

Risk Factors that Contribute to Alcohol Use Relapse among Individuals Re-admitted in Rehabilitation Centers in Kenya

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Abstract

Relapse is a major challenge following the treatment of alcohol-related disorders, especially after individuals complete the inpatient treatment programs. In Kenya, studies indicate that relapse rates among those who have been rehabilitated range between 20-80% after they are reunited with their families. The objective of the study was to establish the risk factors for relapse among individuals with problematic alcohol use readmitted in selected rehabilitation centers in Nairobi and Kiambu Counties. These selected rehabilitation centers identified in Nairobi and Kiambu Counties were those that were licensed by NACADA. A descriptive correlational research study design was adopted. Purposive, and snowball sampling methods were used to select 100 participants. Data collection was through a researcher developed socio demographic questionnaire (SDQ) and the Alcohol Use Disorder Inventory Test (AUDIT) and analyzed using SPSS V.25. The key findings of the study identified unrealistic beliefs, boredom and the type of alcohol consumed as risk factors for relapse. The study recommends that the government regulate the consumption of beer and beer products on a policy level. Further, rehabilitation centers should come up with programs targeting cognitive restructuring and soft skills including time management, to address boredom and change the beliefs of individuals with problematic alcohol use.

Keywords: Problematic alcohol use, relapse, risk factors

Introduction and Background

Although alcohol use in the society was generally glamorized, developing an alcohol use disorder (AUD) was greatly stigmatized (Crozier et al., 2023). Alcohol is addictive, meaning that those who attempt to quit drinking alcohol always risk relapse (Kibet et al. 2023). Often, individuals more likely to relapse are those whose onset of drinking is before 18 years of age, or those who drink daily (Alam, et al., 2021). Problematic alcohol use has been a global phenomenon as well as a public health concern affecting millions of people. AUD sometimes involved vicious phases of intoxication, detoxification, abstinence, and relapse which resulted in very low recovery rates (Kurihara et al., 2023).

Globally, about 76 million people were affected by AUD while in Sub – Saharan Africa, about half a million people were affected (Mungai & Midigo, 2019). Although many people with AUD do not seek treatment and others recover without treatment, there is a large majority for whom AUD is a chronic, a recurring condition (Slidrecht et al., 2022). Following detoxification, relapse was common, especially when individuals with AUD experienced stress or alcohol–associated cues (Stillman, & Sutcliff, 2020). The lifetime prevalence of AUD identified in Australia was 22.7 percent (Glantz et al., 2020). In Japan, about 570,000 people had AUD (Yamashita & Yoshioka, 2016). In Uganda, the prevalence of AUD among the adult population was 9.8 percent (Rudenstrand, & Bäärnhielm, 2024). In Africa, the prevalence of AUD among individuals living with HIV was identified to include about 48.5% in South Africa, about 39.4% in Nigeria, 14.8% in Zambia, about 33% in Uganda, and about 33% in Kenya (Necho et al., 2020). Among individuals aged 15-65 years, the prevalence of AUD in Kenya was 10.6 percent (Kamenderi et al., 2022). It is noteworthy that many individuals with AUD experience relapse in their path to recovery (Kibet et al. 2023). Although it is difficult for one to quit use of illicit drugs, maintaining abstinence is more difficult (Appiah, 2018). Individuals who had relapsed experienced higher dysfunctionality in personal, social, vocational and family spheres, and had considerably more positive family history of substance use, compared to those who were abstinent (Chauhan et al., 2018). An individual who relapses is viewed as ill, yet it is also part of the process, incorporating a lapse in the change of behavior. Owing to the fact that two-thirds of

individuals treated for AUD relapse within six months, it is important to identify the risk factors (Nguyen et al., 2020).

In the treatment of problematic alcohol use, having high relapse rates is the norm more than the exception (Allsop et al., 2000). Identifying the rate of relapse is a good pointer to guide clinical resolutions about intervention courses, to equate the effectiveness of treatments, as well as to determine the accumulation and transfer of knowledge for treatments (Reyes-Huerta et al., 2018). In the United States of America (USA), 60% of individuals with AUD relapse within 6 months (Nguyen, L. et al. 2020). In China, the relapse rates was 50% to 80% (Zeng et al., 2016). In Rwanda, 59% of individuals with AUD relapsed (Kabisa et al., 2021). In Kenya, relapse to alcohol use was seen to be 43% (Kuria, 2013). This evidently poses a challenge to many alcohol users, making it a fundamental barrier to treatment.

Relapse, a complex process, was in years past noted as a failure of both the individual and the treatment, but is now recognized as a transitional process, and part of the disease process (Ashitha et al., 2022). Factors that could contribute to problematic substances, were classified into individual, socio-demographic, social cultural influences, medical, and psychiatric conditions (Kabisa et al., 2021). Causes of relapse include environmental reinforcers, the drug use, as well as individual patient characteristics (Kadam, et al., 2017). Some of the individual risk factors included age, gender, exposure to trauma, and mental disorders (Roberts et al., 2014).

One of the challenges in the treatment of AUDs is the problem of comorbidity. The likelihood of individuals with common mental disorders reporting an AUD was twice as likely compared to those without (Puddephatt et al., 2022). Psychiatric comorbidity has been established as a major concern among a significant number of individuals with AUD, who also present with an increased risk of relapse (Rich & Martin, 2014). The likelihood of getting specialized mental health services is higher with people with a comorbid psychiatric disorder and problematic alcohol use than is for those who have problematic alcohol use, without a psychiatric disorder (Petrakis et al., 2002). Individuals who suffer from common mental disorders, including depression, phobia, and anxiety, have been known to also suffer from AUD and this may present incidences of relapse. In a study involving 256 patients who were alcohol dependent (AD) going through a detoxification program in Belgium, established that following detoxification, there is

compulsion for alcohol, where depression and anxiety symptoms persist (Petit et al., 2017). For those individuals where one had substance use disorders, including AUD as well as major depression disorder(MDD), or anxiety disorders, the rates of attempted suicide were high (Rich & Martin, 2014). A clinical trial using a sample of 188 alcohol dependent patients in Nairobi noted that after treatment for AUDs, there were high relapse rates among those who also abused cannabis (Kuria et al., 2012). This is of great concern, considering that those individuals with AUD would experience periods of relapse.

Problematic alcohol use is evident among both the young and old. Early age of consuming alcohol was linked to higher relapse, while older age of onset could be associated with higher remission (Yazıcı & Bardakçı, 2023). Individuals who start drinking at an early age are more likely to have problematic alcohol use (Trim et al., 2013). The early onset of drinking alcohol was linked to alcohol dependence during adult life. Early adolescence was viewed as a critical age with reference to the development of AUD (Türkmen et al., 2024). The onset and age of recovery for AUD was earlier in females than in males (Goh et al., 2022). A longitudinal study, which was a collaborative study of the genetics of alcoholism (COGA), using 3286 adolescents and young adults indicated that individuals with AUD were likely to have their first full drink prior to the age of 13 (Nurnberger et al., 2019). An epidemiologic survey that sampled 43 093 adults in the USA who were 18 years and above revealed that those who started drinking before the age of 14 years were more likely to experience alcohol dependence than those who started drinking at the age of 21 years and above (Hingson et al., 2006). Young people are also more likely to take part in risky behavior while they are drunk, endangering both themselves and others. The trends of alcohol use that arise during adolescence are increasingly accepted as important factors of substance use disorders later in their lives (Swendsen et al., 2012). A cross – sectional study having a sample of 14 772 from different countries including Australia, New Zealand and Thailand noted that the older age groups consumed alcohol much more often (Chaiyasong et al., 2018). However, compared to the younger population, older adults with AUD have better responses in treatment attendance and compliance (Lin et al., 2011). In Kenya, 70% of families have been affected by alcohol abuse (Masaba, 2017). Alcohol is one of the drugs commonly abused by those aged between 16 and 30 years of age, which is a critical period, developmentally (Chesang, 2013). An exploratory approach involving 350 children and

240 parents in Kenya noted that there were high levels of alcohol use (Odhiambo et al., 2023). This behavior could present challenges of problematic alcohol use, and may have implications for relapse rates

Social habits and local cultural norms are significant factors that could influence problematic alcohol use and relapse. Globally, alcohol consumption is increasingly becoming a common occurrence in social events (Elazia et al., 2024). Cultural beliefs and norms have been indicated as strong predictors of frequent heavy drinking (Sudhinaraset et al., 2016). Alcohol is consumed greatly during marriage ceremonies, rituals, and funerals (Nwagu et al., 2017). Alcohol use was common during social and cultural functions, and in some instances, there was hardly any regulation among the underage, in its indulgence. A survey using 100 respondents in Pakistan indicated that improving one's social adjustment is one of the important factors in preventing a relapse (Zafar et al., 2013). In China, for example, alcohol was linked to traditional festivals including the Chinese New Year (Spring Festival), and wedding celebrations (Sinkamba, 2015). Community norms concerning drinking and drunkenness can have an impact on individual drinking problems.

Social influences and local cultural norms are significant factors that could influence alcohol use. To a great extent, culture influences what is considered an appropriate drink for its people (Nwagu et al., 2017). Differences in cultural beliefs concerning appropriate alcohol use may influence the rates of alcohol use and dependence (Sudhinaraset et al., 2016). In Botswana, alcohol played a role in ceremonies including parties, weddings, initiation ceremonies, and other traditional rituals (Sinkamba, 2015). In Kenya consumption of alcohol, with the exception of women and children, is consumed during cultural events including initiation ceremonies, dowry payments, and traditional weddings (Stephen & Odiemo, 2018). A cross – sectional study among 385 respondents, who were alcohol users aged between 18 - 65 years in Murang'a County, Kenya, indicated that beliefs and perceptions justifying alcohol intake influenced AUD development (Mungai & Midigo, 2019). A study among the Nandi community in Kenya indicated that the rising cases of alcohol abuse was due to the change in social and cultural factors where rules and regulations that guarded against its abuse have broken down (Kariuki et

al., 2013). In this regard, culturally grounded interventions could be essential in planning for strategies that prevent problematic alcohol use and relapse.

AUD may be associated with an increased craving for alcohol. A cross – sectional study of 24 in-patients with AUD in a hospital in Japan indicated that the risk of relapse was high among those who had a high desire to drink (Amano et al., 2023). In a study involving 220 alcohol dependent persons in an inpatient and outpatient clinic in Poland revealed that craving young people experienced craving more frequently and significantly than older people (Juczyński et al., 2016). The susceptibility to relapse was known to be due to craving dysregulation (Stillman & Sutcliff, 2020). This was also highlighted in a study in Turkey that involved 156 males with problematic alcohol use who had been consecutively admitted, that the main factor associated with relapse was craving (Evren et al., 2010). A correlation study among 110 patients in a hospital in Vietnam indicated that craving was positively associated with relapse (Van Trieu et al., 2021). Alcohol seeking and relapse can be hypothesized as being driven by the need to relieve tension or arousal (Evren et al., 2012). A study that involved 34 males in a hospital in New Delhi, India, concluded that following detoxification, craving was a cause for relapse (Kharb et al., 2018). A study that utilized 354 patients in a gastroenterology clinic in India that among patients who were alcohol dependent, craving was the most common cause for relapse (Neeraj et al., 2018). Individuals with AUD were likely to experience cravings for alcohol especially when there were negative influencing factors in their lives (Amano et al., 2023). Cravings were expressed as physical and mental reactions and it seemed inappropriate to distinguish between the two (Kvamme et al., 2015).

For those persons with AUD who made attempts to moderate their drinking, both alcohol use and craving were proven to have a mutual relationship, where each prospectively increased the other (Kuerbis et al., 2020). However, craving doesn't always lead to a relapse (Snelleman et al., 2018). As indicated above, craving is a factor for relapse, especially for those individuals experiencing unpleasant mental states.

Methodology

A descriptive correlational research design was adopted to identify the risk factors for relapse among the individuals. It involves collecting data at a single point in time from individuals who have already relapsed and been re admitted in rehabilitation centers in Nairobi county and Kiambu counties in Kenya. The aim is to identify associations between potential risk factors and relapse. This research design is efficient and cost effective and suitable for analyzing multiple variables related to relapse. The National Commission for Science, Technology, and Innovation, (NACOSTI), Ref. No. 332522 and USIU-Africa, the Institutional Review Board (IRB), Ref. No. USIU – AIRB-323-2021 approved the study protocol. At the various rehabilitation centers, permission was also sought from the administrators. The study involved seven rehabilitation centers, four of them from Kiambu County and three from Nairobi County, having been identified by the NACADA website and whose clients had requisite features for the study. For the sample size of the sites, a 10% -30% sampling range in stratified samples was recommended by Mugenda & Mugenda (2012). For this study, considering that in both Kiambu and Nairobi counties there were 40 rehabilitation centers, 17.5% was obtained, thereby satisfying the recommendation. Across the two counties, the sampling of individuals was proportionate to the number of rehabilitation centers. Kiambu had the largest sample owing to the fact that the number of rehabilitation centers was large. The target population involved that which provided the desired information. It is likely that studies involving rehabilitation centers that had individuals with problematic alcohol use were affected by fluidity in trends and clients. The Slovin's formula was used to sample those with problematic alcohol use. $n = N / (1 + N \cdot e^2)$ (Tejada & Punzalan, 2012). The sample size was represented by “n”, the population was represented by “N” while “e” was the margin of error.

The study employed snowball and purposive sampling methods to recruit 100 respondents from the rehabilitation centers. These were consenting individuals aged 18 years and above, including 28 key informants and 72 people with problematic use. At the time of intake, the study excluded those with no relapse experience, who did not consent, or suffered from severe medical and psychiatric conditions at the time of intake were excluded. Data was collected through administration of the Alcohol Use Disorder Inventory Test (AUDIT), and a researcher designed

socio demographic questionnaire (SDQ). The AUDIT, a 10 – item questionnaire, was developed by WHO as a screening instrument for harmful alcohol consumption (Saunders et al., 1993). One alcohol unit is defined as 12 oz. (355ml) of beer, 5 oz. (150ml) of wine or 1.5 oz. (one shot/45ml) liquor. The test taker indicates how much and how often they have consumed alcohol, how often they have tried to stop drinking unsuccessfully, and how much alcohol has interfered with their social or work engagements. According to Habtamu & Madoro (2022), the first three questions (1-3) obtain data on the degree of alcohol intake, the next three questions (4-6) obtain information on dependent symptoms, and the last four questions (7-10) obtain information on repercussions of misuse of alcohol and challenges created by excessive consumption. In addition, the degree is denoted by a digit from 0 (never) to 4 (4 or more times a week). The total score correlates with a risk level of 1-7 (low risk), 8-14 (hazardous alcohol use), and 15 and above is indicative of moderate to severe alcohol use (Habtamu & Madoro, 2022).

During data analysis, the information was manually sorted to determine whether the questionnaires were filled appropriately and whether the responses acquired were useful. In addition, the information was coded into key categories to recognize specific data, emphasizing the main as well as recurring issues. The level of significance for interpretation of data was at $\alpha = 0.05$ level of significance. Quantitative data was cleaned, set, and keyed into a computer and thereafter analyzed using SPSS version 25 for Windows. The summary and presentation of the descriptive statistics generated was done using frequency tables. Descriptive statistics and binary logistic regression analysis was used to analyze the risk factors that contribute towards alcohol relapse among individuals with problematic alcohol use.

Results

The participants were drawn from rehabilitation centres in Kiambu (61.1%) and Nairobi (38.9%) counties, Kenya. Males made up 93.1% while females were 5.6%. The gender disparity in alcohol use may be because compared to men, alcohol consumption among women was not as central to their social role. In regard to the age distribution, majority of the participants in this study were 26 to 35 years old. As indicated above, early onset of alcohol use is considered an influential predictor of AUD. The majority (81.9%) of the respondents had tertiary education, which means that most of the respondents were quite well-educated. Further, most of the

participants reported being married (48.6%), while 4.2% reported being divorced. 31.9% of the participants were single while 15.3% were separated. In regard to employment status, 4.2% were students, 22.2% were unemployed, 27.8% were running a business, and 45.8% were employed. When analyzed by religion, 84.7% were Christians 2.8% embraced the Gikuyu customary religion 1.4% were Muslim and 1.4% were agnostic respondents. This indicates that the respondents were largely of the Christian faith. Religion influenced alcohol consumption, where Islam, for example, prohibited alcohol consumption.

Data on the participant's perceived contributors to risk was obtained using simple linear regression analysis. Participants were asked about their perception of what prompted them to drink alcohol after treatment, respondents gave different reasons. These reasons were perceived as risk factors for relapse. The results are presented in Table 1 below.

Table 1: Perceived Risk for Relapse as Reported by Participants

Variable	Frequency (%)	Mean(SD)
Prompt to revert intake		
Stress	10(13.9%)	5.89(9.31)
Peer pressure	16(22.2%)	6.47(9.58)
Idleness	6(8.3%)	2.40(1.67)
Triggers	7(9.7%)	2.14(1.46)
Unrealistic beliefs	2(2.8%)	30.00
Cravings	4(5.6%)	16.50
Family problems	4(5.6%)	2.33(1.53)
Boredom	1(1.4%)	30.00
Loss and grief	1(1.4%)	1.00
Depression	1(1.4%)	2.00
Experiencing rejection	1(1.4%)	10.00
Lack of empathy	1(1.4%)	1.00
Unresolved issues	2(2.8%)	1.00
Poor support	1(1.4%)	5.00
Undeclared	15(20.8%)	11.15(13.23)

According to Table 1, participants reported that what prompted them to take alcohol post-treatment was peer pressure 2.5%, stress (13.9%), triggers in general (9.7%) to triggers in general, and idleness (8.3%). In addition, 5.6% of the participants attributed their relapse to cravings and family problems, and 2.8% to unrealistic beliefs in self and unresolved issues respectively. Only 1.4% attributed their relapse to boredom, loss and grief, depression, experiencing rejection, lack of empathy, and a poor support system respectively. A total of 20.8% did not declare their prompts for resuming alcohol use post-treatment. This indicates that many participants (79.2%) were able to identify their prompts for resuming alcohol intake.

A simple linear regression analysis was conducted on the different categories of prompts for alcohol intake to predict their value as risk factors based on the number of participants' relapses. In comparison to peer pressure, unrealistic beliefs were found to contribute a 21.36 ($p = 0.04$) unit increase on number of relapses, and boredom was found to contribute a 21.36 ($p = 0.37$) unit increase on the number of relapses. Stress ($b = -2.75$, $p = .467$), idleness ($b = -6.24$, $p = .195$), triggers ($b = -6.50$, $p = .123$), cravings ($b = 7.86$, $p = .140$), family problems ($b = -6.31$, $p = .294$), loss and grief ($b = -7.643$, $p = .447$), depression ($b = -6.643$, $p = .508$), experiencing rejection ($b = 1.36$, $p = .892$), lack of empathy ($b = -7.64$, $p = .447$), unresolved issues ($b = -7.64$, $p = .292$), and poor support ($b = 3.64$, $p = .716$) were all found to be non-significant contributors to relapse in this study. Thus, the prompts for reverting to alcohol intake that were significant risk factors for the respondents in this study was unrealistic beliefs and boredom.

The study further wanted to find out the physical and mental health of participants to be able to determine if that was a risk factor for relapse. To determine if presence of physical or mental illness was a risk factor for relapse, a regression analysis was done as presented in Table 2 below.

Table 2: Regression Coefficients of Illness on Relapse

Variable	B	SE	β	t	p
Constant	6.957	1.602		4.343	0.000
Medical Illness	1.793	4.162	0.055	0.431	0.668
Mental Illness	2.71	3.522	0.098	0.77	0.444

Table 2 indicates that medical illness and mental illness were not risk factors for relapse as seen in P values of $p=0.668$ and $p=0.444$ respectively.

The study also wanted to establish whether age of first use of alcohol was a risk factor for relapse. A regression analysis was conducted to determine if age of onset of alcohol use was a predictor of relapse as seen in Table 3 below.

Table 3: Regression Coefficients by Age-Related Factors

Variables	B	T	p
Constant	7.67	1.218	.228
Age of onset (n = 70)	-.312	-.779	.439
Age of regular drinking (n = 66)	.255	.670	.506

The mean age of onset (n = 70) was 17.47 years with a standard deviation of 5.02. The reported youngest age of onset was 5 years, while the oldest age of onset was 35 years. The mean age (n = 66) was 22.47 years with a standard deviation of 5.30. The reported youngest age of regular alcohol consumption was 8 years, while the oldest age of alcohol consumption was 40 years. Table 3 shows that the age of onset ($b = -.312$, $p = .439$) did not contribute to relapse, and therefore, age of onset is not a significant risk factor for the respondents in this study. Additionally, the age of regular drinking ($b = .255$, $p = .506$) was not a risk factor to relapse and therefore, the age of regular drinking was not a significant risk factor for the respondents in this study.

A regression analysis was done to determine if types of alcohol being consumed was a risk factor for relapse. Findings are presented in Table 4 below.

Table 4: Regression Coefficients of Type of Alcohol Consumed on Relapse

Variable	Beta	S.E	β	t	p
Wine	1.124	2.899	.048	.388	.700
Beer	7.361	2.537	.341	2.901	.005
Whisky	4.889	2.608	.228	1.874	.065
Spirits	-5.358	4.032	-.164	-1.329	.189

Given that $b = 1.124$, $p = .700$ for the “wine” variable a non-significant contribution was found means that wine as the type of alcohol that the respondents consumed was not a risk factor for relapse. Given that $b = 7.361$, $p = .005$ for the “beer” variable, a significant contribution was found for beer as the type of alcohol that the respondents consumed to the number of relapses. This means that drinking beer was a statistically significant risk factor for relapse. Given that $b = 4.889$, $p = .065$ for “whisky” variable, a non-significant contribution was found for whisky as the type of alcohol that the respondents consumed on the number of relapses. This means that consuming whisky was not statistically significant as a risk factor for relapse. Finally, given that $b = -5.358$, $p = .189$ for “spirits” variable, a non-significant contribution was found for spirits as the type of alcohol that the respondents consumed on the number of relapses. This means that consuming spirits was not statistically significant as a risk factor for relapse.

In this study, consuming beer was found to be a statistically significant risk for relapse among the respondents. The significant regression equation obtained [$F(1,64) = 8.415$, $p = .005$] with an R^2 of .116, indicates that an 11.6% variance in relapse is accounted for by the consumption of beer. There is therefore a significant impact on relapse by the consumption of beer.

Discussion

The respondents’ data was analyzed to identify the risk factors for relapse. Inferential analysis to establish whether illness was a risk factor for relapse was conducted based on the number of relapses that respondents reported. In the current study mental illness was not a significant risk factor for relapse. The results of the current study support the findings of a similar study in Rwanda by Kabisa et al (2021) whereby psychiatric diseases medical conditions and type of medical condition were found to be non-significant risk factors for relapse. The findings of this study differ from the findings of Zeng et al. (2016) whereby a statistically significant difference was found between those who had relapsed and those who had not relapsed based on the duration of psychiatric symptoms. This may be a result of differences in study methodology; Zeng et al. (2016) conducted a quasi-experiment with an experimental group ($n = 227$) who relapsed within a year and a control group ($n = 224$) who did not relapse within the year. In the current study, all the respondents had relapsed ($n = 72$), and the sample was comparatively smaller. Having psychiatric symptoms within the first five years of alcohol consumption was found to be a risk

factor for relapse. In their study, they sought to analyze factors that influenced drinking relapse among patients who had alcohol-induced behavioral and psychiatric disorders.

These reasons indicated by the respondents as the prompts for alcohol intake were considered as perceived risk factors for relapse. Tuskey's HSD test was used as the Post Hoc test. The comparison revealed significant differences between the prompts: stress, peer pressure, idleness, triggers, unrealistic beliefs and boredom, cravings ($M = 16.50$, $SD = 15.61$), family problems, experiencing rejection, loss and grief, lack of empathy, and unresolved issues, and depression. The results show a significant impact of prompts for alcohol intake.

The current study supports a South African study by Swanepoel et al. (2016) with a small sample ($n = 44$) which reported boredom as a statistically significant risk factor. However, in agreement with the current study, peer pressure, lack of ability to cope with triggers, and experienced negative emotional states were found to be non-significant risk factors for relapse. On the other hand, the results of the current study differ from the findings of a study in Rwanda by Kabisa et al. (2021) whereby peer pressure and psychological stress were found to be significant risk factor for relapse.

Among the perceived risks for relapse were age-related factors. A simple regression analysis was conducted on age-related factors to predict their value as risk factors based on the number of participants' relapses. A non-significant equation was found. Therefore, age-related factors were not significant risk factors for the respondents in this study. This supports the Mauritian study by Ramsewak et al. (2020) that found a non-significant relationship between the age of onset versus relapse. These findings possibly endorse addictive effect and augment withdrawal symptoms *vis a vis* the justification in individuals' relapsing. Similarly, in a Chinese study, Rongbin et al. (2016) found that age of onset was not a significant risk factor among individuals who had relapsed when compared to those who had not relapsed. Similarly, Arun et al. (2020) found that age of onset was not a significant risk factor for relapse. This indicates that age of onset has been found in several current studies not to be a significant risk factor for relapse.

The respondents' age variable indicated that it was not a significant risk factor for relapse. The results of the current study support the findings of a similar study in Rwanda by Kabisa et al. (2021) whereby age was found to be a non-significant risk factor for relapse.

In this study, consuming beer was found to be a statistically significant risk for relapse among the respondents. This finding supports the study by Hillemacher et al. (2005) who reported a significant influence on the amount of beer on craving but no significant influence on the amount of wine or spirits; beer consumption significantly predicted cravings. Beer consumption as a significant risk factor can be explained by its association with higher withdrawal cravings (Hillemacher et al., 2005). Literature supports the role of craving as an important contributor to relapse in alcohol consumption as well as the success of treatments that are focused on craving reduction. Interestingly, only beer consumption was reported to significantly impact drinking driver death rates (increasing drinking driving death rates by 23%) in Canada unlike wine or whisky consumption (Mann et al., 2017). These findings may be explained by beer having higher levels of folate compared to other alcoholic beverages (Hillemacher et al., 2009). Additionally, the hypothalamic-pituitary-adrenal (HPA) axis dysregulation related to beer may explain the beverage-dependent differences in craving and relapse.

Conclusion

This study concludes that people who have experienced physical abuse, who drink beer as well as the unrealistic beliefs held by these individuals are a greater risk for relapse. On a community and individual level, efforts to educate individuals on beer consumption and the relationship that exists with relapse would help build capacity and reduce relapse rates. As such a recommendation is made to the government to regulate the consumption of beer and beer products and promoting the delay of alcohol consumption on a policy level. Further, rehabilitation centers should come up with programs targeting cognitive restructuring to change the beliefs of individuals with problematic alcohol use. It would also be important for the programs to target soft skills, including time management, to address boredom and build resilience among the individuals.

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