Correlates of Problem Drinking Among Young Japanese Women: Personality and Early Experiences

Toshinori Kitamura, Nobuhiko Kijima, Shinji Sakamoto, Atsuko Tomoda, Nobuko Suzuki, and Yumi Kazama

Problem drinking patterns were measured by the CAGE questionnaire among 90 currently drinking young Japanese women who were recently recruited by a Japanese company. Problem drinking was examined in terms of personality (temperament and character as defined by Cloninger) and early life experiences (perceived parental behavior, parental abusive behavior, being bullied at school, and positive and negative life events experienced before the age of 16). Multiple regression analysis revealed that problem drinking could be predicted by a set of personality scores, early death of a close friend, and the interaction of the death of a close friend and low explorative excitability (novelty-seeking component 1). This suggests that problem drinking in young women is partly determined by both personality and negative life events during childhood.

CONSUMPTION OF ALCOHOL has become increasingly popular in Japan, with the age at which drinking starts becoming younger among women. Nakazawa et al.[1] have observed that among a community population with a mean age of 21 years, greater than 90% of women started drinking regularly before the age of 20 (drinking is illegal before this age in Japan). Increased opportunities to obtain alcohol and less social pressure on women for abstinence may result in more women developing alcoholism in Japan in the future. Despite the lack of knowledge about the continuity of problem drinking between adolescence and adulthood, there is a report to suggest it exists. In a 4-year longitudinal study of adolescent psychosocial development, Donovan et al.[2] reported that 27% of female high school students and 20% of female college students identified as problem drinkers were still found to be problem drinkers as young adults.

Drinking behavior among women in their early twenties is clinically important in Japan because (1) recent more egalitarian social attitudes toward women in the family and at the workplace give women the opportunity to drink as much as men of the same generation; (2) women of this age range are known to develop depression at a high rate,[3-6] and alcohol may be used as an antidepressive self-medication; and (3) these women are at the life stage of childbearing. Thus, the prevalence of problem drinking among young women, which may not necessarily reach the level of alcohol abuse, needs to be investigated.

Despite the popularity of alcoholic beverages, not all women who consume them are problem drinkers. However, little is known as to the correlates of both problem and nonproblem drinking, such as personality traits and life experiences.

The causes of alcoholism are often multifaceted. Among many correlates, personality has been extensively studied. Cloninger et al.[7] proposed two subtypes on the basis of their study of alcoholism among male adoptees in Sweden. Their type 1 alcoholism (milieu-limited) was more prevalent, occurred in both sexes, and required both genetic and environmental factors (heavy recreational drinking), whereas type 2 alcoholism was less prevalent, occurred in males only, and required only a genetic background. Cloninger[8] proposed three dimensions of personality (which he later renamed "temperament"): novelty-seeking (NS), harm avoidance (HA), and reward dependence (RD). NS reflects behavioral activation, HA reflects behavioral inhibition, and RD reflects behavioral maintenance. These dimensions refer to three neurotransmitters: NS to dopamine,[9-11] HA to serotonin, and RD to norepinephrine. Applying this three-dimensional model, he hypothesized that type 1 alcoholism is characterized by low NS, high HA, and high RD, whereas

From the Department of Sociocultural Environmental Research, National Institute of Mental Health, National Center of Neurology and Psychiatry, Chiba; Department of Vocational Assessment and Counseling Research, National Institute of Vocational Rehabilitation, Chiba; Japan Association of Employment of the Disabled, Chiba; Japanese Society for the Promotion of Science, Faculty of Education, Yokohama National University, Kanagawa; and Nihonbashi Koamicho Post Office, Tokyo, Japan.

Supported in part by a grant from the Research Conference on Alcohol and Health and a grant from the Yasuda Life Welfare Foundation.

Address reprint requests to Toshinori Kitamura, F.R.C.Psych., Director, Department of Sociocultural Environmental Research, National Institute of Mental Health, National Center of Neurology and Psychiatry, 1-7-3, Konodai, Ichikawa, Chiba, Japan.

0010-440X/99/4002-0012$10.00/0

type 2 alcoholism involves high NS, low HA, and low RD.[12]

A few studies have since been performed to test this hypothesis (e.g., Cannon et al,[13] Yoshino et al.[14]), but most of them used inpatients as sample subjects. Few studies have examined a community population, particularly women. Since a small proportion of problem drinkers will eventually become clinical cases of alcoholism, it is feasible to hypothesize that the personality traits specific to clinical alcoholism are different from those specific to problem drinking among a nonclinical population.[15] Different personality traits between the two groups, if found, may further our understanding of the pathway from nonproblem drinking to problem drinking and from nonclinical problem drinking to clinical alcoholism.

Cloninger et al.[16] later expanded their hypothesis to include dimensions of character that they claimed would be more psychosocially determined by an interaction with temperament.[17] However, these character dimensions have been barely studied in association with problem drinking or alcoholism.

Another area of interest in terms of the predictors of problem drinking are early life circumstances. Cloninger reported that recreational heavy drinking in the early stage of development contributes to the onset of type 1 alcoholism. However, recreational heavy drinking may well be associated with other life-styles. Thus, the search for life history determinants of later problem drinking may be warranted. Different early life experiences have been extensively studied in association with the adult onset of psychopathology—particularly depression. They include early loss of a parent,[18] perceived parental attitudes toward the subject,[19-23] both emotional and physical child abuse by a parent or parent surrogate, bullying at school, and negative life events during childhood. These variables have been little studied as risk factors for alcoholism or problem drinking.

We report here a preliminary study on the prevalence of problem drinking among young Japanese women, and the personality and early life experiences related to it.

METHOD

Sample and Procedure

A total of 98 women newly employed by a company located in Tokyo were invited to participate in the interview. They constituted all of the women who were receiving initial job training after being hired. This was the first employment for all of them after graduating from school or university. Their age was between 19 and 25 years, with a mean of 22.1 ± 1.0 (mean ± SD). Each participant provided written informed consent prior to the study interview; none declined to participate in the study. The purpose and nature of the study was fully explained to each participant before the interview. They were also assured that the interview could be terminated upon their request. The participants were administered a set of questionnaires including the Temperament and Character Inventory (TCI),[16] the Parental Bonding Instrument (PBI),[24] and the Japanese version of the Social Desirability Scale (SDS).[25-26] They were then interviewed by one of 20 trained interviewers. An ad hoc structured interview guide was used. This included four items from the CAGE,[27] three items of parental emotional maltreatment, five items of parental physical maltreatment, and 27 items of positive and negative life events experienced before the age of 16.

Measures

The dependent variable was problem drinking, which was rated in the interview by the CAGE[27-29] (often misquoted as Mayfield et al.[30]). This consists of four questions: "Have you ever felt you ought to cut down on your drinking?", "Have people annoyed you by criticizing your drinking?", "Have you ever felt bad or guilty about your drinking?", and "Have you ever had a drink the first thing in the morning to steady your nerves or get rid of a hangover (eye-opener)?". Each item is rated as "no" (0) or "yes" (1), with the total score between 0 and 4. The instrument is named after the initial underscored letter shown in the four question items, and thus is not an acronym. The validity of the CAGE was previously confirmed.[27,30-33] The CAGE was translated by Kitamura[28] into Japanese and is used in occupational settings.[34]

The independent (predictor) variables were the TCI, PBI, School Bully Scale, Childhood Life Events Scale, and variables related to drinking.

The short version of the TCI consists of 125 items with a two-point scale (no, 0; yes, 1). It yields four temperament scales (NS, HA, RD, and persistence [P]) and three character scales (self-directedness [SD], cooperativeness [C], and self-transcendence [ST]). P was formerly a subscale of RD, but was later regarded as a discrete higher-order scale because it consisted of an independent factor in a factor analysis. Each scale other than P has subscales (Table 1). The TCI was translated by Kijima et al.,[35] and then retranslated into English for Professor Cloninger to verify the wording. The TCI was measured in the questionnaire.

The PBI, included in the questionnaire, is a measure of retrospective perceived parenting. It consists of 25 items with a four-point scale (very unlikely, 0; very likely, 3). It has two subscales—care and overprotection— that measure affective behavior and overprotective rearing, respectively, for each parent, when the subject was younger than 16. The care subscale includes items such as "My father/mother spoke to me with a warm and friendly voice," and "made me feel I wasn't wanted" (reversed item). The overprotection subscale includes items such as "invaded my privacy" and "liked me to make my own decision" (reversed item). The validity of the PBI has been reported for both the English[19] and Japanese[36] versions.

For the experience of childhood abuse, the participant was

asked whether she experienced any of eight categories of maltreatment from the father or mother before the age of 16: (1) emotional neglect, e.g., "you are not my child"; (2) threat, e.g., not providing meals and destroying cherished pets or toys; (3) shaming, e.g., scolding cruelly and making fun of the child in front of others; (4) slapping; (5) punching with a fist; (6) kicking; (7) hitting with an object, e.g., a club; and (8) burning, e.g., with a cigarette. Each maltreatment was rated for its frequency (when it was most frequent) from both parents separately with a five-point scale: never (1), once in the lifetime (2), several times per year (3), several times per month (4), and several times per week (5). The score for each item was standardized before summing the score for the first three items to yield the emotional abuse subscore and summing the score for the last five items to yield the physical abuse subscore.

The participant was asked whether she was bullied at school before the age of 16 in terms of nine categories: (1) bullying in general, (2) being ignored by peers, (3) being made fun of or laughed at, (4) having personal items hidden, (5) being shunned by the peer group, (6) being threatened verbally, (7) having money or things stolen, (8) being physically abused, and (9) other. Each item was rated for frequency: never (1) to several times per week (5). The score for each item was standardized and summed to yield the total score.

To control the effects of social desirability, the Japanese version[26] of the SDS[25] was included in the questionnaire. The original SDS consists of 33 items to investigate the degree to which the participant responds to questions in a socially acceptable way. The 33 items were reduced to 10 to suit the Japanese population.[26]

Twelve of the women reported that curiosity was the reason for regular drinking. Curiosity was rated as 1 and other reasons for regular drinking as 0. As the reason for current drinking behavior, 41 women listed "like the taste of alcoholic beverages," "can feel good," and "like the atmosphere of drinking"—spontaneously seeking the positive effects of drinking. Seeking the positive effects of drinking was rated as 1 and other reasons for current drinking as 0. Eleven women reported that they usually drank at home, and the other 75 women drank outside the home (the answers from four women were ambiguous or they did not answer). Drinking at home was rated as 0 and drinking away from home as 1. Four reported that they liked a drinking party very much (4), four liked it (3), 32 disliked it (2), and 49 disliked it very much (1) (one missing). One reported that drinking was very good for their health (4), 30 reported that it was good for their health (3), 49 reported that it was bad for their health (2), and seven reported that it was very bad for their health (1) (three missing). The fathers of six, eight, and 73 women never drank, previously drank but did not drink currently, and currently drank, respectively (three missing). The corresponding figures for the mothers were 24, five, and 59, respectively (two missing).

Statistical analyses were performed using the SPSS-X program.[37]

This report is part of a study on mental health and mental illness in young Japanese women. Using the same data set, we have reported elsewhere the psychosocial correlates of depression,[38] the prevalence of child abuse,[39] and the determinants of social support.[40]

RESULTS

Of 98 women, 90 reported current regular alcohol consumption. The frequency of drinking was almost every day in 1%, 3 to 4 days per week in 2%, 1 to 2 days per week in 34%, 1 to 3 days per month in 44%, and less than once per month in 16%. The age of first experience with alcoholic beverages was between 2 and 20 years, with a mean of 13.1 ± 5.3 (mean ± SD). The age at which they started to drink their maximum amount was between 12 and 23 years, with a mean of 18.9 ± 1.6.

The CAGE score was between 0 and 3, with a mean of 0.4 ± 0.7. The distribution of the CAGE score was skewed. Thus, 65 women (72.2%) were scored as 0, 16 (17.8%) as 1, seven (7.8%) as 2, and two (2.2%) as 3. None of the women were scored as 4. The CAGE score was slightly negatively correlated with the total SDS score ($r = -.18$), but this did not reach statistical significance.

None of the four temperament and three character scores were significantly correlated with the CAGE score. However, a few subscores of both temperament and character were correlated with the CAGE score. Thus, NS1 (explorative excitability), RD3 (attachment), and ST1 (self-forgetful) were significantly positively correlated with the CAGE score, whereas HA3 (shyness with strangers) was significantly negatively correlated with the CAGE score (Table 1).

To calculate the correlation between the PBI score and the CAGE score, 17 women who were separated for more than 1 year from the father or mother or bereaved before the age of 16 were excluded because of possible unreliability for the recall of their parents' behavior. Although a few participants experienced the loss of a parent late during childhood, we excluded these subjects from further analyses to avoid the possible unreliability of the recall and the possible distortion of memory due to such an experience. None of the PBI scores were significantly correlated with the CAGE score (paternal care, $r = -.01$; paternal overprotection, $r = .10$; maternal care, $r = .19$; and maternal overprotection, $r = -.05$).

As in the PBI analyses, women with early parental loss were excluded from analyses on the relationship between abuse experience and CAGE score. None of the frequency rates for paternal and maternal abusive behavior were significantly correlated with the CAGE score (emotionally ignored by the father, $r = -.09$; threatened by the father,

Table 1. TCI Personality Scores and Their Correlation With the CAGE Score

TCI	No. of Subjects	Mean ± SD	r
NS	86	10.03 ± 3.18	.144
Explorative excitability (NS1)	87	1.78 ± 1.11	.298†
Impulsiveness (NS2)	87	2.13 ± 1.13	.081
Extravagance (NS3)	88	2.53 ± 1.33	.050
Disorderliness (NS4)	87	3.57 ± 1.33	.103
HA	86	10.15 ± 4.27	−.144
Anticipatory worry (HA1)	89	2.82 ± 1.37	.010
Fear of uncertainty (HA2)	88	1.67 ± 1.42	−.059
Shyness with strangers (HA3)	89	2.89 ± 1.43	−.209*
Fatiguability and asthenia (HA4)	86	2.83 ± 1.47	−.143
RD	81	3.99 ± 2.42	.192
Sentimentality (RD1)	83	1.54 ± 1.17	.180
Attachment (RD3)	86	1.29 ± 1.20	.226*
Dependence (RD4)	86	1.06 ± 1.00	.032
P	87	2.07 ± 1.45	.059
SD	82	7.32 ± 3.94	.032
Responsibility (SD1)	89	0.39 ± 0.70	.031
Purposefulness (SD2)	84	1.62 ± 1.12	.051
Resourcefulness (SD3)	87	1.41 ± 1.29	.051
Self-acceptance (SD4)	88	2.23 ± 1.75	−.066
Enlightened second nature (SD5)	84	1.52 ± 1.18	−.011
C	80	5.66 ± 2.96	.055
Social acceptance (C1)	88	0.56 ± 0.80	−.021
Empathy (C2)	87	2.22 ± 1.18	.184
Helpfulness (C3)	87	0.95 ± 0.91	.008
Compassion (C4)	86	0.80 ± 0.78	−.015
Pure-hearted conscience (C5)	83	1.07 ± 0.97	−.078
ST	87	10.32 ± 2.73	.136
Self-forgetful (ST1)	87	3.52 ± 1.24	.229*
Transpersonal identification (ST2)	87	3.54 ± 1.20	.005
Spiritual acceptance (ST3)	87	3.26 ± 1.07	.075

*$P < .05$.
†$P < .01$.

$r = -.13$; shamed by the father, $r = .14$; slapped by the father, $r = -.07$; punched with a fist by the father, $r = -.08$; kicked by the father, $r = .03$; hit with a tool by the father, $r = -.09$; burnt by the father, $r = .10$; emotionally ignored by the mother, $r = -.09$; threatened by the mother, $r = -.10$; shamed by the mother, $r = .10$; slapped by the mother, $r = .05$; punched with a fist by the mother, $r = -.10$; kicked by the mother, $r = .03$; and hit with a tool by the mother, $r = -.14$). None reported having been burned by the mother. The CAGE score was not correlated with the emotional abuse subscore (by the father, $r = -.04$; by the mother, $r = -.04$) or the physical abuse subscore (by the father, $r = -.04$; by the mother, $r = -.08$).

The score for being bullied was not correlated with the CAGE score ($r = .06$).

Of the 27 life events experienced before the age of 16, only two items (change of school and death of a close friend) were significantly correlated with the CAGE score ($r = .21$, $P < .05$ and $r = .38$, $P < .01$, respectively).

The CAGE score was not significantly correlated with the frequency of current drinking ($r = -.14$), the age of first experience with alcoholic beverages ($r = -.06$), the age at which they started to drink their maximum amount ($r = .20$), the affinity for drinking parties ($r = .06$), the perception of drinking as bad for the health ($r = .08$), the father's drinking (rated 1 if the father drinks and 0 if not; $r = .09$), and the mother's drinking ($r = -.11$).

Since only four personality variables (NS1, HA3, RD3, and ST1) and two life event variables (change of school and death of a close friend) were significantly correlated with the CAGE score in bivariate analyses, we then performed a series of multiple regression analyses using these two sets of predictor variables. In the first analysis, personality variables were entered first, followed by their interactional terms (NS1 × HA3, NS1 × RD3, NS1 × ST1, HA3 × RD3, HA3 × ST1, and RD3 × ST1). These interaction terms were considered because we hypothesized that problem drinking would be greater in a particular combination of personality profiles. The personality variables contributed significantly to the prediction of the CAGE score ($R^2 = .176$; F = 4.27, $df = 4,80$, $P < .005$), with only RD3 having a significant β value (0.977, $P < .05$), whereas the personality interactional terms did not add a significant contribution ($\Delta R^2 = .057$, F = .909, $df = 10,74$, NS). In the second analysis, two early life events were entered first, followed by their interactional term. Early life events significantly predicted the CAGE score ($R^2 = .152$, F = 7.33, $df = 2,82$, $P < .005$), with only the death of a close friend having a significant β value (0.084, $P < .001$), whereas their interaction did not add any significant increase to the prediction of the CAGE score ($\Delta R^2 = .002$, F = .208, $df = 3,81$, NS). In the final analysis, four personality variables were entered first, followed by the two early life events, and then followed by the interactional terms

of the personality and early life events (Table 2). The set of personality variables significantly predicted the CAGE score, but none of the four variables had a significant β value. The set of early life events contributed significantly to the prediction of the CAGE score, with the death of a close friend having a significant β value. The personality–early life events interactional terms did not add significantly to the prediction of the score, but NS1 × death of a friend had a significant β value.

DISCUSSION

It is alarming that about one tenth of the study population of young Japanese women had a score of 2 or greater on the CAGE and that one third (33 of 98, 0.337) drank alcohol at least once per week. One may argue that this is entirely age-appropriate. However, Japan was a male-dominant society in the past, and even a recent survey showed that just over half of the entire adult female population drank regularly. Our results suggest that women start drinking early in life if they ever drink.

Our study indicates that problem drinking among young Japanese women can be predicted by a set of personality traits, the past experience of an early death of a close friend, and the interaction of high explorative excitability and death of a close friend. Thus, problem drinking in young women may be a product of both the personality and the social environment.

Applying Cloninger's hypothesis, it can be expected that type 1 alcoholism may develop in the female problem drinkers we identified by the CAGE score. However, female problem drinkers in this study scored high on NS, low on HA, and high on RD. Furthermore, we identified high ST as being correlated with problem drinking. However, caution should be exercised because of the multiple comparisons in Table 1. The purpose of our study should be regarded as exploratory rather than confirmatory. A set of personality variables remained significant in predicting problem drinking when regression analysis was performed. However, the contribution of personality variables to the prediction of problem drinking was modest ($R^2 = .176$), and no specific personality variables showed significant β values.

Among the life experiences in childhood, only the death of a close friend and, to a lesser extent, a change of school were found to be predictive of the CAGE score.

Bernardi et al.[41] examined 37 mostly male alcoholics and 127 controls and found that maternal overprotection could distinguish the two groups. However, all of the alcoholics they studied were cases referred for admission. The difference between their data and ours may be due to diagnosis, severity, sex, or other differences.

Holmes and Robins[42-44] showed that adult alcoholics were more likely to report receiving harsh discipline from their parents. However, we failed to confirm their finding. This may be due to the social status of the family, because in their study,[43] only among subjects from low-status families, not among

Table 2. Hierarchical Regression Analyses Predicting the CAGE Score From Personality and Early Life Event Variables

Predictor	R^2	R^2 Increase	F	*df*	*P*	β‡
Step 1: personality	.176	—	4.27	4,80	<.005	
NS1						.197
HA3						−.189
RD3						.121
ST1						.076
Step 2: early life events	.272	.096	5.12	6,78	<.01	
Change of school						.605
Death of a close friend						1.211†
Step 3: interactions	.390	.118	1.71	14,70	NS	
NS1 × change of school						−.086
NS1 × death of a close friend						.819*
HA3 × change of school						.421
HA3 × death of a close friend						.560
RD3 × change of school						.157
RD3 × death of a close friend						−.058
ST1 × change of school						.180
ST1 × death of a close friend						−.369

*$P < .05$.
†$P < .01$.
‡For final model (step 3).

those from middle-class families, was alcoholism associated with childhood harsh discipline. Although we did not measure the social class of our subjects due to a lack of consensus about social class among the Japanese, we presume that most of the subjects came from middle- or high-status families because 85.7% graduated from university.

The interaction of personality and social environment in predicting problem drinking has been thought to be important both theoretically and practically. However, few empirical studies have been reported. Our study shows that individuals with high explorative excitability are more likely to develop problem drinking if they experienced the death of a close friend. It may be that subjects with high explorative excitability are more "vulnerable" to a major loss experience and thus start drinking to cope with the bereavement.

This study should not be generalized to clinical cases of alcoholism, which require separate research. Only a portion of female problem drinkers may develop alcoholism in the course of time, while the rest may refrain from problem drinking. Nor is it definite that those with higher CAGE scores are more likely to develop alcoholism. Further study should examine factors that facilitate or prevent problem drinking from leading to alcoholism.

Caution should also be exercised because the design of this study was retrospective and thus subject to recall bias. Although Robins et al.[44] claimed that the recall of early disciplinary experiences is reliable among individuals aged 30 to 50, further investigation should focus on the reliability and validity of recall of past experiences. Recently, Pope and Hudson[45] reviewed the literature on the validity of recall of traumatic experiences. They noted that although traumatic victims remember such experiences, they often choose not to disclose them, particularly in the first interview. The prevalence of child abuse and negative experiences during childhood may be an underestimation.

It should also be taken into account that Cloninger's hypothesis has been criticized frequently.[46] Specific associations between neurotransmitters and personality traits have also demonstrated negative findings in some cases.[47] Thus, future study should integrate personality theory, biological findings, and problem drinking data.

We must also be cautious in forming a conclusion because of the many analyses performed. Some results may be expected by chance. Replication studies are necessary; otherwise, one may criticize that we have overinterpreted the results.

Sex differences are another area that requires further investigation. As suggested by Cloninger,[12] men and women may have different sets of personality traits and other correlates of alcoholism. Therefore, one should be careful in interpreting our data because we studied only women.

In summary, our study suggests a contribution of early life experience and its interaction with personality in developing problem drinking among young women.

ACKNOWLEDGMENT

We are grateful to Professor J.A. Ewing for comments on an early draft of the report. We thank the following interviewers: W. Aihara, N. Iwata, M. Ono, T. Koizumi, Y. Senda, K. Takahashi, M. Takayama, Y. Takezaki, S. Takehara, E. Tanaka, I. Hayashi, R. Fukuda, M. Yamamoto, and K. Watanabe.

REFERENCES

1. Nakazawa T, Kitamura T, Nomura S, Iwata N, Tomoda A. Characteristics of drinking behaviour among young people and determinants of healthy drinking. Proc Res Conf Alcohol Health 1994;4:147-154 (in Japanese).

2. Donovan JE, Jessor R, Jessor L. Problem drinking in adolescence and young adulthood: a follow-up study. J Stud Alcohol 1993;44:109-137.

3. Klerman GL. The current age of youthful melancholia: evidence for increase in depression among adolescents and young adults. Br J Psychiatry 1988;152:4-14.

4. Lewinsohn PM, Hops H, Roberts RE, Seeley JR, Andrews JA. Adolescent psychopathology: I. Prevalence and incidence of depression and other DSM-III-R disorders in high school students. J Abnorm Psychol 1993;102:133-144.

5. Lewinsohn PM, Rohde P, Seeley JR, Fischer SA. Age-cohort changes in the lifetime occurrence of depression and other mental disorders. J Abnorm Psychol 1993;102:110-120.

6. Tomoda A, Kawakami N, Yamauchi K, Fujihara S, Kitamura T. Lifetime prevalence and 12-month incidence of DSM-III-R mental disorders in a community sample in Japan. submitted, 1997.

7. Cloninger CR, Bohman M, Sigvardsson S. Inheritance of alcohol abuse: cross-fostering analysis of adopted men. Arch Gen Psychiatry 1981;38:861-868.

8. Cloninger CR. A systematic method for clinical description and classification of personality variants. Arch Gen Psychiatry 1987;4:573-588.

9. Weisbeck GA, Mauerer C, Thome J, Jakob F, Boening J. Neuroendocrine support for a relationship between "novelty seeking" and dopaminergic function in alcohol-dependent men. Psychoneuroendocrinology 1995;20:755-761.

10. Ebstein RP, Novick KO, Umansky R, Priel B, Osher Y, Blaine D, et al. Dopamine D4 receptor (D4DR) exon III

polymorphism associated with the human personality trait of novelty seeking. Nat Genet 1996;12:78-80.

11. Ebstein RP, Segman R, Benjamin J, Osher Y, Nemanov L, Belmaker RH. 5-HT2C (HTR2C) serotonin receptor gene polymorphism associated with the human personality trait of reward dependence: interaction with dopamine D4 receptor (D4DR) and dopamine D3 receptor (D3DR) polymorphisms. Am J Med Genet 1997;74:65-72.

12. Cloninger CR. Neurogenetic adaptive mechanisms in alcoholism. Science 1987;236:410-416.

13. Cannon DS, Clark LA, Leeka JK, Keefe CK. A reanalysis of the Tridimensional Personality Questionnaire (TPQ) and its relation to Cloninger's type 2 alcoholism. Psychol Assess 1993;5:62-66.

14. Yoshino A, Kato M, Takeuchi M, Ono Y, Kitamura T. Examination of the tridimensional personality hypothesis of alcoholism using empirically multivariate typology. Alcohol Clin Exp Res 1994;18:1121-1124.

15. Cohen P, Cohen J. The clinician's illusion. Arch Gen Psychiatry 1984;41:1178-1182.

16. Cloninger CR, Dragan MD, Svrakic MD, Przybeck TR. A psychobiological model of temperament and character. Arch Gen Psychiatry 1993;50:975-990.

17. Svrakic NM, Svrakic DM, Cloninger CR. A general quantitative theory of personality development: fundamentals of a self-organizing psychobiological complex. Dev Psychopathol 1996;8:247-272.

18. Tennant C. Parental loss in childhood: its effect in adulthood. Arch Gen Psychiatry 1988;45:1045-1050.

19. Parker G. Parental Over-Protection: A Risk Factor in Psychosocial Development. New York, NY: Grune & Stratton, 1983.

20. Parker G. Parental 'affectionless control' as an antecedent to adult depression: a risk factor delineated. Arch Gen Psychiatry 1983;40:956-960.

21. Parker G, Hadzi-Pavlovic D. Parental representations of melancholic and non-melancholic depressives: examining for specificity to depressive type and for evidence of additive effects. Psychol Med 1982;22:657-665.

22. Perris C, Maj M, Perris H, Eisemann M. Perceived parental rearing behaviour in unipolar and bipolar depressed patients: a verification study in an Italian sample. Acta Psychiatr Scand 1985;72:172-175.

23. Perris C, Arindell WA, Perris H, Eisemann M, Ende J, von Knorring L. Perceived depriving parental rearing and depression. Br J Psychiatry 1986;148:170-175.

24. Parker G, Tupling H, Brown LB. A Parental Bonding Instrument. Br J Med Psychol 1979;52:1-10.

25. Crowne DP, Marlowe D. A new scale of social desirability independent of psychopathology. J Consult Psychol 1960;24: 349-354.

26. Kitamura T, Suzuki T. Japanese version of Social Desirability Scale. Jpn J Soc Psychiatry 1986;9:173-180 (in Japanese).

27. Ewing JA. Detecting alcoholism: the CAGE questionnaire. JAMA 1984;252:1905-1907.

28. Kitamura T. CAGE questionnaire translation. Psychiatr Diagn Clin Eval 1991;2:356-363 (in Japanese).

29. Ewing JA, Rouse BA. Identifying the hidden alcoholic. Presented at the 29th International Congress on Alcohol and Drug Dependence; February 3, 1970; Sydney, Australia.

30. Mayfield D, McLeod G, Hall P. The CAGE questionnaire: validation of a new alcoholism screening instrument. Am J Psychiatry 1974;131:1121-1123.

31. Bernadt MW, Mumford J, Taylor C, Smith B, Murray RM. Comparison of questionnaire and laboratory tests in the detection of excessive drinking and alcoholism. Lancet 1982;6: 325-328.

32. King M. At risk drinking among general practice attenders: validation of the CAGE questionnaire. Psychol Med 1986;16:213-217.

33. Mayou R, Hawton K. Psychiatric disorder in the general hospital. Br J Psychiatry 1986;149:172-190.

34. Iwata N, Haratani T, Kawakami N, Imanaka T, Murata K, Araki S. Psychometric properties of the CAGE questionnaire among adult employees in Japan. Occup Ment Health 1994;2: 327-331 (in Japanese).

35. Kijima N, Saito R, Takeuchi M, Yoshino A, Ono Y, Kato M, et al. Cloninger's seven factor model of temperament and character and Japanese version of the Temperament and Character Inventory (TCI). Arch Psychiatr Diagn Clin Eval 1996;7:379-399 (in Japanese).

36. Kitamura T, Suzuki T. A validity study of the Parental Bonding Instrument in a Japanese population. Jpn J Psychiatry Neurol 1993;47:29-36.

37. SPSS. SPSS-X User's Guide. Chicago, IL: SPSS, 1986.

38. Kitamura T, Kijima N, Aihara W, Tomoda A, Fukuda R, Yamamoto M. Depression and early experiences among young Japanese women: multiple facets of experiences and subcategories of depression. Arch Women Ment Health 1998;1:27-37.

39. Kitamura T, Kijima N, Iwata N, Senda Y, Takahashi K, Hayashi I. Frequencies and help-seeking of emotional and physical child abusive behaviours in Japan: hidden but prevalent crime behind the door. Int J Offender Ther Comparat Criminol. In press.

40. Kitamura T, Kijima N, Watanabe K, Takezaki Y, Tanaka E. Precedents of perceived social support: personality and early life experiences. Submitted.

41. Bernardi E, Jones M, Tennant C. Quality of parenting in alcoholics and narcotic addicts. Br J Psychiatry 1989;154:677-682.

42. Holmes SJ, Robins LN. The influence of childhood disciplinary experience on the development of alcoholism and depression. J Child Psychol Psychiatry 1987;28:399-415.

43. Holmes SJ, Robins LN. The role of parental disciplinary practices in the development of depression and alcoholism. Psychiatry 1988;51:24-36.

44. Robins LN, Schoenberg SP, Holmes SJ, Ratcliff KS, Benham A, Works J. Early home environment and retrospective recall: a test for concordance between siblings with and without psychiatric disorders. Am J Orthopsychiatry 1985;55:27-41.

45. Pope HG, Hudson JI. Questionable validity of 'dissociative amnesia' in trauma victims. Br J Psychiatry 1998;172:210-215.

46. Gray JA, Liebowitz MR, Gelder MG. Discussion arising from Cloninger CR. A unified biosocial theory of personality and its role in the development of anxiety states. Psychiatr Dev 1987;4:377-394.

47. Sullivan PF, Fifield WM, Kennedy MA, Mulder RT, Sellman JD, Joyce PR. No association between novelty seeking and the type 4 dopamine receptor gene (DRD4) in two New Zealand samples. Am J Psychiatry 1998;155:98-101.