

* This English manuscript is a translation of a paper originally published in the *Psychiatria et Neurologia Japonica*, Vol.124, No.8 p.515-532, which was translated by the Japanese Society of Psychiatry and Neurology and published with the author's confirmation and permission. If you wish to cite this paper, please use the original paper as the reference.

Original Article

Three-year Prognosis of Abstinence in Outpatients with Substance Use Disorder after First Visit: Examining the Influence Factors Associated with Duration of Abstinence by Substance of Abuse: Alcohol, Illegal Drugs, and Prescription and Over-the-counter Medications

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Psychiatria et Neurologia Japonica 124: 515-532, 2022

Abstract

Previous studies reported that clinical presentations of patients with substance use disorder (SUD) have different forms depending on the substance of abuse; however, the difference in treatment prognosis due to the substance of abuse has not been clarified. The aim of this study was to compare the duration of abstinence of patients with SUD by substance of abuse and to examine associated factors using a 3-year prognosis survey after their first visit to an addiction clinic.

Subjects: SUD patients who first visited the Kanagawa Psychiatric Center Addiction Clinic (Japan) between May 2015 and April 2018 were asked to complete a series of self-administered questionnaires including 17 items concerning adverse childhood experiences (ACEs), the Sense of Trust Scale, Sense of Rejection Scale, Sense of Coherence Scale, and screening for addiction severity. Three years after the first visit, they were asked to respond to a prognostic survey to investigate their longest period of abstinence and their living conditions during the three years. A total of 711 patients responded to self-administered questionnaires, and of them, 397 patients responded to the prognostic survey. Respondents of the prognostic survey were divided into three groups according to the common substances of abuse: group 1 (alcohol, n=223), group

2 (Illegal drugs, n=129), and group 3 (prescription and over-the-counter medications, n=45). We plotted Kaplan-Meier curves, and conducted log-rank tests to examine and compare abstinence periods for each group. To investigate the factors associated with relapse to alcohol or drug abuse, we performed a Cox proportional hazard regression model.

Results: Estimated median abstinence period during the three years of groups 1,2, and 3 was 6 months (95% confidence interval: 3.83-8.17), 32 months (95% confidence interval could not be estimated due to relapses), 12 months (95% confidence interval: 9.39-14.61), respectively. The duration of the abstinence period of group 1 was significantly shorter than that of group 2 ($p<.01$), and group 3 was also significantly shorter than group 2 ($p<.01$). There was no significant difference between group 1 and group 3. Multivariate analysis by Cox proportional hazard model confirmed that in group 1, a history of addiction treatment, continued outpatient treatment, and continued participation in self-help groups were inhibiting factors of relapse, and suicidal behavior in the last three years was a risk factor for relapse. In group 2, male patient, past history of chronic physical disorder, childhood bullying, childhood neglect, and loss of financial independence in the last three years were risk factors for relapse. In group 3, childhood separation from one or both of parents, chronic physical disorder in their family during childhood, high scores of distrust in the Sense of Trust Scale at first visit of addiction clinic, and history of suicidal behavior in the last three years were risk factors.

Conclusion: The alcohol group and the prescription and over-the-counter medications group, for which the substance of abuse is relatively easy to obtain, had a different duration of abstinence from the illegal drug group. Therapeutic tasks should be tailored to each group according to the difference in clinical pictures and prognostic factors. It is necessary to alleviate the distrust that comes from childhood adversity experiences and build therapeutic alliances for better treatment retention. Motivating patients to participate in self-help groups, providing support for economic independence, and responding empathically to suicidal ideation are also essential in preventing relapse of SUD patients.

Keywords: substance use disorder, addiction clinic, long-term prognosis, duration of abstinence

Introduction

In substance use disorders, patients experience significant problems due to excessive use of alcohol and other drugs, but they are unable to stop even if they desire to. Because of these impairments in control, traditional treatment policies have emphasized abstinence from alcohol and drugs. Such policies have undergone a transition in recent years, and the New Diagnostic and Treatment Guidelines for Alcohol and Drug Use Disorders, updated in 2018, state that continued sobriety and abstinence are the most stable and safest goals, but also that if the target of dependence is a case involving alcohol or prescription drugs and the patient is unable to stop drinking or abusing drugs immediately after starting treatment, then reduction in use can also be a goal with an emphasis on continuing treatment.⁴⁶⁾ It may become increasingly necessary to examine indicators of recovery from multiple perspectives, not limited to sobriety and drug abstinence rates. In Japan, however, few empirical studies have followed the prognosis of patients with substance use disorders due to the limited number of medical institutions specializing in such disorders, and there are insufficient data on continued sobriety and drug abstinence, indicators of recovery. By examining how long patients who visit specialized treatment facilities can stay sober, how difficult it is to live without alcohol or drugs, and

what kind of support can help stabilize their condition, a long-term prognostic survey can be conducted, which may lead to a better outlook on the course of treatment and development of improved treatment methods.

With regard to the prognosis associated with alcohol use disorders in Japan, since the late 1970s, results of sobriety rates have been reported from follow-up studies of patients, mainly those who received inpatient treatment. Rates of sobriety after inpatient treatment are 28-32% at 2-3 years, 22-23% at around 5 years, and 19-30% at 8-10 years, generally stabilizing at 20-30% after the 5th year, although many relapse early after discharge.³⁴⁾ The following methods are used to track patients: follow-up of their drinking behavior during the first year after discharge,⁴³⁾ evaluation of the drinking status of patients who have been discharged from hospital for more than one year excluding deaths and cases with significant changes,⁴⁸⁾ annual prognostic survey to calculate the number of months of complete sobriety since discharge,⁴⁹⁾ evaluation of the drinking status during the year prior to the survey, and comparison by year of discharge.⁵²⁾

Although there have been few studies on the prognosis associated with abstinence from drug use disorders, a report of 45% of those who had not

abused in the past 3 months from the time of a prognostic survey conducted 3 years after discharge²¹⁾ and a report of 56.4% of 110 methamphetamine-using psychiatric patients followed 3 to 8 years after discharge who had not used any methamphetamines in the past year²⁶⁾²⁷⁾ suggested that the associated prognosis is relatively more favorable than that of alcohol use disorders. As for non-medical institutions, a survey was conducted involving users in the National Center of Neurology and Psychiatry's DARC follow-up study, a nationwide rehabilitation facility for recovering drug addicts, through the "DARC follow-up study," a survey research project by the National Institute of Neurology and Psychiatry. The survey revealed that the abstinence rate of users whose main substance of dependence was drugs was 61.8% after 24 months, and that the abstinence rate of DARC users was at a high level compared with other past research reports.²⁵⁾

Factors contributing or related to sobriety and abstinence were also examined from various perspectives. It is often pointed out that older patients are more likely to continue sobriety and abstinence, and that the prognosis for younger patients is poor.¹⁵⁾⁴⁸⁾⁵²⁾⁵³⁾ Some reports suggest that being motivated for treatment and aware of the disease,³⁵⁾⁴⁸⁾ continuing outpatient

treatment,⁷⁾¹⁰⁾¹⁴⁾⁵²⁾ participation in self-help groups,⁷⁾¹⁹⁾³⁵⁾⁴³⁾ having a spouse,³⁵⁾⁵²⁾⁵³⁾ and having a criminal record or history of juvenile delinquency or social deviant behavior⁴⁰⁾⁴⁸⁾⁵²⁾ are associated with continued sobriety and abstinence. While some reports indicate that employment is associated with higher rates of sobriety and abstinence,³⁵⁾⁴⁰⁾⁴⁹⁾⁵²⁾ others point out that those who have stopped abusing methamphetamines include a group showing poor social adjustment, such as those who do not hold jobs for long,²⁶⁾ and that there is not necessarily a good correlation between the social adjustment status and employment. A study found no association between familial and social background factors and the drinking-related prognosis of young patients with alcohol use disorders.¹⁵⁾

Alcohol and drug use disorders differ in terms of life background and treatment continuity, and so treatment strategies should be tailored to the characteristics of each disorder.²²⁾³⁷⁾ There are several types of major drugs of abuse in substance use disorders. According to a nationwide mental hospital survey on substance-related psychiatric disorders conducted in 2020, the most common drugs of abuse were methamphetamines, followed by sleeping pills/anxiolytics and over-the-counter drugs,³¹⁾ and the proportion of

pharmaceutical product-related problems is increasing. Use disorders involving illegal drugs, mainly methamphetamines, and use disorders concerning pharmaceuticals, mainly prescription and over-the-counter drugs, are associated with different life backgrounds and psychosocial characteristics.⁴⁾²⁴⁾ Different clinical presentations and therapeutic interventions depending on the primary substance of abuse would be expected to lead to different prognoses regarding sobriety and abstinence, but few studies have compared the prognostic characteristics associated with different substances of abuse. In May 2015, we began a questionnaire survey of first-time patients at the Kanagawa Psychiatric Center (hereafter referred to as "our clinic"), consisting of: severity screening, adverse childhood experiences, and psychological characteristics scale. We then reported on the testing of a hypothetical model in which the accumulation of adverse childhood experiences mediates distrust, sense of rejection, and reduced stress-coping skills, determining the severity of substance use disorders, with the two groups of alcohol and drug use disorders.²⁰⁾ This survey was continued, and for those who responded, a three-year prognostic study was initiated in May 2018, beginning with those who had been there for 3 years after the first

visit, and a 5-year prognostic survey was initiated in May 2020. In this study, we compared the duration of continued sobriety for alcohol use disorders or abstinence from drugs for substance use disorders (hereafter referred to as "abstinence") based on the results of the three-year prognostic survey, and examined the influencing factors. In this study, patients with substance use disorders were dichotomized into two groups: those who used illegal drugs and those who used prescription or over-the-counter pharmaceutical drugs. Three groups were then compared: those with alcohol use disorder, substance use disorder from abuse of illegal drugs, and substance use disorder from abuse of prescription or over-the-counter drugs. Most prognostic studies of substance use disorders to date have started after the discharge of hospitalized patients. However, in this study, we used the date of the first visit as the starting point, considering that there are cases in which the patient is not hospitalized even though the condition may require hospitalization, and cases in which the patient is not hospitalized after the first visit when the condition is relatively mild. The duration of abstinence was the longest period of abstinence within a three-year period, since there are a number of patients who repeatedly abstain but then use again.

I. Subjects and Methods

1. Study Period and Subjects

The study population consisted of individuals who made their first visit to our special outpatient department for addiction between May 2015 and April 2018, whose primary diagnosis at the time of their first visit was substance use disorder, and who consented and responded to both the initial and three-year prognostic surveys. Of the 1,467 first-time patients between May 2015 and April 2018, 1,027 were deemed competent to consent to the survey request and respond to the questionnaire survey, resulting in 821 substance use disorder patients responding to the initial survey. At the time of the survey request, the prognostic survey to be conducted at 3 and 5 years in the future was explained to them, and the 711 subjects who also agreed to the prognostic survey were selected for the three-year prognostic survey, which was conducted between May 2018 and April 2021, three years after the initial visit for each subject. The 397 participants (286 males and 111 females, mean age: 44.2 ± 11.9) who responded to the three-year prognostic survey and whose duration of sobriety could be ascertained were included in the final analysis of this study.

The hospital where the survey was conducted is a prefectural specialized

psychiatric institution located in the Tokyo metropolitan area, and treatment of patients with substance use disorders is conducted in the outpatient dependency clinic, one of the specialized treatment departments. As is common for both alcohol and drug use disorders, treatment policies do not necessarily set sobriety as the absolute goal of treatment, but rather support the patient's intention to abstain from alcohol or drugs if he/she so desires. However, the concept of harm reduction,¹¹⁾ which has been the focus of much attention in recent years in the treatment of substance use disorders, is emphasized, such as prioritizing the continuation of treatment when the risk of treatment interruption is anticipated if sobriety is strongly recommended. Harm reduction is "the practice of policies and programs aimed at minimizing the negative health, social, and legal consequences of drug use," rather than aiming at cessation or reduction of drug use, as was the aim in the 1970s in Europe in response to the spread of HIV infection caused by heroin and other drugs of abuse. Although syringe exchange or substance substitution programs have not been introduced in Japan, the philosophy is becoming widespread in addiction treatment in the form of "harm-reduction-conscious response,"⁵⁰⁾ "listening to the problems they are

facing (even if they cannot get sober) and continuing to support them without denying them,"³⁹⁾ and others. Patients with substance use disorders may have difficulty fully trusting and consulting others, regardless of the type of substance of abuse or whether it is legal or illegal. We take such cases into consideration, and even if the patient's desire is not sobriety or abstinence, the clinic aims to build a relationship where the patient can discuss these issues during ongoing visits so that treatment can include the physical and mental symptoms resulting from substance abuse, social problems, and the patient's difficulties and desires regarding treatment.

2. Methods and Items of the Survey

1) Survey at Initial Visit

As basic attributes of the initial survey respondents, we obtained information from their medical records regarding their diagnosis and primary substance of abuse, sex, age at initial visit, years of education, age at the time of substance use habituation, and whether they had a history of specialized addiction treatment prior to their initial visit to our clinic. We obtained information on the living background at the time of the initial visit, including the presence or absence of a family member or spouse living with the patient,

occupation, financial independence, and receipt of welfare public assistance.

The questionnaire survey at the initial visit was identical because it was a continuation of the previously reported survey.²⁰⁾ The staff in charge of the preliminary examination recommended the survey to the subjects of the study prior to the start of the first visit, and a self-administered questionnaire was administered to patients who gave verbal and written consent to the survey. The survey consisted of a questionnaire on childhood adversity, a screening scale for substance use disorder severity, and a scale for psychometric characteristics. In investigating the adverse childhood experiences of patients with alcohol use disorders, 17 items⁸⁾ were selected and added based on expert consensus among specialists in addiction medicine, referring to the ACE (Adverse Childhood Experiences) Study questionnaire.⁹⁾ Specifically, we used a "yes" or "no" response method for the following 17 items: chronic physical illness, poor school performance, bullying, prolonged absence from school, history with the police, strict discipline by caregivers, excessive expectations, chronic physical illness in family, mental illness in family, substance abuse in family, poverty, child neglect, physical abuse, psychological abuse, sexual abuse, separation from parents, and suicide of family members living

with the patient. The presence/absence of each item concerning adversity and their cumulative number were calculated. For the measurement of substance use disorder severity, the Alcohol Use Disorders Identification Test (AUDIT)¹⁶⁾ was administered to patients whose primary substance of abuse was alcohol, and the Drug Abuse Screening Test (DAST)-20⁴⁵⁾ was administered to those whose primary substance of abuse was other drugs to measure the severity of drug abuse and dependence. AUDIT consists of 10 items, with a minimum total score of 0 and maximum total score of 40, with a score of 12 or higher being the cutoff point for problem-drinking and 15 or higher being the cutoff point for alcohol dependence.¹⁷⁾ DAST-20 consists of 20 items with a minimum score of 0 and maximum score of 20. A score of 0 points indicates "no problem," 1 to 5 points: "low," 6 to 10 points: "intermediate," 11 to 15 points: "substantial," and 16 to 20 points: "severe."³²⁾ Psychological characteristics were assessed using the sense of trust,¹⁾ sense of acceptance/rejection,⁴⁷⁾ and Sense of Coherence (SOC).³⁾⁵⁴⁾ The SOC scale was developed by Amagai to measure interpersonal trust in a multidimensional manner, and consists of three factors: "trust in oneself," "trust in others," and "distrust." In this study, we focused on "distrust," an 8-item, 4-point scale with

1 to 4 points for each item, and the minimum score being 8 points and maximum being 32 points; the higher the score, the greater the distrust. Regarding the standard values, Amagai, the scale creator, reported the mean and standard deviation for each age stage and item. The mean and standard deviation of the scale scores for the eight items were calculated as 17.2 ± 2.4 for men and 17.5 ± 2.3 for women in their 30s, and 17.3 ± 2.5 for men and 17.6 ± 2.3 for women in their 40s.²⁾ The sense of acceptance conceptualizes the feeling that "I am valued by others," while the sense of rejection conceptualizes the feeling that "I am neglected or ignored by others." In this study, we focused on the "sense of rejection," an 8-item, 4-point scale with 1 to 4 points for each item, and the minimum score being 8 points and maximum being 40 points; the higher the score, the higher the sense of rejection. The mean values reported by Sugiyama and Sakamoto when they created the scale were: 17.37 ± 5.13 for males and 16.33 ± 5.40 for females.⁴⁷⁾ SOC is a scale that measures the sense of being able to cope with stress based on the belief in consistency and stability in the world, proposed by Antonovsky, A. from the standpoint of the salutogenesis. In the present study, the Japanese translation of the SOC 13-item 7-point scale was used.⁵⁴⁾ The minimum score was 13 points and

maximum was 91 points, with higher scores indicating higher stress-coping ability and mental and physical health. The standard value is 59.0 ± 12.2 , as reported by Togari et al.⁵¹⁾

2) Prognostic Survey

The medical records were used to determine whether the patients were continuing treatment at our hospital and the number of months they had been attending. Those who were continuing to visit the hospital were interviewed on the day of their visit, and those who were hospitalized were interviewed on the hospital ward, with each taking about 5 to 10 minutes. Those who were not continuing treatment due to discontinuation, transfer, or termination of treatment were interviewed by telephone survey. The telephone survey was conducted by calling the telephone number recorded at the time of obtaining consent. However, 27 patients whose attending physicians decided in advance to discontinue the study based on their medical conditions, and 18 patients whose deaths were known before the start of the prognostic survey, were not given a prognostic survey, and their prognosis was considered as unknown. A total of 246 patients, including those who refused to respond to the survey, those who did not return phone calls, and those who were contacted by phone

three times within one month but did not respond, were not surveyed, and their prognosis was therefore considered unknown. In addition, 15 persons whose proxy responses were obtained from family members or facility staff but who were deceased, and 10 persons whose progress over the past three years or the duration of sobriety could not be ascertained because they were hospitalized in another hospital, in prison, or missing, were excluded from the analysis as having an unknown prognosis. A common, formulated questionnaire was developed for both the interview and telephone surveys, asking questions about the following items:

(i) Presence of family members living with the patient [if yes, family status (spouse, parent, child, or other); if no, whether the patient lives alone or in an institution].

(ii) Employment status [if employed, number of months of continuous employment at the time of the survey; if unemployed, financial state (family support, welfare, other)].

(iii) Dependent on substance of abuse at time of survey (if yes, duration and frequency of abuse; if no, duration of cessation of abuse).

(iv) Addictive behaviors in the 3 years since the initial visit (if yes, kind of addictive behaviors).

(v) Number of months of longest continuous sobriety or abstinence from alcohol or drugs in the 3 years since the first visit.

(vi) Visiting other hospitals at the time of the survey (if yes, department and name of disease), and hospitalization in other hospitals in the 3 years since the initial visit (if yes, duration and number of hospitalizations, and department and name of disease on each hospitalization).

(vii) Participation in self-help groups in the 3 years since the initial visit (if yes, number of months of participation, type of self-help group, and duration and frequency of participation).

(viii) Arrests in the 3 years since the initial visit (if yes, the charge and period in prison).

(ix) Suicide-related behaviors (self-harm or attempted suicide) in the 3 years since the initial visit.

From the result of these interviews, we calculated the number of months of continuous sobriety and number of patients who had been sober for three years as variables related to sobriety. The following information was collected as the course of treatment: the number of months of continuous attendance at this hospital, whether the patient is still undergoing treatment at our hospital 3 years after the initial visit, whether the patient has stopped visiting our hospital, the number of months of participation in a self-help group, whether the

patient has participated in a self-help group, whether the patient is still participating in a self-help group 3 years since the initial visit, whether the patient has been hospitalized at our hospital during the past 3 years, and whether the patient has been hospitalized at other hospitals. As backgrounds to their lives, we summarized whether they had experienced marriage, separation from their spouse, establishment of a foundation of economic independence such as employment, loss of a foundation of economic independence such as job loss, and suicide-related behavior during the three-year period.

The number of months of continuous sobriety was defined as the number of months of the longest continuous period of sobriety if the substance of abuse was alcohol or the longest continuous drug sobriety if the substance of abuse was drugs, from the first visit to time of the prognostic survey. The number of months for those who had abused continuously for 3 years was 0, and the number of months for those who had abstained from alcohol and drugs for 3 years was 36. However, if there was a period of incarceration during the three-year period in which the person was forcibly incapable of drinking or using again, the number of months of continuous sobriety for the longest period was used, excluding the period of

incarceration. For those whose dependent substance was included in their prescription medication, they were considered to be continuing drug sobriety if they were taking the medication as prescribed by the physician at the medical examination and not abusing it.

The number of months of visits to the hospital from the date of the first visit to that of the prognostic survey was calculated regardless of the frequency of visits, and in the case of a transfer or termination of treatment, the number of months of visits was defined as the period from the date of the last visit. If the patient did not visit the clinic for more than 6 months before the next appointment, it was considered as self-termination, and the period from the first to last visits was counted as the number of months of visits. If the patient visited the hospital only once for the initial visit, the number of months of continuous visits was set as 0. If the patient visited the hospital on the survey date 3 years after the initial visit, or if the patient had a history of outpatient visits to our clinic and was hospitalized on the survey date, the patient was considered to be a continuing patient and the number of months of continuous visits was counted as 36. For the number of months of self-help group participation, we calculated the period of time that respondents

indicated that they attended a particular self-help group continuously, regardless of the frequency of hospital visits or self-help group participation. If the patient attended more than one self-help group, the total number of months in each group was calculated, excluding overlapping periods of attendance at the same time. Participation was counted even if the respondent attended a self-help group from a hospital or facility. Participation in online self-help groups was also included. Regarding changes in their lives, if there was a change in the three-year period regarding the presence or absence of a spouse living with them when asking about items related to family members living together, the experiences of marriage and loss of a spouse were considered "yes." The presence or absence of financial independence was checked from the items on jobs and on the basis of financial independence, and if there was a change over three years, the experience of establishing financial independence and experience of loss of financial independence were defined as "Yes."

3. Methods of Analysis

1) Comparison of Alcohol, Illegal Drug, and Prescription/over-the-counter Drug Groups

The subjects were classified into three groups based on their primary diagnosis

and main substance of abuse. Those who were diagnosed with alcohol use disorders and did not abuse other drugs were classified into the alcohol group, those who were diagnosed with other drug use disorders and whose main substance of abuse was illegal drugs or multiple drugs including illegal drugs were classified into the illegal drug group, and those whose main substance of abuse was prescription drugs or over-the-counter drugs or both and did not include illegal drugs were classified into the prescription/over-the-counter drug group. In the case of both alcohol and drug abuse, patients were considered to be in the drug group because of the diagnosis of polydrug dependence. If the drugs of abuse included illegal drugs, patients were included in the illegal drug group; if the drugs of abuse included only prescription or over-the-counter drugs and did not include illegal drugs, patients were classified in the prescription/over-the-counter drug group. The prognostic probability of each group was calculated based on the number of subjects with a known prognosis (included in the analysis) and those with an unknown prognosis (excluded from the analysis), and the three groups were compared using the χ^2 test. Descriptive statistics for each survey item were calculated, and the three groups were compared using the χ^2 test for categorical variables and

Kruskal-Wallis test for continuous variables.

2) Evaluation of 3 Years of Abstinence

Survival analysis was used to evaluate the duration of abstinence from alcohol/drugs and influencing factors. Survival analysis evaluates the time from the start to end of observation, determining the occurrence of a specific event such as death or disease onset. It is a method originally used to determine life and death, and can be applied to any event that can be categorized as "happen/not happen" as an objective variable for which a time factor should be considered. In this study, survival analysis was conducted with the date of the first visit as the start date of observation, the observation period as 3 years, the event as relapse to alcohol or drug use (hereafter referred to as relapse), and the survival variable as the number of months of abstinence, with censoring when the patient had been sober for 3 years.

(1) Comparison of Three-year Abstinence Continuation Rates Among Groups

Survival curves were generated using the Kaplan-Meier method for the alcohol, illegal drug, and prescription/over-the-counter drug groups, and the three-year abstinence continuation rate (cumulative survival rate), median, and quartile point estimates were calculated. The median was the time it took for half

of the subjects in each group to relapse, and the quartile was the time it took for 25 and 75% of the subjects to relapse. Comparisons of the three groups' adversity continuation rates were made by log-rank tests, with paired pairwise comparisons in the case of significance.

(2) Examination of Factors Influencing the Time to sobriety

To analyze factors that influence the time from the start of abstinence until a break in sobriety and the onset of relapse, Cox proportional hazards models were used to calculate the average hazard ratio (HR) and 95% confidence interval (CI) over the three-year follow-up period. HR indicates the likelihood of an increase in the risk of the target variable when the explanatory variable increases, with HR greater than or equal to 1 indicating an increased risk of an event and HR less than 1 indicating a decreased risk of an event. If 95% CI does not include 1, it is considered significant at the 5% level. First, univariate Cox regression analysis was performed to evaluate the effect of each variable alone on the number of months to relapse to alcohol or drug use for the basic attributes obtained from the initial visit and prognostic surveys, the scale scores from the questionnaire, and information on patients' current status and progress 3 years after the initial visit. In Cox regression analysis, only one average

HR is calculated based on the assumption that HR is constant over time. However, if there are multiple groups with different survival distributions due to differences in background factors, the assumption may break down due to bias caused by differences in dependence on time in different groups. In order to eliminate this bias, a Cox regression stratified model can be applied to evaluate HR of the entire subject population after dividing this population into multiple strata and applying the Cox proportional hazards model. In this study, too, a univariate Cox regression stratified model was applied to account for the possibility that the number of months of abstinence from alcohol or drugs may differ depending on the substance of abuse, and hazard ratios for each variable were calculated by specifying the main dependent substance (alcohol, illegal drug, and prescription/over-the-counter drug groups) in the strata.

Next, multivariate Cox regression models were run for each of the three groups, enabling multiple factors to be evaluated, in order to examine the characteristics of items affecting the duration of abstinence in the alcohol, illegal drug, and prescription/over-the-counter drug groups, respectively. The explanatory variables were age, sex, years of education, age at habituation,

history of addiction treatment before the first visit, presence or absence of each of the 17 adverse childhood experiences, addiction severity screening scale score, distrust scale score, SOC score, sense of rejection scale score, marriage within 3 years, separation from spouse, establishment of financial independence, loss of financial independence, suicide-related behavior, number of months of hospital visits, number of months of continued employment, and number of months of participation in self-help groups. The explanatory variables were selected using the increasing variable method (likelihood ratio test), in which the explanatory variables that were most strongly related to the objective variable were first entered. The significance of the regression equations created with the selected variables was examined with the model χ^2 test. The following were excluded from explanatory variables in the multivariate analysis: cumulative frequency, which is the total of 17 adverse childhood experiences, the number of cohabiting spouses who were the same at the time of the initial visit and at the time of the prognostic survey, the number of welfare recipients or those with financial independence, whether the patient has continued treatment at the hospital for more than one visit, self-interruption of treatment at the hospital, months of self-help

group participation and overlapping self-help group participation experience, and self-help group participation 3 years after the initial visit. In addition, admission to our hospital, admission to another hospital, arrest, and imprisonment were excluded from the explanatory variables in the multivariate analysis because they are unlikely to be considered as influencing factors since they are events that occur as a result of relapse in most cases.

The statistical software used was SPSS Statistics 26, and the significance level was set at $P=0.05$.

4. Ethical Considerations

This study was conducted after obtaining approval from the ethics committee of Kanagawa Psychiatric Center. Subjects were administered a self-administered survey at the time of their first visit, consent for the long-term prognosis survey, which was to be conducted by telephone or interview, was obtained through verbal and written explanations, and consent for publication was obtained by signing a consent form.

II. Results

1. Characteristics of the Alcohol, Illegal Drug, and Prescription/over-the-counter Drug Groups

Of the 711 subjects who were included in the prognostic survey, 397 were

included in the final analysis, and the overall prognostic rate for abstinence from alcohol and drugs was 55.8%. The percentage of patients with a known prognosis by substance of dependence was 223 of 369 (60.4%) in the alcohol group, 129 of 264 (48.9%) in the illegal drug group, and 45 of 78 (57.7%) in the prescription/over-the-counter drug group. The χ^2 test showed that there was a significant difference in the proportion of those with a known prognosis in the three groups ($\chi^2=8.47$, $df=2$, $P<0.05$), and residual analysis showed that the alcohol group was significantly higher and the illegal drug group lower. Among the subjects with drug use disorders, 79 had a primary diagnosis of methamphetamine dependence, 10 had marijuana dependence, 2 had dangerous drug dependence, and 38 had multiple-drug dependence including illegal drugs. In the prescription/over-the-counter drug group, 18 had a primary diagnosis of prescription drug dependence and 6 had over-the-counter drug dependence. There were 21 patients with multidrug dependence who abused more than one prescription drug, over-the-counter drug, or alcohol.

Descriptive statistics of the items in the initial visit and prognostic surveys are shown in Table 1. The number of months of continuous sobriety was significantly higher in the illegal drug

group than in the alcohol and prescription/over-the-counter drug groups, and the percentage of patients who remained sober for 3 years was higher in the illegal drug group. Regarding basic attributes, age at the first visit was significantly older in the alcohol group than in the other two groups, and regarding sex, the percentage of males was significantly higher in the alcohol group, and the percentage of females was significantly higher in the prescription/over-the-counter drug group. The number of years of education was significantly lower in the illegal drug group than in the other two groups, and the age at substance use habituation was younger in the illegal drug group than in the alcohol group. The percentage of those who had received specialized treatment for addiction prior to their first visit to our hospital was not significant. The percentage of patients who had a spouse living with them and who were financially independent at the time of their first visit was higher in the alcohol group than in the other groups. The percentage of patients receiving welfare support was higher in the illegal drug group.

Regarding adverse childhood experiences, the percentage of “yes” responses was higher in the illegal drug group for the items of separation from parents, poor school performance,

history with the police, chronic physical illness, and child neglect. The percentage of respondents with a family member with mental illness was higher in the prescription/over-the-counter drug group. Over-expectation and psychological abuse were less frequent in the alcohol group. Prolonged absence, bullying, harsh discipline, chronic physical illness of family members, poverty, suicide of family members living together, physical abuse, and sexual abuse were not significant in any group. The cumulative frequency of childhood adversity was significantly higher in the illegal and prescription/over-the-counter drug groups than in the alcohol group.

The AUDIT score, a screening tool for alcohol abuse, was calculated only for the alcohol group, and the mean score was 24.2 ± 8.5 . The DAST-20 score, which screens for drug abuse, was calculated only for the illegal and prescription/over-the-counter drug groups, with no significant difference between them. In terms of psychological measures, scores on distrust and rejection scales were significantly higher in the prescription/over-the-counter and illegal drug groups compared with the alcohol group, and SOC scores, which indicate stress-coping skills, were significantly higher in the alcohol group compared with the

illegal and prescription/over-the-counter drug groups.

The results of the three-year prognostic survey are shown in Table 2. There were no significant differences in the number of months of continuous attendance at the hospital, participation in self-help groups, or continuation of current employment. The percentages of patients who had participated in a self-help group at least once at the time of the prognostic survey, those who were participating at the time of the survey, those who were continuing treatment at our hospital, and those who had self-terminated their attendance at the hospital during the three-year period were all non-significant. The percentage of admissions to this hospital during the three-year period was higher in the alcohol and prescription/over-the-counter drug groups, and the percentage of admissions to other hospitals was higher in the alcohol group. The illegal drug group was more likely to have been arrested or imprisoned, to have married, and to have established financial independence during the three-year period. There were no significant differences between groups in the rates of spousal separation or loss of financial independence, and the alcohol group was more likely to have continued to work at the time of initial diagnosis at

the three-year prognostic survey. The rate of suicide-related behaviors such as self-harm and suicide attempts was higher in the prescription/over-the-counter drug group.

2. Evaluation of Three-year Abstinence

1) Comparison of the Number of Months and Rate of Continuous Abstinence

Survival curves are shown in the figure, with the horizontal axis representing the longest period of time between the start of abstinence and relapse to alcohol or drug use in 3 years (survival), and the vertical axis representing the rate of continued abstinence (cumulative survival rate). At the end of 36 months, the sobriety rate for the alcohol group was 14.3%, with a median estimate of 6 months (95% CI: 3.83-8.17), and abstinence rate for the illegal drug group was 46.5%, with a median of 32 months (95% CI: not calculated). The abstinence rate for the prescription/over-the-counter drug group was 20.0%, with a median of 12 months (95% CI: 9.39-14.61). For each group, the periods of time until the abstinence continuation rate reached 75, 50, and 25% were calculated. The alcohol group was 75% sober at 1 month, 50% sober at 6 months, and 25% sober at 24 months; the illegal drug group was 75% sober at 12 months and 50% sober at 32 months; and the 25th percentile point was not calculated because it was

greater than 25% at 36 months at the end of the observation period. For the prescription/over-the-counter drug group, the percentages were 75% at 2 months, 50% at 12 months, and 25% at 32 months. The log-rank test showed that the three groups had significant rates of abstinence from alcohol and drugs ($\chi^2=51.65$, $df=2$, $P<0.01$). Pairwise comparisons showed that the alcohol and prescription/over-the-counter drug groups had significantly shorter periods of abstinence compared with the illegal drug group (alcohol group-illegal drug group: $\chi^2=51.59$, $P<0.01$, illegal drug group-prescription/over-the-counter drug group: $\chi^2=14.41$, $P<0.01$). There was no significant difference between the alcohol group and over-the-counter prescription drug group ($\chi^2=1.54$, $P=0.215$).

2) Factors that Affect the Time Until Drinking or Reusing Drugs Again

Hazard ratios from univariate stratified Cox regression models are shown in Tables 1 and 2. The single variables that were significant for an increased risk of events common to the three groups with respect to drinking and using drugs again were loss of financial independence (HR: 1.535, 95% CI: 1.067 to 2.209, $P<0.05$), suicide-related behavior (HR: 1.518, 95% CI: 1.098 to 2.100, $P<0.05$), self-interruption of current hospital visits

(HR: 1.641, 95% CI: 1.284-2.096, $P < 0.01$), experience of arrest (HR: 2.320, 95% CI: 1.246-4.319, $P < 0.01$), and prison time (HR: 3.160, 95% CI: 1.323-7.547, $P < 0.05$). Factors that reduced the risk of events included older age at the first visit (HR: 0.987, 95% CI: 0.977-0.998, $P < 0.05$), older age at habituation (HR: 0.983, 95% CI: 0.969-0.998, $P < 0.05$), more months of self-help group participation (HR: 0.980, 95% CI: 0.970 to 0.990, $P < 0.01$), and currently participating in a self-help group after 3 years (HR: 0.640, 95% CI: 0.466 to 0.881, $P < 0.01$), with all being significant.

Table 3 shows the results of multivariate Cox proportional hazards models for the alcohol, illegal drug, and prescription/over-the-counter drug groups, respectively. Because 24 patients in the alcohol group, 14 patients in the illegal drug group, and 3 patients in the prescription/over-the-counter drug group were excluded due to missing values in the explanatory variables, the number of cases in the Cox hazard analysis was 199 in the alcohol group, 115 in the illegal drug group, and 42 in the prescription/over-the-counter drug group. For the alcohol group, having a history of specialized treatment for addiction before the first visit (HR: 0.675, 95% CI: 0.496 to 0.917, $P < 0.05$), months of participation in self-help groups (HR: 0.974, 95% CI: 0.958 to 0.989, $P < 0.01$), and months of

attendance at our hospital (HR: 0.983, 95% CI: 0.973 to 0.994, $P < 0.01$) were selected as factors that inhibit re-drinking, and having suicide-related behavior during the 3 years (HR 1.770, 95% CI 1.023 to 3.061, $P < 0.05$) was selected as a risk factor for re-drinking. The model χ^2 test was performed as a criterion for model fit and was significant at $P < 0.01$. For the illegal drug group, the following were selected as risk factors for reuse: being male (HR: 2.646, 95% CI: 1.391-5.034, $P < 0.01$), having a chronic physical illness among adverse childhood experiences (HR: 1.906, 95% CI: 1.115-3.259, $P < 0.05$), adverse childhood experience of being bullied (HR: 1.893, 95% CI: 1.141-3.140, $P < 0.05$), adverse childhood experience of being neglected (HR: 2.210, 95% CI: 1.055-4.630, $P < 0.05$), and loss of financial independence in 3 years (HR: 2.680, 95% CI: 1.235 to 5.814, $P < 0.05$). The results of the model χ^2 test were significant at $P < 0.01$. For the prescription/over-the-counter drug group, the following were identified as risk factors for reuse: chronic physical illness in the family (HR: 3.463, 95% CI: 1.555-7.709, $P < 0.01$), separation from parents among adverse childhood experiences (HR: 2.971, 95% CI: 1.348-6.548, $P < 0.01$), suicide-related behaviors in 3 years (HR: 2.993, 95% CI: 1.993, 95% CI: 1.348-6.548, $P < 0.01$), and

higher distrust scale score in the initial survey (HR: 1.067, 95% CI: 1.001-1.137, $P < 0.05$). The results of the model χ^2 test were significant at $P < 0.01$.

III. Discussion

1. Characteristics of the Alcohol, Illegal Drug, and Prescription/over-the-counter Drug Groups

In this study, patients with substance use disorders were classified into three groups: alcohol, illegal drug, and prescription/over-the-counter drug groups, and their prognoses regarding continued abstinence were examined by a follow-up survey during the first 3 years after initial diagnoses. With a known prognosis rate of 55.8% and large number of unknown prognoses, the results of the study should be interpreted with caution. Of the three groups, the alcohol group had the highest rate at approximately 60%, while the illegal drug group had the lowest rate at just under 50%. In the case of the illegal drug group, there could be cases of phone unavailability due to arrest or incarceration, cases where cell phone use is prohibited in recovery facilities, etc., or cases where phone numbers have been changed to limit contact with traffickers or acquaintances who were using drugs with them. Therefore, it is believed that it was difficult to track those who were not attending our hospital by the

method of telephone surveys. The attributes in the initial visit survey were similar to those pointed out in previous studies,⁴⁾³⁷⁾ such as an older age and later age at habituation in the alcohol group, fewer years of education and earlier age at habituation in the illegal drug group, and greater proportion of females in the prescription/over-the-counter drug group. The cumulative frequency of adverse childhood experiences and psychological scale scores in the questionnaire survey at the initial visit showed that the illegal drug and prescription/over-the-counter drug groups experienced more adversity than the alcohol group, had stronger feelings of distrust and rejection, and weaker stress-coping skills than the alcohol group. Regarding the life background determined by interviews in the initial and prognostic surveys, the alcohol group showed fewer changes and disruptions in social life than the other two groups because more people in the alcohol group were married and living together, financially independent, and had continued the same job for three years, and they experienced fewer arrests and suicide-related behaviors. However, a higher percentage of patients were hospitalized in our hospital or in other hospitals after their first visit, and health problems that required hospitalization due to

addiction symptoms or physical illnesses often occurred. The illegal drug group was more likely to be single or live alone, to have no means of employment or financial independence, and to be in need of social and economic support because of the large proportion of welfare recipients. At the time of the prognostic survey three years later, a higher percentage of patients had established economic independence, such as obtaining a job, or getting married after the initial diagnosis, while a higher percentage had been arrested or served time in prison than in the other two groups, indicating that the prognosis in terms of social adaptation is likely to be polarized between good and poor due to significant environmental changes. The prescription/over-the-counter drug group had a younger average age at the time of the initial visit and a smaller proportion of economically independent persons. However, unlike the illegal drug group, the proportion of welfare recipients was small, suggesting that many of them had received assistance from family members or other sources. The possibility of having a prior or comorbid psychiatric disorder should also be considered, such as a high rate of suicide-related behavior or prior hospitalization in our hospital, or treatment for any psychiatric disorder

triggered by dependence on prescription medications.

2. Evaluation of Three-year Abstinence

1) Comparison of Three-year Abstinence Rates Among Groups

In this study, the duration of abstinence was compared based on the longest period of abstinence over a three-year period. As the traditional treatment strategy of complete abstinence for substance use disorders is changing, more patients are coming to the clinic without abstinence as a treatment goal, and it is considered that many patients have not necessarily stopped drinking or abusing drugs immediately after their first visit. At the same time, patients with substance use disorders often repeat abstinence and drinking alcohol or use drugs during the treatment process, and there may be cases in which a patient abuses alcohol or drugs immediately after the initial visit but later decides to abstain from alcohol or drugs and continues to do so. To distinguish such cases from those who did not stop abusing for 3 years, we set the starting point as the time when the patient started abstinence from alcohol/ drugs after the initial visit and the event occurrence as the time when the longest abstinence was stopped due to relapse to alcohol or drug use. If the duration and rate of sobriety were calculated strictly from

the date of the first visit to the first time of drinking and drug use, the values would be even lower, but we attempted to include cases in which patients had progressed from drinking and using drugs to sobriety again.

The alcohol group had a three-year sobriety rate of 14.3%, with a median of 6 months, and had more difficulty staying sober than the illegal drug group. The sobriety rates at 6 and 24 months were 50 and 25%, respectively, being consistent with Matsushita's finding that "the sobriety rate after inpatient treatment is 28-32% at 2 to 3 years after treatment."³⁴⁾ Suzuki's finding revealed that "the rate decreases to about 20% by 12 to 24 months (after discharge),"⁴⁹⁾ and Yamane's finding was that "the rate decreases to 20% at 2 years and 12-17% at 3 years."⁵²⁾ The three-year abstinence rate in the illegal drug group was 46.5%, with a median of 32 months, being better than that in the alcohol group. Although the subjects are different, the results of 75% for 12 months and 50% for 32 months are similar to those of the "2020 White Paper on Crime," which reported that 82.6% of males and 81.8% of females had stopped using methamphetamines for at least one year, excluding the period they were in custody, in a survey of inmates who had violated the Methamphetamine Control Law among those who were

investigated for treatment at the start of their sentence.¹⁸⁾ Although there have been few studies on the prescription/over-the-counter drug group, the results of this study showed that the three-year abstinence continuation rate (cumulative survival rate) was 20.0%, with a median of 12 months, which was lower than that of the illegal drug group and similar to the abstinence continuation rate for the alcohol group.

Depending on whether the patient continued that treatment, whether the primary treatment goal was sobriety/abstinence may affect the number of months of sobriety/abstinence. Our treatment policy does not necessarily set sobriety/abstinence as the absolute treatment goal for patients with substance use disorders, regardless of whether the substance of abuse is alcohol, illegal drugs, or prescription/over-the-counter drugs. The attending physician listens to the patient's own problems and wishes for treatment, and sets treatment goals through discussion. Therefore, it is unlikely that the treatment goals of the three groups are clearly different. However, because the activities of the alcohol and prescription/over-the-counter drug groups are not illegal, and because the percentage of those in the alcohol group who are employed and

those who continue to hold the same job after the initial diagnosis is higher than in the other groups, problems in daily life are less likely to be apparent. Therefore, it is difficult to recognize that they are addicts or that they have problems related to abuse. This is why the treatment goal for the alcohol group is not complete abstinence from alcohol or drugs, but sobriety to the extent that physical illness or blackouts do not interfere with work, and for the prescription/over-the-counter drug group, they may desire relief from symptoms that cause them to rely on the drug. Conversely, the illegal drug group has a higher percentage of those who have difficulties in their lives, such as lack of means for financial independence, and many of them feel that they have to abstain from drugs due to the illegal use of substances of abuse and express their desire to abstain at the time of consultation, which may be their immediate treatment goal. In addition, it is considered that those taking alcohol and over-the-counter drugs may find it more difficult to maintain sobriety because of the easy availability of substances of abuse. As for the illegal drug group, although it is only limited to those with known prognoses, the more limited availability of substances of abuse compared with the other two groups

may have been associated with a tendency to abstain for longer periods.

2) Factors Influencing the Time to Relapse to Alcohol and Drug Abuse

In common among the three groups, the most influential factors in reducing alcohol/drug reuse were: participation in a self-help group at the time of the survey, more months of self-help group participation, later age at habituation, and older age. The results are consistent with those of many previous studies that have already shown that participation in a self-help group reduces relapse to alcohol/drugs and contributes to continued sobriety⁷⁾¹⁹⁾³⁵⁾⁴³⁾ and that the prognosis of young addicts is poor.¹⁵⁾⁴⁸⁾⁵²⁾⁵³⁾ The risk factors were: prison time, arrest, self-interruption of hospital visits, loss of financial independence, and suicide-related behavior in the 3 years after the initial visit. This is because this study investigated whether the patient had been arrested or imprisoned since the initial visit, which in many cases was considered an event that occurred as a result of the reuse of illegal drugs rather than as a factor influencing reuse. Nevertheless, previous studies have shown that a criminal history is associated with sobriety and reuse⁴⁰⁾⁴⁸⁾⁵²⁾ and that the rate of reuse increases as time passes from the start of probation for drug offenders and they leave recovery programs.³⁰⁾ In addition,

a study⁵⁾ found that after completing a prison sentence, drug offenders avoid relationships with drug-free people in order to keep their criminal record secret, which leads them to reuse again. It is important to follow the progress of post-prison sobriety and sobriety prognosis, and consider support to prevent relapse to alcohol and drug use. The fact that self-interruption of hospital visits is a risk factor is consistent with the fact that many previous studies have already pointed out that continued hospital visits contribute to sobriety.⁷⁾¹⁰⁾¹⁴⁾⁵²⁾ Some previous studies indicated that job stability is also associated with continued sobriety, and although job continuity was not significant in this study, the experience of losing financial independence, including a job, is a risk for relapse, suggesting that the experience of losing one's place and stability as well as stable social adjustment are important. This also suggests that the experience of losing one's place and stability at the same time as stable social adjustment may also have an impact on relapse to alcohol use.

With regard to suicide-related behaviors, a number of studies have shown that substance use disorders are risk factors for suicide.³³⁾ Although it may be a consequence rather than an influencing factor of relapse to alcohol/

drug use, the high frequency of comorbid substance-related and mood disorders, the possibility of alcohol abuse for self-medicating,¹²⁾ and the clinical findings that substance abuse and self-harm may occur concurrently or alternately in patients with personality disorders who have alcohol or drug problems²³⁾ have also been reported in some cases. Thus, suicidal behavior may be a risk factor leading to alcohol or drug use again.

Multivariate analysis of each of the three groups revealed that a history of specialized treatment for addiction before the first visit, more months of participation in self-help groups after the first visit, and more months of visits to our clinic were factors that reduced relapse, while suicide-related behavior was a risk factor. The results showing that continuity of treatment and participation in self-help groups were associated with continued sobriety are consistent with reports of previous prognostic studies of alcohol use disorder patients. Nishikawa et al. reported that participation in a self-help group was a factor in continuing outpatient treatment,³⁸⁾ and Hashimoto et al. reported that participation in a self-help group called AA (Alcoholics Anonymous) reduced the suicide risk.¹³⁾ The results of this study suggest that not one but several of these factors affect sobriety in an inter-related

manner, and that experiencing multiple therapeutic relationships, such as specialized treatment and participation in self-help groups, for a longer period of time, as well as reduced risk of suicide-related behaviors, may lead to a longer period of sobriety. Although the sobriety continuation rate was low and duration of sobriety was short in the alcohol group, discontinuation of treatment because of an inability to abstain from alcohol will lead to a further decline in sobriety. Therefore, it is important to emphasize the importance of continuing treatment and to allow the setting of various treatment goals, such as reducing alcohol consumption,⁴⁶⁾ and making it easier to access medical care and consultation services.

Sex, chronic physical illness as an adverse childhood experience, bullying victimization, child neglect, and loss of financial independence after the first visit were risk factors in the illegal drug group. In the aforementioned Ministry of Justice survey,¹⁸⁾ the percentage of people abstaining from drugs for one year or longer was high for both men and women, but the percentage of those who had made abstinence efforts was significantly higher among women. Among men, the most common reason for continued abstinence was "work was going well," which may be consistent with this study's finding that the experience of losing one's financial base

is an influential factor in relapse. The experience of being attacked and ostracized at home and school due to childhood neglect and bullying, and the presence of a chronic physical illness may have made it difficult to share life with many other children due to exercise restrictions and medications depending on the illness. If such an upbringing leads to a pattern of not trusting or being understood by others into adulthood, the individual is more likely to fall into a pattern of trying to cope with stressful situations by taking drugs instead of seeking help from others, and the added experience of losing financial independence increases the risk of re-use. In parallel with support for social adjustment, it is important to listen sympathetically to the patient's upbringing history and provide a place where they can feel safe while undergoing treatment and prevent isolation so that he/she can build interpersonal relationships while feeling understood in daily life.

In the prescription/over-the-counter drug group, among the adverse childhood experiences, chronic physical illness in the family, separation from parents, a high "distrust" score in the initial visit questionnaire, and suicide-related behaviors after the initial visit were risk factors for re-use. In particular, in the case of prescription drug use disorders, mood, anxiety, and

personality disorders are seen at the start of treatment in general psychiatric institutions, following substance-related disorders, and many patients also show self-destructive behavior.²⁸⁾²⁹⁾ Therefore, comprehensive support that includes treatment for these disorders is necessary.⁴⁾⁴¹⁾ Morita et al. examined risk factors related to suicidal ideation in drug abusers and found that the duration of abstinence was shorter in the group who had thought about dying, and identified points such as abuse during childhood, the abstinence period being within one year, and use of psychiatric drugs as risk factors.³⁶⁾ The results of this study also indicate that in cases of prescription/over-the-counter drug abuse, patients who have tried to alleviate the psychological distress and distrust resulting from their adverse experiences through drug dependence need follow-up to not only stop the abuse, but also to learn healthy coping skills after the abuse has stopped. Among the experiences of adversity in childhood, rather than the obvious experience of abuse, the influencing factors were the experience of loss of separation from parents at home and the potential to take on a family care role as a child. It has been pointed out that young caregivers⁶⁾ are more prone to self-blame and over-adjustment⁴⁴⁾ and are less likely to focus on the fact that they were prevented from

interacting and learning with their peers, which is important for their physical and mental development.⁴²⁾ For patients with such experiences and tendencies, it may be useful to provide therapeutic intervention to alleviate over-adaptive tendencies and enable them to seek help in a trusting relationship with others.

3. Significance of This Study

Based on a three-year prognostic study of patients with substance use disorders who first visited an outpatient addiction clinic, this study evaluated the longest duration of sobriety at 3 years by survival analysis and compared the possible influencing factors in three groups: drug use disorders, drug use disorders of illegal drug abuse, and drug use disorders of prescription/over-the-counter drug abuse. Most of the follow-up studies on the prognosis of those with alcohol or drug use disorders have been conducted after discharge of hospitalized patients, and few studies have compared alcohol and drug use disorders. Alcohol use disorders are less life-disruptive, but they are associated with difficulty in maintaining sobriety and often lead to hospitalization. On the other hand, ongoing treatment and participation in self-help groups had an impact on continuing sobriety. Therefore, it is desirable to first encourage patients to establish

themselves in outpatient treatment and self-help groups and continue long-term involvement with multiple support persons so that they do not discontinue treatment because they have made continuing sobriety their absolute goal. The prognosis associated with substance use disorder of illegal drugs is better than that of alcohol use disorder in terms of continued abstinence. However, users are often lonely and in need of support in their lives, and it is desirable to encourage them to believe that they are not alone, given that their experiences of adversity in childhood and loss up to the present can put them at risk for relapse. Drug use disorder of prescription/over-the-counter drugs is more similar to alcohol use disorder than to illegal drugs in terms of continued abstinence. On the other hand, childhood adversity was a risk factor in common with illegal drug use disorder. Because suicide-related behaviors are more prevalent than in the other two groups and are more likely to be associated with substance use, it is desirable to adopt an approach to treat the anxiety that underlies the behaviors they are trying to cope with through suicide-related behaviors and substance abuse, as well as the experience of feeling safe and stable and seeking assistance in treatment. Thus, it is hoped that this study will clarify that the prognosis of sobriety and factors

affecting sobriety differ depending on the substance of abuse, and will help in setting treatment goals.

4. Limitations of the Study and Future Issues

The first limitation of this study was that it was conducted at a single institution and the number of cases was limited and biased. In the future, it will be necessary to accumulate more data and plan studies at multiple institutions to avoid bias specific to each institution. Second, the possibility of bias in the prognostic survey cannot be ruled out. Attrition and non-respondent bias may occur because this was a follow-up study that analyzed only those with known prognoses, and social desirability bias, such as under-reporting in response to questions about alcohol consumption and drug use, may occur because the prognosis survey was self-reported. Therefore, it is necessary to consider that objectivity cannot be guaranteed. Third, the longest sobriety period may not be the same as the longest period of sobriety. Since the time period varies from the initial visit to start of sobriety abstinence or start of relapse to alcohol or drug use, it is not possible to examine the differences in the effects of the scale scores for psychological characteristics at the time of the initial visit or changes in psychological characteristics after the

initial visit when three years have elapsed. Fourth, unknown factors may be confounding factors. For example, factors such as the ease of access to substances of abuse for each respondent, whether the respondent came to the clinic with the intention of abstaining from alcohol or drug use, and what treatment goals were set in discussions with the respondent's doctor at the time of the visit could affect the duration of sobriety if they have different characteristics for each group. However, these factors were not treated as explanatory variables in the present study because no formulated questions were asked about them. Further improvement of the survey methodology is needed to take such factors into account. Fifth, the items included in the prognostic survey were used as explanatory variables because of their potential influence on the duration of sobriety, but there was no confirmation that events that occurred after the initial visit preceded sobriety or relapse to alcohol or drug use. A challenge for future studies is to devise questions in a way that facilitates a chronological understanding of the timing of important life events and therapeutic interventions and the timing of sobriety and abstinence. In particular, although the results of this study suggest that adverse childhood experiences and suicide-related behaviors after the

initial diagnosis may influence the duration of sobriety, a detailed assessment of coexisting psychiatric disorders associated with adverse childhood experiences or suicide risk, and whether they precede or are secondary to substance use disorders, is not possible, or whether it precedes or is secondary to the substance use disorder. Suicide-related behavior after the initial visit was one of the explanatory variables, assuming that it is an influencing factor for continued sobriety and abstinence. However, in some cases, there may have been episodes of increased suicidal ideation as a result of drinking or using again, or episodes in which drinking or using again and suicidal behavior occurred simultaneously. Therefore, we believe that a close evaluation of the medical records, limited to the period of continuous hospital visits, will allow us to further discuss interventions to prevent the vicious cycle of suicidal ideation, suicidal behavior, and reuse. Sixth, although statistical analysis was conducted to examine influencing factors using the duration of sobriety as an indicator of recovery, there are a variety of treatment goals for substance use disorders that are not limited to sobriety or drug relapse. As the options for treatment goals have expanded beyond sobriety and abstinence, we would like to examine the positive

implications of achieving a longer period of sobriety and drug-free time, and then apply a survey design that more clearly focuses on the recovery image of patients with substance use disorders, including analysis of changes that influence or occur concurrently with continued sobriety and drug use as the objective variables.

Conclusion

This study analyzed the results of an initial survey of 397 patients with substance use disorders who made their first visit to our special outpatient for addiction disorders between May 2015 and April 2018, and a long-term prognostic survey conducted over a three-year period between May 2018 and April 2021, three years after each patient's first visit. The subjects were classified into three groups based on their substance of abuse: alcohol, illegal drug, and prescription/over-the-counter drug groups, and the results of basic attributes, results of the initial survey, and results of a three-year prognostic survey were compared. Survival analysis was also conducted with the number of months of the longest period of sobriety in the three-year period as the survival variable and relapse to sobriety as an event. The median three-year sobriety continuation rate (cumulative survival rate) and median maximum number of months that half

of the patients remained sober were 14.3% (6 months) in the alcohol group, 46.5% (32 months) in the illegal drug group, and 20.0% (12 months) in the prescription/over-the-counter drug group. The persistence rate was significantly higher in the illegal drug group than in the alcohol and prescription/over-the-counter drug groups. The alcohol group had fewer life disruptions throughout the three-year period, while the number of months of continuous sobriety was higher, and more patients were hospitalized during the three-year period. In the illegal drug group, the number of months of abstinence was higher, but many of them were lonely or needed social and economic support, and many were arrested or served time in prison during the three-year period. The prescription/over-the-counter drug group had fewer abstinence months, more hospitalizations, and more suicide-related behaviors during the three-year period. With regard to factors influencing relapse and drug use in the alcohol group, the inhibiting factors were history of addiction treatment before the first visit and length of continued hospital visits and self-help group participation after the first visit, and the risk factors were suicide-related behaviors. Risk factors for the illegal drug group were: being male, adversity experiences such as

chronic physical illness, bullying, and abandonment during childhood, and loss of financial independence after the first visit. Risk factors for the prescription/over-the-counter drug group were: adverse childhood experiences such as separation from parents and chronic physical illness in the family, high scores on the psychological scale of “distrust” at the initial visit, and suicide-related behaviors. Thus, it is possible that the duration of sobriety over the three-year period, the percentage of those who achieve three years of sobriety, and factors associated with continued sobriety may differ depending on the type of disorder, such as alcohol and drug use disorders, and among drug use disorders, whether the substance of abuse is an illegal drug or a prescription/over-the-counter drug.

We have no conflicts of interest to disclose in connection with this paper.

Acknowledgment

We would like to express our sincere gratitude to all patients who cooperated in this study.

This study was a continuation of the research presented at the 116th Annual Meeting of the Japanese Society of Psychiatry and Neurology, with additions and revisions.

References

- 1) 天貝由美子: 成人期から老年期に渡る信頼感の発達—家族および友人からのサポート感の影響—. 教育心理学研究, 45 (1); 79-86, 1997
- 2) 天貝由美子: 信頼感の発達心理学—思春期から老年期に至るまで—. 新曜社, 東京, 2001
- 3) Antonovsky, A: Unraveling the Mystery of Health: How People Manage Stress and Stay Well. Jossey-bass Publishers, San Francisco, 1987 (山崎喜比古, 吉井清子監訳: 健康の謎を解く—ストレス対処と健康保持のメカニズム—. 有信堂, 東京, 2001)
- 4) 青山(上原)久美: 依存症治療専門病院における処方薬依存症の現状と課題—せりがや病院における治療経験から—. 臨床精神薬理, 16 (6); 827-832, 2013
- 5) 伴 恵理子: 女性覚せい剤使用者の服役後の体験に関する質的分析—更生保護施設入所者へのインタビューから—. 早稲田大学社会安全政策研究所紀要, 8; 123-140, 2015
- 6) Becker, S.: Young carers. The Blackwell Encyclopedia of Social Work (ed by Davies, M.). Blackwell, Oxford, p.378, 2000

- 7) Cho, T., Negoro, H., Saka, Y., et al.: Two-year prognosis after residential treatment for patients with alcohol dependence: three chief guidelines for sobriety in Japan. *Neuropsychiatr Dis Treat*, 12; 1983-1991, 2016
- 8) 長 徹二: アルコール依存症の実態に関する研究. 平成 27 年度厚生労働科学研究費補助金障害者対策総合研究事業[障害者政策総合研究事業(精神障害分野)]アルコール依存症に対する総合的な医療の提供に関する研究 平成 27 年度総括研究報告書(研究代表者: 樋口 進, 課題番号 201516029 A). p.19-169, 2016
- 9) Felitti, V. J., Anda, R. F., Nordenberg, D., et al.: Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. The Adverse Childhood Experiences (ACE) Study. *Am J Prev Med*, 14 (4); 245-258, 1998
- 10) 原田勁吾, 竹元隆洋: 2 回の集中内観を行った依存症者の予後調査. *内観研究*, 26 (1); 47-59, 2020
- 11) Harm Reduction International: What is harm reduction? 2021 (<https://www.hri.global/what-is-harm-reduction/>) (参照 2022-01-01)
- 12) 橋本恵理, 齋藤利和: アルコール依存症と気分障害. *精神経誌*, 112 (8); 780-786, 2010
- 13) 橋本省吾, 芦沢 健: 北海道における AA 有志を対象とした自殺リスクに関する調査. *日本アルコール・薬物医学会雑誌*, 47 (6); 308-316, 2012
- 14) 蓮尾 玲, 望月美智子, 森末彩香ほか: 東京アルコール医療総合センター退院後の予後と生活の質に関する調査. *日本アルコール関連問題学会雑誌*, 18 (1); 179-184, 2016
- 15) 樋口 進, 山田耕一, 村岡英雄ほか: 若年アルコール症者の予後に関する研究. *精神経誌*, 88 (3); 181-205, 1986
- 16) 廣 尚典, 島 悟: 問題飲酒指標 AUDIT 日本語版の有用性に関する検討. *日本アルコール・薬物医学会雑誌*, 31 (5); 437-450, 1996
- 17) 廣 尚典: WHO/AUDIT 問題飲酒指標検査手引. 千葉テストセンター, 東京, 2000
- 18) 法務省: 薬物犯罪—特別調査—. 令和 2 年度版犯罪白書. 2020 (<https://www.moj.go.jp/content/001338450.pdf>) (参照 2021-10-03)
- 19) 猪野亜朗: アルコール依存症の短期予後と長期予後—断酒会員の追跡調査から—. *精神経誌*, 93 (5); 334-357, 1991

- 20) 板橋登子, 小林桜児, 黒澤文貴ほか: 小児期逆境体験が物質使用障害の重症度に及ぼす影響—不信感, 被拒絶感, ストレス対処力の低下を媒介としたモデル検討—. 精神経誌, 122 (5); 357-369, 2020
- 21) 小林桜児, 上條敦史, 松本俊彦ほか: 薬物関連精神障害者専門病院利用者の予後についての研究. 平成 18 年度厚生労働科学研究費補助金(医薬品・医療機器等レギュラトリーサイエンス総合研究事業)薬物乱用・依存等の実態把握と乱用・依存者に対する対応策に関する研究(H17-医薬一般-043)研究報告書(研究代表者: 和田 清, 課題番号 200637038 A). p.173-184, 2007
- 22) 小林桜児: 薬物依存治療の新たな展開. 精神科治療学, 25 (5); 645-650, 2010
- 23) 小林桜児: いわゆる「パーソナリティ障害」症例におけるアルコール・薬物問題をどのように認識し, 対応するか—Khantzian の「自己治療仮説」と「信頼障害」という観点から—. 精神医学, 54 (11); 1097-1102, 2012
- 24) 小林桜児: 人に頼れない, 物にしか頼れない. 人を信じられない病—信頼障害としてのアディクション—. 日本評論社, 東京, p.33-65, 2016
- 25) 国立精神・神経医療研究センター: ダルク追っかけ調査 2018—利用者データブック—. 2019
- (<https://www.ncnp.go.jp/nimh/yakubutsu/reference/pdf/darc2018.pdf>) (参照 2021-02-19)
- 26) 小沼杏坪: 覚せい剤と関連精神障害—治療. 薬物・アルコール関連障害(佐藤光源, 洲脇寛責任編集, 臨床精神医学講座第 8 巻). 中山書店, 東京, p.236-253, 1999
- 27) 小沼杏坪: 薬物依存症に対する治療・処遇と回復支援における光と影—急性期治療から地域生活支援まで—. 精神経誌, 113 (2); 172-182, 2011
- 28) 松本俊彦, 尾崎 茂, 小林桜児ほか: わが国における最近の鎮静剤(主としてベンゾジアゼピン系薬剤)関連障害の実態と臨床的特徴—覚せい剤関連障害との比較—. 精神経誌, 113 (12); 1184-1198, 2011
- 29) 松本俊彦, 成瀬暢也, 梅野充ほか: Benzodiazepines 使用障害の臨床的特徴とその発症の契機となった精神科治療の特徴に関する研究. 日本アルコール・薬物医学会雑誌, 47 (6); 317-330, 2012
- 30) 松本俊彦, 高野 歩, 熊倉陽介ほか: 保護観察の対象となった薬物依存症者のコホート調査システムの開発—Voice Bridges Project—. 更生保護学研究, 14; 3-18, 2019
- 31) 松本俊彦: 全国の精神科医療施設における薬物関連精神疾患の実態調査. 令和 2 年度厚生労働行政推進調査事業費補

- 助金(医薬品・医療機器等レギュラトリーサイエンス政策研究事業)薬物乱用・依存状況の実態把握と薬物依存症者の社会復帰に向けた支援に関する研究 総括・分担研究報告書(研究代表者: 嶋根卓也, 課題番号19KC2011). p.41-104, 2020
- 32) 松岡照之, 福居顯二: アルコール・薬物関連障害の病態と診断. 医学のあゆみ, 233 (12); 1131-1135, 2010
- 33) 松下幸生, 樋口 進: アルコール関連障害と自殺. 精神経誌, 111 (10); 1191-1202, 2009
- 34) 松下幸生: アルコール依存症の治療総論. 日本アルコール関連問題学会雑誌, 14 (1); 62-67, 2012
- 35) 森 宏明, 荒記俊一, 横山和仁ほか: アルコール依存症者の断酒因子に関する疫学的研究. アルコール研究と薬物依存, 28 (6); 453-466, 1993
- 36) 森田展彰, 幸田 実, 梅野 充ほか: 薬物乱用者の希死念慮の危険因子に関する研究. 日本アルコール・薬物医学会雑誌, 47 (1); 24-38, 2012
- 37) 村上 優, 杠 岳文, 比江島誠人ほか: 薬物依存の治療. 医療, 54 (5); 206-211, 2000
- 38) 西川京子, 橋本直子, 立木茂雄ほか: アルコール乱用・アルコール依存症外来患者の治療中断要因の研究(II)—質問紙調査の結果から—. 日本アルコール・薬物医学会雑誌, 37 (5); 496-504, 2002
- 39) 西村康平: 依存症治療とハームリダクション. 治療, 102 (3); 266-269, 2020
- 40) 奥平謙一: 覚醒剤乱用者と有機溶剤乱用者の予後. アルコール研究と薬物依存, 21 (4); 304-305, 1986
- 41) Parr, J. M., Kavanagh, D. J., Cahill, L., et al.: Effectiveness of current treatment approaches for benzodiazepine discontinuation: a meta-analysis. Addiction, 104 (1); 13-24, 2009
- 42) 佐藤みのり: うつ病の親を持つ子どもがヤングケアラー化し精神疾患を発症する場合—複線径路・等至性モデルによるプロセスの検討—. 心理臨床学研究, 36 (6); 646-656, 2019
- 43) 佐藤忠宏, 唐住 輝, 荻野新六ほか: アルコール中毒患者の予後調査—断酒会との関係において—. 精神医学, 15 (11); 1167-1176, 1973
- 44) 澁谷智子: ヤングケアラーに対する医療福祉専門職の認識—東京都医療社会事業協会会員へのアンケート調査の分析から—. 社会福祉学, 54 (4); 70-81, 2014
- 45) 嶋根卓也, 今村顕史, 池田和子ほか: DAST-20 日本語版の信頼性・妥当性の検

- 討. 日本アルコール・薬物医学会雑誌, 50 (6); 310-324, 2015
- 46) 新アルコール・薬物使用障害の診断治療ガイドライン作成委員会 (監修), 樋口進, 齋藤利和ほか編: 新アルコール・薬物使用障害の診断治療ガイドライン 新興医学出版社, 東京, 2018
- 47) 杉山 崇, 坂本真士: 抑うつと対人関係要因の研究—被受容感・被拒絶感尺度の作成と抑うつ的自己認知過程の検討—. 健康心理学研究, 19 (2); 1-10, 2006
- 48) 洲脇 寛: アルコール中毒者の予後に関する研究. 精神経誌, 77 (2); 89-106, 1975
- 49) 鈴木康夫: アルコール症の予後に関する多面的研究. 精神経誌, 84 (4); 243-261, 1982
- 50) 高山敏樹, 新井平伊: 「もの忘れ外来」におけるアルコール問題. 老年精神医学雑誌, 32 (1); 22-33, 2021
- 51) 戸ヶ里泰典, 山崎喜比古, 中山和弘ほか: 13 項目 7 件法 sense of coherence スケール日本語版の基準値の算出. 日本公衆衛生雑誌, 62 (5); 232-237, 2015
- 52) 山根 隆, 新福尚武: アルコール中毒の長期予後に関する研究. 東京慈恵会医科大学雑誌, 93 (4); 458-474, 1978
- 53) 山下亜矢子, 折山早苗, 渡邊久美: 薬物依存症患者の断薬に影響する要因—QOL, 自尊感情との関連—. 日本看護研究会雑誌, 36 (2); 47-57, 2013
- 54) 山崎喜比古: 健康への新しい見方を理論化した健康生成論と健康保持能力概念 SOC. Quality Nursing, 5 (10); 825-832, 1999

Table 1 Basic Attributes and Results of Group Comparisons Based on Initial Survey and Hazard Ratios for Reuse of Alcohol Based on Prognostic Survey

	Alcohol Group (A)		Illegal Drug Group (D1)		Prescription/over-the-counter Drug Group (D2)		P-value	Multiple Comparisons	Hazard Ratio for Relapse to Alcohol or Drug use (95% CI)
	(n=223)	residuals	(n=129)	residuals	(n=45)	residuals			
Basic Attributes									
Sex (male)**	170 (76.2%)	2.1**	93 (72.1%)	0.0	23 (51.1%)	-3.3**	0.003		0.894 (0.690-1.157)
Age at first visit**	48.8±11.1		39.1±10.1		36.2±10.2		0.000	D2≠D1<A	0.987 (0.977-0.998)*
Years of education**	13.4±2.6		11.4±2.4		13.6±2.5		0.000	D1<A≠D2	0.989 (0.952-1.048)
Age at substance use habituation**	24.5±7.5		22.7±8.7		24.4±8.2		0.003	D1<A	0.983 (0.969-0.998)*
History of specialized treatment for addiction (number of persons)	111 (49.8%)		64 (49.6%)		25 (55.6%)		0.761		0.820 (0.652-1.031)
Adverse Childhood Experiences (number of persons)									
Separation from parents**	43 (19.3%)	-3.6**	45 (34.9%)	2.9*	16 (35.6%)	1.4	0.001		1.006 (0.768-1.317)
Poor school performance*	88 (39.5%)	-2.9*	69 (53.5%)	2.3*	24 (53.3%)	1	0.016		0.998 (0.792-1.258)
Prolonged absence from school	31 (13.9%)		25 (19.4%)		8 (17.8%)		0.360		1.060 (0.775-1.449)
History with the police**	56 (25.1%)	-6.2**	74 (57.4%)	5.6**	22 (48.9%)	1.5	0.000		1.105 (0.859-1.421)
Bullying	77 (34.5%)		48 (37.2%)		23 (51.1%)		0.121		1.185 (0.935-1.500)
Strict discipline by caregivers	86 (38.6%)		58 (45.0%)		25 (55.6%)		0.088		1.116 (0.884-1.408)
Excessive expectations*	63 (28.3%)	-2.5**	50 (38.8%)	1.7	19 (42.2%)	1.3	0.046		0.945 (0.739-1.209)
Chronic physical illness*	33 (14.8%)	-2.3**	34 (26.4%)	2.8**	7 (15.6%)	-0.6	0.019		1.049 (0.783-1.405)
Chronic physical illness in family	53 (23.8%)		34 (26.4%)		17 (37.8%)		0.160		1.072 (0.831-1.384)
Mental illness in family**	21 (9.4%)	-2.2*	16 (12.4%)	0.0	13 (28.9%)	3.4**	0.002		1.228 (0.877-1.720)
Poverty	29 (13.0%)		16 (12.4%)		7 (15.6%)		0.891		1.011 (0.716-1.428)
Child neglect**	9 (4.0%)	-3.0**	16 (12.4%)	2.6*	5 (11.1%)	0.9	0.009		0.998 (0.637-1.563)
Suicide of family members living together	9 (4.0%)		2 (1.6%)		3 (6.7%)		0.245		0.806 (0.428-1.516)
Substance abuse by family members living together	79 (35.4%)		43 (33.3%)		19 (42.2%)		0.638		1.105 (0.872-1.401)
Physical abuse	28 (12.6%)		27 (20.9%)		5 (11.1%)		0.061		0.984 (0.715-1.354)
Psychological abuse*	71 (31.8%)	-2.7*	56 (43.4%)	1.9	21 (46.7%)	1.3	0.028		1.011 (0.798-1.282)
Sexual abuse	4 (1.8%)		4 (3.1%)		2 (4.4%)		0.510		0.887 (0.439-1.796)
Initial Questionnaire Scale Score									
AUDIT score	24.2±8.5								1.011 (0.994-1.027)
DAST-20 score			10.7±3.7		11.9±2.6		0.139		1.054 (0.994-1.117)
Distrust scale score**	18.2±5.7		21.1±5.4		22.0±5.6		0.000	A<D1≠D2	1.019 (0.997-1.042)
Sense of Rejection Scale score*	20.6±6.2		22.5±6.7		23.5±6.7		0.016	A<D2	1.002 (0.984-1.020)
SOC score**	51.7±13.3		47.3±12.5		42.9±14.9		0.000	D2≠D1<A	0.993 (0.985-1.002)
Supplementary Information									
Cumulative frequency of adverse childhood experience**	3.5±2.8		4.9±2.8		5.2±3.0		0.000	A<D1≠D2	1.017 (0.977-1.058)
Number of persons with a spouse living together at first visit**	109 (48.9%)	5.5**	26 (20.2%)	-4.8*	12 (26.7%)	-1.5	0.000		1.208 (0.808-1.309)
Number of persons with financial independence at initial visit**	130 (58.3%)	5.5**	39 (30.2%)	-4.4**	14 (31.1%)	-2.1*	0.000		1.114 (0.879-1.410)
Number of welfare recipients at initial visit*	33 (14.8%)	-3.3**	43 (33.3%)	4.3**	6 (13.3%)	-1.3	0.000		0.831 (0.611-1.128)
* $p < .05$, ** $p < .01$									
Quantitative variables were subjected to multiple comparisons when $P < 0.05$ by the Kruskal-Wallis test (Dunn-Bonferroni's method).									
Qualitative variables were subjected to residual analysis by the χ^2 test when $P < 0.05$, and adjusted standardized residuals were noted.									
Hazard ratios were calculated for the entire sample using univariate Cox regression stratified models with the alcohol group, illegal drug group, and prescription/over-the-counter drug group.									
AUDIT: Alcohol Use Disorders Identification Test; DAST: Drug Abuse Screening Test; SOC: Sense of Coherence; CI: Confidence Interval									

Table 1 Basic Attributes and Results of Group Comparisons Based on Initial Survey

and Hazard Ratios for Reuse of Alcohol Based on Prognostic Survey

Table 2: Group Comparisons of the 3-year Prognostic Survey, and Hazard Ratios for Relapse to Alcohol or Drug use

	Alcohol Group (A)		Illegal Drug Group (D1)		Prescription/over-the-counter Drug Group (D2)		P-value	Multiple Comparisons	Hazard Ratio for Relapse to Alcohol or Drug use (95% CI)
	(n=223)	residuals	(n=129)	residuals	(n=45)	residuals			
Information on sobriety and abstinence									
Maximum number of months of sobriety**	13.0±13.7		24.6±13.3		16.2±14.5		0.000	A=D2<D1	
Number of persons who have remained sober for 3 years**	33 (14.9%)	-5.9**	62 (48.4%)	6.9**	9 (20.0%)	-1.0	0.000		
Information on treatment and daily life									
Number of months of continuous attendance at this hospital	23.9±14.6		21.3±15.2		21.0±15.3		0.162		0.995 (0.987-1.003)
Number of months in self-help group participation	5.6±11.4		5.9±11.7		6.9±12.8		0.708		0.980 (0.970-0.990)**
Number of months in current position	14.3±16.6		12.4±15.0		8.8±13.9		0.162		0.997 (0.990-1.004)
Number of persons married in 3 years*	8 (3.6%)	-2.9**	15 (11.6%)	2.7**	4 (8.9%)	0.6	0.013		0.820 (0.499-1.346)
Number of persons separated from spouse in 3 years	15 (6.7%)		11 (8.5%)		6 (13.3%)		0.323		1.287 (0.859-1.928)
Number of persons established financial independence in 3 years**	24 (10.8%)	-3.8**	34 (26.4%)	3.4**	10 (22.2%)	1.0	0.001		1.045 (0.754-1.447)
Number of persons loss of financial independence in 3 years	21 (9.4%)		10 (7.8%)		6 (13.3%)		0.539		1.535 (1.067-2.209)*
Number of persons with suicide-related behavior in 3 years**	18 (8.1%)	-3.2**	17 (13.2%)	0.1	16 (35.6%)	4.8**	0.000		1.518 (1.098-2.100)*
Supplementary information									
Number of persons continued in same position for 3 years*	72 (32.3%)	3.0**	26 (20.2%)	-2.0*	7 (15.6%)	-1.8	0.010		0.892 (0.687-1.158)
Number of persons with ongoing treatment at this hospital after 3 years	118 (52.9%)		58 (45.0%)		21 (46.7%)		0.436		0.805 (0.636-1.019)
Number of persons self-interrupted of our hospital visits during 3 years**	72 (32.3%)		52 (40.3%)		14 (31.1%)		0.270		1.641 (1.284-2.096)**
Number of persons who had participated in self-help groups during 3 years	97 (43.5%)		52 (40.6%)		21 (46.7%)		0.755		0.910 (0.722-1.147)
Number of persons participating in self-help group 3 years later	37 (16.6%)		18 (14.0%)		9 (20.0%)		0.641		0.640 (0.466-0.881)**
Number of persons who had hospitalized in our hospital in 3 years**	101 (45.3%)	2.7**	31 (24.0%)	-4.4**	25 (55.6%)	2.3*	0.000		1.150 (0.908-1.457)
Number of persons who had arrested in 3 years**	61 (27.4%)	2.4**	18 (14.0%)	-2.9**	12 (26.7%)	0.6	0.013		1.298 (0.998-1.688)
Number of persons who had arrested in 3 years**	6 (2.7%)	-4.5**	23 (17.8%)	5.0**	3 (6.7%)	-0.4	0.000		2.320 (1.246-4.319)**
Number of persons who had served in prison in 3 years**	1 (0.4%)	-4.4**	17 (13.2%)	5.8**	0 (0.0%)	-1.6	0.000		3.160 (1.323-7.547)*

*p < .05, **p < .01

Quantitative variables were subjected to multiple comparisons when P<0.05 by the Kruskal-Wallis test (Dunn-Bonferroni's method).

Qualitative variables were subjected to residual analysis by the χ^2 test when P<0.05, and adjusted standardized residuals were noted.

Hazard ratios were calculated for the entire sample using a univariate Cox regression stratified model with the alcohol group, illegal drug group, and prescription/over-the-counter drug group as strata.

Table 2: Group Comparisons of the 3-year Prognostic Survey, and Hazard Ratios for Relapse to Alcohol or Drug use

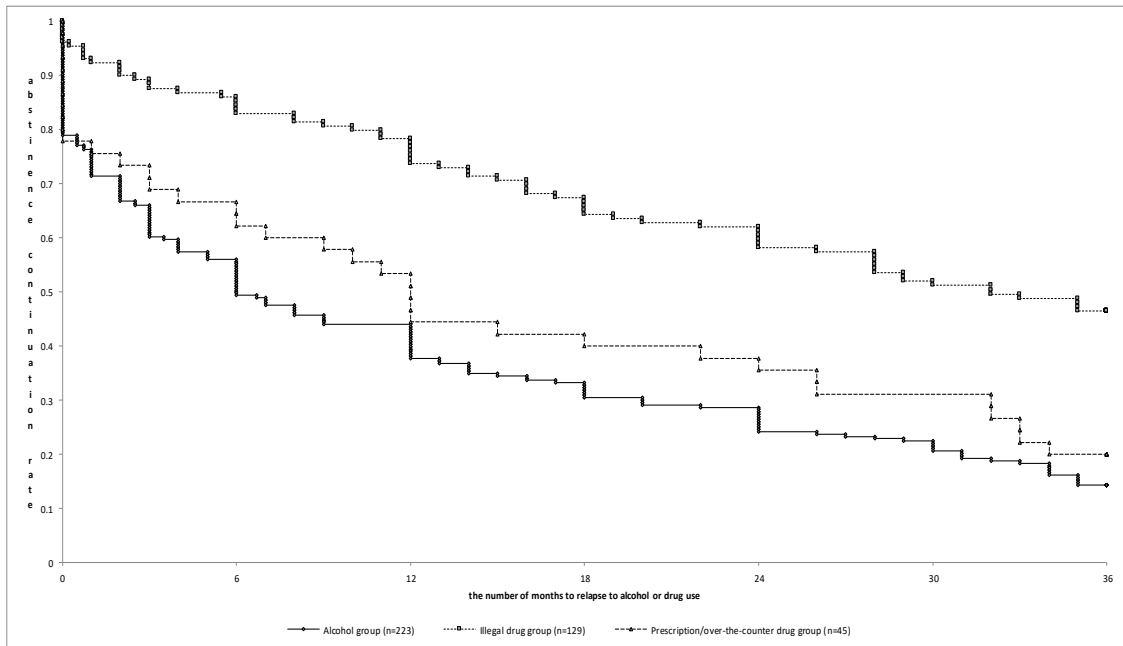


Figure: Kaplan-Meier Abstinence-continuation Curves for Each Group

Alcohol group (n=223): median 6 months (95% CI: 3.83-8.17)			
Illegal drug group (n = 129): median 32 months (95% CI: not calculated)			
Prescription/over-the-counter drug group (n=45): median 12 months (95% CI: 9.39-14.61)			
Overall comparison (log-rank test): $P < 0.01$ ($\chi^2 = 51.65$, $df = 2$)			
Paired pairwise comparisons (log-rank test): alcohol group - illegal drug group $P < 0.01$ ($\chi^2 = 51.59$), alcohol group - prescription/over-the-counter drug group $P = 0.215$ ($\chi^2 = 1.54$, n.s.), illegal drug group - prescription/over-the-counter drug group $P < 0.01$ ($\chi^2 = 14.41$)			

Figure: Kaplan-Meier Abstinence-continuation Curves for Each Group

Table 3: Results of Multivariate Cox Proportional Hazards Model Analysis by Alcohol Group, Illegal Drug Group, and Prescription/over-the-Counter Drug Group

	Model χ^2 test results	Selected predictors	Partial regression coefficient	<i>p</i>	Hazard ratio	95%CI
Alcohol group (n=199)	$\chi^2=28.68, df=4, P < 0.01$	History of specialized treatment for addiction	-0.39	0.012	0.675	0.496-0.920
		Suicide-related behavior in 3 years	0.57	0.041	1.770	1.023-3.061
		Months of participation in self-help group	-0.03	0.001	0.974	0.958-0.989
		Number of months of continuous attendance at this hospital	-0.02	0.001	0.983	0.973-0.994
Illegal drug group (n=115)	$\chi^2=32.53, df=5, P < 0.01$	Sex (male=1, female=0)	0.83	0.011	2.646	1.391-5.034
		Adverse childhood experiences: chronic physical illness	0.65	0.018	1.906	1.115-3.260
		Adverse childhood experiences: bullying	0.64	0.013	1.893	1.141-3.140
		Adverse childhood experiences: child neglect	0.79	0.036	2.210	1.055-4.630
		Loss of financial independence in 3 years	0.99	0.013	2.680	1.235-5.814
Prescription/over-the-counter group (n=42)	$\chi^2=20.34, df=4, P < 0.01$	Adverse childhood experiences: chronic physical illness in family	1.24	0.022	3.463	1.555-7.709
		Adverse childhood experiences: separation from parents	1.09	0.007	2.971	1.348-6.548
		Suicide-related behavior in 3 years	1.10	0.008	2.993	1.324-6.764
		Initial survey: distrust scale score	0.06	0.047	1.067	1.001-1.137
CI:Confidence Interval						
The method of increasing variables (likelihood ratio test method) was used to select explanatory variables.						

Table 3: Results of Multivariate Cox Proportional Hazards Model Analysis by Alcohol Group, Illegal Drug Group, and Prescription/Over-the-Counter Drug Group