well as excise taxes. This information is outdated, but can still provide insight on how alcohol prices may have a correlation of how much economic damage is done. A study from 2019¹³ has explained that increasing the excise taxes has shown to decrease consumption and lead to overall better health outcomes. According to the website tax-rates.org¹⁴, Rhode Island currently has the 10th highest tax on wine at \$1.40 per gallon, but the 41st highest tax on beer at \$0.12 per gallon. This could be a possible point of prevention to decrease alcohol consumption.

The consequences for raising taxes on beer may be positive in the long-term health goals, but in the short term, it may cause more medical issues. Many individuals who struggle with AUD may only have enough income to support their drinking habit and stay alive. If beer taxes increase and they are no longer able to pay for their drinking habit, they may have withdrawal symptoms that could be deadly. This could possibly happen on a large scale which may exhaust our hospitals resources, especially in the emergency room. This is part of the reason during the covid-19 pandemic, alcohol outlets continued to sell while other businesses were shut down. If alcohol outlets were to close then these people who rely on drinking everyday to maintain themselves may have alcohol withdrawal symptoms and end up in the emergency room. The pros and cons of this prevention plan would have to be studied thoroughly to know whether it would be truly beneficial or not.

When both interviewers were asked about how underage drinking plays a role in the long-term effects of alcohol, they explained that drinking at a young age has no clear correlation to long-term alcohol abuse; however, younger ages are a crucial time for development (Table 1). If they are subjected to factors such as abuse, trauma, or a complicated home life, they may be more susceptible to abusing alcohol. A strong support system is crucial for mental health and parents that are able to teach their kids the correct ways to cope with their issues generally have better mental health. Mental health is a key factor on whether they are more likely to abuse alcohol. Whether or not an individual is able to recognize that alcohol is not a healthy coping mechanism for their issues will determine their relationship with alcohol. The types of trauma a young adult goes through can also be a determining factor and may contribute to an overall poor mental health. It seems that preventing young adults from drinking alcohol may be meaningless if you are not addressing the underlying behavioral health issues that these people face. When

interviewer 2 was asked about possible prevention programs, they explained that laws aren't really effective for preventing people from having poor mental health, rather creating strong, healthy relationships with and having healthy attachment relationships, such as being involved in school or playing a sport, may have more of an impact. A larger study from 2014¹⁵ found that early and brief interventions from primary care providers such as physicians, nurse practitioners, and physician assistants were effective at lowering the intensity of drinking in one year. The study does not go past 1 year of data, but there is no research to say that it would not be effective past a 1 year. The idea is to get the conversation going about alcohol and what moderation looks like compared to abuse. The study had the participants set goals for the future related to alcohol use. Although it is important to get the conversation going, it does not mean that their anxiety, depression, and other risk factors will be going away. It is imperative to also screen for mental health risk factors in young adults. A study¹⁶ has found that individuals with more severe depression will have a higher intensity of alcohol use. It is important to understand the comorbidity of alcohol abuse and depression. It is possible for one to occur without the other, but if you are developing a screening plan for young adults and their drinking habits, then you must also be screening for changes in their behavioral health.

the interviewees were asked if there are any types of prevention programs that should be implemented in RI to lower prevalence? Interviewee 1 explained that very few residential programs exist in the state of Rhode Island. At this time (4/12/2021) according to the State of Rhode Island Department of Healthcare, Developmental Disabilities and Hospitals¹⁷, there are 59 people waiting to be placed in some kind of detoxification/treatment program in Rhode Island. It is important to note that not all of the 59 people are waiting for placement for detoxification/treatment for alcohol abuse, but for substance abuse in general. These

detoxification facilities provide care for people who have addictions to a variety of substances. Many of these individuals may be at home waiting for placement or an emergency room being medically cleared for placement. Either way this is a large number of people who are not getting the help they need. Rhode Island has 56 facilities that work in substance abuse treatment while the state of Utah with a much lower prevalence has 269 facilities. Utah is a much larger state however it has a significantly lower population density than that of Rhode Island. It is safe to say that more residential facilities, outpatient programs and detoxification facilities may play an important role in responding to the alcoholism already present, but may do little in regards to prevention.

Throughout all the questions that were asked in both interviews, it was often brought up how important it is to have a strong support system in an individual's life when it comes to preventing alcohol, becoming sober, and staying sober. Oftentimes individuals do not have these strong support groups because they either lost them throughout their lives or never had them to begin with. This is why implementing strong outpatient services is such a crucial part of initial treatment and prevention of relapse. Peer recovery coaches are people who have dealt with substance abuse and are able to help others who are going through similar recoveries. This is a support group that has been identified as very effective at preventing relapse¹⁸. Outpatient programs in general are very important for tailoring individuals to a program that works for them and their lives. The more outpatient programs work to keep these patients engaged in their recovery, the better outcomes you will have in terms of relapse prevention and psychological symptoms. The number of social support groups that a patient has access to had a positive correlation with relapse prevention. When an individual completed their treatment at a residential inpatient facility or even an intensive outpatient program, it does not mean their job is done.

Implementing more support groups and more outpatient programs can address the current issues as well as prevent relapse.

Conclusion:

Alcoholism has a significant effect on Rhode Island's healthcare and economy. The rate of binge drinking, fatalities and underage drinking are high compared to that of the national averages, but are not the worst by any means. Rhode Island has in place prevention programs that target taxes and laws in order to deter people from buying alcohol and especially to stop underage drinking. There are many outpatient services for substance abuse throughout Rhode Island, but there seems to be a lack of inpatient residential programs where patients can undergo detoxification and then be placed directly in a treatment program for their alcohol abuse and underlying issues. Prevention programs targeting young adults may be most beneficial for early detection or behavioral health issues as well as alcohol use. One of the main issues with this study was the ability to find data that is most relevant and recent to this time. It was very difficult to find the most recent sets of data statistics because most of the more recent studies are found on the National Institute of Health (NIH) website and other federal databases that require a federal account or permission by an accredited research program to access. If this study were to be done over, using statistics from the National Institute of Health and CDC that require federally funded accounts would be most beneficial to make accurate conclusions about alcoholism in Rhode Island. Also, interviewing more healthcare workers or having a significant sample size may contribute to a better understanding that Rhode Island faces.

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