

RISK AND PROTECTIVE FACTORS RELATED TO NATIVE HAWAIIAN ADOLESCENT ALCOHOL USE

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Abstract — The present study examined protective and risk factors in the prediction of alcohol use for Hawaiian and non-Hawaiian (i.e. Caucasian, Japanese, Filipino, 'other') adolescents. Comparable rates of ~25% were found for both the Hawaiian and non-Hawaiian samples regarding sometimes drinking too much alcohol. However, Hawaiians reported a statistically significantly higher rate (3.7%) of taking 'a drink in the morning to steady my nerves or to get rid of a hangover' than non-Hawaiians (1.3%). The reason for this is unknown but might indicate a higher rate of dependent alcohol use. The overall results supported the traditional model of protective and risk factors predicting alcohol use ($R^2 > 15.0\%$), with relatively few differences found between the two ethnic groups. Further research is needed in assessing possibly unique cultural variables such as Hawaiian acculturation.

INTRODUCTION

Risk and protective factors for alcohol use in adolescents and adults have been identified, including: gender, age, accessibility, exposure, perceived 'normal' drinking, perceived 'dangerousness', stress, acculturation, spirituality, childhood trauma, family influence, peer influence, school performance, community variables, socio-cultural values and policies, and media presentations (Braucht, 1983; Weibel-Orlando *et al.*, 1984; Dick *et al.*, 1993; US Department of Health and Human Services, 1997; Frank *et al.*, 2000; Hishinuma *et al.*, 2000; Kail *et al.*, 2000; Klinge and Miller, 1999; Parker *et al.*, 2000). However, there has been a lack of research on alcohol use, including that on risk and protective factors, for the ethnically diverse population of Native Hawaiians and non-Hawaiians in Hawaii.

For the culturally diverse population of Hawaii, the adult prevalence rates of ~5–6% for alcohol dependency and 2.5–3% for alcohol misuse are much higher than the dependency–misuse rates of marijuana, cocaine, hallucinogens, heroin, and amphetamines (Office of Hawaiian Affairs, 1998). In the case of adolescents, 20.2% of females and 27.9% of males indicated that they had five or more successive drinks of alcohol within a couple of hours within the past 30 days (Office of Instructional Services/General Education Branch, 1995). These rates for adolescents are generally lower than the national figure of 32.6% (Pateman *et al.*, 1996). However, it was found that Native Hawaiians use more alcohol than the other major non-Caucasian ethnic groups residing in Hawaii (Danko *et al.*, 1988; Deck and Nickel, 1989; see also the review by Hishinuma *et al.*, 2000), and have higher rates of problem drinking which include both acute (binge) and chronic drinking (Johnson *et al.*, 1998; Office of Hawaiian Affairs, 1998), with rates of alcohol use also being high for Caucasians who live in Hawaii (see Alu Like, Inc., 1985; Takeuchi *et al.*, 1987; and the review by Hishinuma *et al.*, 2000).

Studies of the incidence of alcoholism in Hawaii suggest that different ethnic groups may have widely divergent standards regarding the quantities and behaviours defining alcohol misuse (Ahern, 1989). Cultural norms are important determinants of the level of alcohol use and the probability of risks of alcoholism (Johnson *et al.*, 1987). These latter authors found that the cohesive system of social norms and sanctions in ethnic groups provided an obvious source for alcohol-use norms. However, the values and norms of the family, spouse, and friends may diverge from the respective ethnic-group norms and these individualized characteristics may have a more direct influence on alcohol-related behaviours. In examining alcohol use in the context of the reasons for either drinking or not drinking, Johnson *et al.* (1985) found that a stronger predictor of present alcohol use was group affiliation based on past use (e.g. abstainers, past drinkers) as compared to groups based on ethnicity.

Risk and protective factors have not been sufficiently investigated for minority populations (Jenkins and Parron, 1995), including those for alcohol use in Native Hawaiians. This type of research has become increasingly important in the light of the significant growth in the proportion of Asian/Pacific Islanders (Barringer *et al.*, 1993) and the short- and long-term negative impact alcohol can have on adolescents. Therefore, the present study examined the association between alcohol use and predictors by grouping the risk and protective factors into four categories: (1) demographic; (2) person or self; (3) family; (4) friends.

SUBJECTS AND METHODS

Participants

More than 7000 adolescents were surveyed from 1992 to 1996 by the Native Hawaiian Mental Health Research Development Program (NHMRDP). Five high schools from three of the Hawaiian Islands participated in this large-scale, cross-sequential (i.e. longitudinal cross-sectional) investigation. These efforts were performed in collaboration with the

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National Center for American Indian and Alaska Native Mental Health Research Program (Ackerson *et al.*, 1990). For the purposes of the present study, the largest single-year administration (the 1993–1994 school year) was utilized with a total of 4182 participants. Of these subjects, 2980 had complete data for all of the variables under study for the present investigation (see Measures section below). There was a total of 1854 Native Hawaiians ('Hawaiians' hereafter) defined as the descendants of the indigenous people who inhabited the Hawaiian Islands prior to 1778, the date Captain Cook first encountered the Hawaiian Islands. Given the very low percentage of Hawaiians with no mixed ancestry, part- and full-Hawaiians were included in this Hawaiian category. There was a total of 1126 non-Hawaiians who were defined as adolescents without any Hawaiian ancestry. The major ethnic subcategories for this non-Hawaiian group were 111 Caucasians, 159 Filipinos, 258 Japanese, and 598 'other' of mixed ancestry. However, given the generally low frequency of alcohol use and the smaller sample sizes of these ethnic subgroups, the non-Hawaiian sample was not subdivided into these different subgroups in the statistical analyses.

Measures

All measures were part of the Hawaiian High Schools Health Survey (HSHS) that was administered to the participants.

Demographic variables. Five demographic factors were included: (1) ethnicity (1 = Hawaiian versus 2 = non-Hawaiian); (2) gender (1 = male, 2 = female); (3) grade level (9th–12th); (4) main-wage earners' educational level (scale of 1–7; see Table 1); (5) self-reported 'last-report-card' grades. The latter was operationized using the following question: 'On average, what were your grades on your last report card?' The following choices were available (values in parentheses are the quantification of the grade variable; these values did not appear on the questionnaire): A (4.0), A– (3.7), B+ (3.3), B (3.0), B– (2.7), C+ (2.3), C (2.0), C– (1.7), D or less (1.0), or Don't know (missing score).

Person or self variables. Four scales were utilized. (1) Center for Epidemiologic Studies — Depression (CES-D; Radloff, 1977): This instrument consists of 20 items rated on a 4-point scale with a sum score ranging from 0 to 60. Internal consistency (Cronbach alpha) was 0.89 ($n = 3403$, 1993–1994 data set) and stability (test–retest) was 0.54 ($n = 1892$, across 1992–1993 and 1993–1994 data sets) (Native Hawaiian Mental Health Research Development Program, NHMHRDP, 1999). (2) Spielberger State–Trait Anxiety Inventory (STAI; Spielberger *et al.*, 1970): Only the State subscale was utilized, which is composed of 20 items rated on a four-point scale with the total score ranging from 0 to 60. Internal consistency was 0.89 ($n = 3433$) and stability was 0.54 ($n = 1876$) (NHMHRDP, 1999). (3) Braver Aggressiveness Dimension Scale (BADs; Poster presented by S. L. Braver *et al.*, in 1986 entitled 'Development of a self-report aggressiveness scale for children: the Braver Aggressiveness Dimension Scale (BADs)', at the annual meeting of the Western Psychological Association, Seattle, WA, USA): this abbreviated 14-item instrument is rated on a 3-point scale resulting in a sum score with a range from 0 to 28. Internal consistency was 0.85 ($n = 3899$) and stability was 0.61 ($n = 1997$) (NHMHRDP, 1999). (4) Major Life Events for self (Andrews *et al.*, 1993), an instrument consisting of 13 of 14 items related to negative stressful

events occurring within the past 6 months (e.g. death, arrests, suicide attempt). The remaining item ('Had problems with drugs or alcohol') was not included for this measure. The possible range of the total score was from 0 to 13.

For all four measures, higher scores indicated a greater degree of symptomatology or distress. When not more than one-fourth of the items of either the CES-D, STAI or BADs were incomplete for a given respondent, adjustments to the composites were accomplished based on the average Z-score difference for the items within a scale. This procedure takes into account both the individual participant's score on all non-missing items and the mean of the group in deriving an adjusted composite for the participant. In addition, the CES-D and STAI contained reversed items on the scale. This allowed for a form of validity check. Scores were not included for participants who responded (on either the CES-D or STAI scale) with all 20 ratings being either the lowest or highest possible rating prior to reverse scoring.

Family variables. The four dimensions in this domain were as follows: (1) Perceived Social Support From Family (PSS-Family; Procidano and Heller, 1983): This measure is composed of six items each rated on a 1–5 scale (with one reversed statement); the higher the score, the greater the amount of perceived family support. (2) Major Life Events for family members (Andrews *et al.*, 1993): This instrument consists of 13 of 14 items related to negative stressful events occurring within the past 6 months (e.g. death, arrests, suicide attempt) as rated by the adolescent. (3) Family members and alcohol/drug use: The remaining item ('Had problems with drugs or alcohol') from the Major Life Events scale was utilized for this measure. (4) Concern over a family member and alcohol/drug use: One item from the Substance Abuse Subtle Screening Inventory — Adolescent (SASSI-A; Miller, 1985) was used ('I have often felt bad or scared because of drinking or drug use of someone in my family'). The choices for this statement are 'true' (coded 1) versus 'false' (coded 0).

Friendship variables. Three measures of friendship were included: (1) Perceived Social Support From Friends (PSS-Friends; Procidano and Heller, 1983): Similar to the family support inventory (PSS-Family), the friends' support instrument consists of six items each rated on a 1–5 scale (with one reversed statement); the higher the score, the greater the amount of perceived friends' support. (2) Major Life Events for close friends (Andrews *et al.*, 1993), an instrument composed of 13 of 14 items related to negative stressful events occurring within the past 6 months (e.g. death, arrests, suicide attempt) as reported by the participant. (3) Close friends and alcohol/drug use: The remaining item ('Had problems with drugs or alcohol') from the Major Life Events scale was utilized for this measure.

Adolescent alcohol use. To assess alcohol use, two additional items from the SASSI-A (Miller, 1985) version that dealt exclusively with alcohol were utilized: (1) 'I have sometimes drunk too much beer or other alcoholic drink'; (2) 'I have taken a drink in the morning to steady my nerves or to get rid of a hangover'. 'True' responses were coded 1, whereas 'false' responses were coded 0.

Procedures

Parents/guardians and students were given written notification of the nature and purpose of the research study

~2 weeks prior to the administration of the HSHS. Parents/guardians who did not wish their child to participate returned a self-addressed postcard. The students whose parents did not decline participation were presented with a formal consent document on the day of the administration. Students who provided their assent were administered the HSHS in their homeroom classes by teachers who had been previously instructed on the protocol. Teachers were given an instruction sheet which the teachers read to students before the survey was distributed. In the case of 'slow readers', teachers assisted students in reading of the items and response choices. A very small minority of students required assistance. All of the procedures were approved by the University of Hawaii's Committee on Human Studies [CHS; i.e. Institutional Review Board (IRB)]. Based on the enrolments during those school years, ~60% of the students in the five high schools participated in this investigation.

Statistical analyses

Univariate and multiple logistic regression analyses (LRAs) were performed with the four major domains (i.e. demographic, self, family, friendship) as predictors of adolescent alcohol use. This type of analysis was conducted for all participants combined, for Hawaiians only, and then for non-Hawaiians only.

RESULTS

Table 1 presents the demographic breakdown of the 2980 participants by gender, grade level, and main-wage earners' educational level for Hawaiians versus non-Hawaiians. Amongst non-Hawaiians there was a larger percentage of earners with higher levels of education than amongst Hawaiians.

To determine the relative contribution of risk and protective factors in the prediction of adolescent alcohol use, univariate LRA and a multiple LRA were performed for Hawaiians and non-Hawaiians combined (see Table 2). For the first SASSI

item ('I have sometimes drunk too much beer or other alcoholic drink'), the overall rate of endorsement was 28.3% (844 of 2980). The difference between 28.8% (534 of 1854) for Hawaiians versus 27.5% (310 of 1126) for non-Hawaiians was not statistically significant.

The univariate LRAs indicated that endorsement of SASSI Item 1 was predicted by three of five demographic variables (females, upper grade levels, and lower self-reported grades), all four self variables (i.e. greater psychiatric symptoms), all four family variables (less family support, greater Major Life Events, family member problem with drugs/alcohol, greater concern for family member), and two of three peer variables (greater Major Life Events, close friend with a drug/alcohol problem). For the multiple LRA, the overall model χ^2 was significant with 15.5% of the variance accounted for by the model. The factors that were no longer significant predictors for this analysis were gender, the STAI, and a family member with a drug/alcohol problem.

For the SASSI Item 2 ('I have taken a drink in the morning to steady my nerves or to get rid of a hangover'), the prevalence rate was much lower, as would be expected, at 2.8% (84 of 2980). The difference between 3.7% (84 of 1854) for Hawaiians versus 1.3% (15 of 1126) for non-Hawaiians was statistically significant ($P < 0.0001$).

The univariate LRAs revealed that a 'true' response for SASSI Item 2 was predicted by three of the five demographic variables (Hawaiians, lower main-wage earners' education level, and lower self-reported grades) and all 11 remaining (self, family, and friendship) variables — with nine of the 11 variables positively related to higher rates of alcohol use and only family support and friends' support negatively related to higher rates of alcohol use. For the multiple LRA, the overall model χ^2 was significant with 19.8% of the variance accounted for by the model. However, only seven of the predictor variables were significant (ethnicity, gender, self-reported grades, CES-D, family support, concern for a family member, and Major Life Events — Friend), with gender not previously significant

Table 1. Demographic distribution (%) for the Hawaiian, non-Hawaiian, and combined samples

Demographic variable		Ethnic group		
		Hawaiian (<i>n</i> = 1854)	Non-Hawaiian (<i>n</i> = 1126)	Combined (<i>n</i> = 2980)
Gender ^a	Male	45.09	47.96	46.20
	Female	54.91	52.04	53.80
Grade level ^b	9th	23.19	24.25	23.60
	10th	27.02	27.62	27.20
	11th	25.67	24.87	25.40
	12th	24.11	23.27	23.80
Main-wage earners' education level ^c	8th grade or less	1.24	4.35	2.40
	Some high school	7.28	4.53	6.20
	High school diploma or GED	31.77	18.65	26.80
	Some college or community college	27.94	24.51	26.60
	College graduate	21.25	31.62	25.20
	Master's degree	8.68	12.79	10.20
	Doctoral degree (Ph.D., M.D., Law)	1.83	3.55	2.50

^aInteraction between Gender and Ethnic Group was not statistically significant ($\chi^2[1] = 2.32, P = 0.128$).

^bInteraction between Grade Level and Ethnic Group was not statistically significant ($\chi^2[3] = 0.81, P = 0.847$).

^cInteraction between Main Wage Earners' Education and Ethnic Group was statistically significant ($\chi^2[6] = 134.39, P < 0.001$).

Table 3. Prediction of SASSI Items 1 and 2 based on univariate and multiple logistic regression analyses for Hawaiians only

Predictor variable	SASSI Item 1 'I have sometimes drunk too much beer or other alcoholic drink'						SASSI Item 2 'I have taken a drink in the morning to steady my nerves or to get rid of a hangover'					
	Univariate			Multiple/unique			Univariate			Multiple/unique		
	χ^2	R^2 (%)	Odds ratio	Odds ratio 95% CI ^a	χ^2	R^2 (%)	Odds ratio	Odds ratio 95% CI ^a	χ^2	R^2 (%)	Odds ratio	Odds ratio 95% CI ^a
Demographic												
Gender	6.04*	0.3	1.29	1.05-1.58	0.31	0.0	0.93	0.73-1.20	0.91	0.2	0.79	0.49-1.28
Grade level	27.87***	1.3	1.28	1.17-1.41	45.10***	2.0	1.44	1.30-1.61	0.00	0.0	1.00	0.80-1.25
Main-wage earners' education level	8.33**	0.4	0.88	0.81-0.96	1.14	0.1	0.95	0.86-1.04	1.26	0.2	0.89	0.73-1.09
Self-reported grade	43.01***	1.9	0.63	0.55-0.73	25.71***	1.2	0.66	0.57-0.78	24.26***	4.1	0.46	0.34-0.62
Self												
CES-D (depression)	95.85***	4.3	1.05	1.04-1.06	13.97***	0.6	1.03	1.02-1.05	37.82***	6.4	1.07	1.05-1.09
STAI (anxiety)	30.97***	1.4	1.03	1.02-1.04	9.43**	0.4	0.98	0.96-0.99	19.83***	3.4	1.05	1.03-1.08
BADS (aggression)	103.24***	4.6	1.11	1.09-1.13	14.74***	0.7	1.05	1.03-1.08	34.01***	5.8	1.12	1.08-1.17
Life events — self	100.44***	4.5	1.54	1.41-1.68	12.34***	0.6	1.21	1.09-1.34	32.86***	5.6	1.55	1.35-1.78
Family												
Family support	32.51***	1.5	0.72	0.65-0.81	5.25*	0.2	0.85	0.74-0.98	16.51***	2.8	0.60	0.47-0.76
Life events — family member	40.44***	1.8	1.17	1.11-1.23	7.09**	0.3	1.09	1.02-1.16	11.30***	1.9	1.19	1.08-1.32
Family member problem with drugs/alcohol	9.62**	0.4	1.53	1.17-2.00	4.62*	0.2	0.69	0.49-0.97	1.27	0.2	1.43	0.78-2.61
Concern for family member	94.97***	4.3	3.34	2.62-4.25	45.24***	2.0	2.62	1.98-3.46	40.29***	6.8	5.11	3.14-8.33
Friends												
Friends' support	0.70	0.0	1.06	0.92-1.23	1.33	0.1	1.11	0.93-1.33	6.75**	1.1	0.65	0.48-0.89
Life events — close friend	92.02***	4.1	1.25	1.19-1.31	10.72**	0.5	1.10	1.04-1.17	22.22***	3.8	1.24	1.14-1.35
Close friend problem with drugs/alcohol	52.81***	2.4	2.41	1.90-3.04	1.99	0.1	1.24	0.92-1.66	5.02*	0.9	1.85	1.10-3.11
Model with all variables (df = 15)												
					337.93***	15.2						105.85***
												18.0

χ^2 for univariate logistic regression based on covariates; $R^2 = \chi^2/[-2(\log \text{likelihood})]$.
 χ^2 for multiple logistic regression based on Wald χ^2 ; $R^2 = \chi^2/[-2(\log \text{likelihood})]$.
 * $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$; **** $P < 0.0001$.
^aOdds ratio 95% CI = 95% confidence interval of odds ratio.

in the univariate LRA (i.e. males using alcohol at a higher rate than females). This indicated that a fair degree of overlap (correlation) existed between the variables that no longer predicted alcohol use.

To determine whether ethnic differences existed in the prediction of alcohol use by the risk and protective variables, similar LRAs were conducted for Hawaiians (Table 3) and non-Hawaiians separately (Table 4). For the Hawaiians, SASSI Item 1 was predicted (using univariate LRAs) by 14 of 15 variables (all except friends' support; females with a higher rate than males; all other variables in the direction found for the entire sample). Gender, main-wage earners' education level, and a close friend with a drug/alcohol problem, were no longer significant when the multiple LRA was employed. For the SASSI Item 2 using univariate LRAs, self-reported grades, all four self variables, three of four family variables (family support, Major Life Events, and concern for a family member), and all three friendship variables were significant predictors (in the direction found for the entire sample). Based on the multiple LRA, only six variables were significant (males with a higher rate than females, self-reported grades, CES-D, family member with a drug/alcohol problem, concern for a family member, and Major Life Events — Friend). Unexpectedly, the more a family member had a drug/alcohol problem, the less likely the student had drinks in the morning, but only when all other predictors were controlled for in the model.

For the non-Hawaiians, the univariate LRAs indicated that only two of the variables (gender and friends' support) did not significantly predict SASSI Item 1. The direction of the associations was as expected based on the findings of the entire sample except for the main-wage earners' education level. For the non-Hawaiians, the higher the earners' education, the more likely the adolescents sometimes drunk too much. Based on the multiple LRA, eight of 15 variables remained statistically significant (i.e. grade level, main-wage earners' education level, self-reported grades, Major Life Events — Self, family support, concern for a family member, Major Life Events — Friend, and close friend with a drug/alcohol problem). For SASSI Item 2 (regular morning use), the univariate LRAs revealed the following significant predictors: lower main-wage earners' education level, lower self-reported grades, all four self variables (higher levels of psychiatric symptoms), three of four family variables (lower family support, Major Life Events — Family, family member with a drug/alcohol problem), and lower friends' support. Surprisingly, only main-wage earners' education level remained a significant predictor based on the multiple LRA with lower levels of the earners' education associated with higher levels of adolescent alcohol use.

DISCUSSION

A little over one in four students self-reported that they 'sometimes drunk too much' alcohol. The finding that Hawaiians and non-Hawaiians did not differ significantly was not consistent with previous research results. However, the non-significance between Hawaiians and non-Hawaiians may have been due to the relative or normative assessment on the part of the participants to the item 'sometimes drunk too much.' For example, if Hawaiians perceived 'too much' as being a higher absolute number of drinks as compared to

non-Hawaiians, then Hawaiians may have consumed more alcohol than non-Hawaiians, but yet not have had a higher rate based on the 'sometimes drunk too much' item. Support for this notion comes from Danko *et al.* (1988), where Hawaiian undergraduates, as compared to non-Hawaiians in Hawaii, had higher thresholds of what they considered to be 'normal' and 'problem' drinking.

Additional support for a significant difference in alcohol use between Hawaiians and non-Hawaiians was provided by the SASSI Item 2. For this item, 'taken a drink in the morning', Hawaiians had a significantly higher rate, at 3.7%, than non-Hawaiians at 1.3%. This higher rate on the part of Hawaiians could mean many things: (1) for Hawaiians there might be less of a stigma, or greater permissibility to drink in the morning, (2) or a greater tendency to develop physiological dependence on alcohol.

The results generally supported past research findings whereby traditional risks (e.g. psychiatric symptomatology, stressful life events, poor academic grades) were significant predictors of more severe forms of alcohol use, whereas protective factors (e.g. family support) were associated with less alcohol use. The total variances accounted for (>15.0%) suggested a relatively effective model in the prediction of both SASSI items separately.

Friends' support for both Hawaiians and non-Hawaiians, and gender for non-Hawaiians were not statistically significant predictors of 'sometimes drunk too much.' The former indicated that general peer support was neither a protective nor a risk factor, whereas the latter finding suggested that Hawaiian females may be at a higher risk for drinking too much, as compared to Hawaiian males — at least as perceived by Hawaiian females and males, respectively. The variable of major stressful life events for the students exhibited one of the stronger associations for both Hawaiian and non-Hawaiian groups. This finding highlighted the possible negative environmental influences on whether adolescents felt that they were drinking too much. The results of the multiple logistic regression generally supported the association between the predictor variables and drinking too much, although some risk and protective factors predicted the same variance and thus were no longer statistically significant.

The self variables remained relatively effective predictors of the SASSI Item 2 ('taken a drink in the morning') suggesting co-occurrence of internalizing (depressive, anxiety) and externalizing (aggressive) symptoms for this variable. Although social (family and friends') support and major life events for the family were important predictors for both the Hawaiian and non-Hawaiian samples, major life events for close friends, and concern for a family member and close friend due to drinking or drug use were associated with 'taking a drink in the morning' for Hawaiians, but not for non-Hawaiians. These results may reflect partially the additional importance placed on the family, or 'ohana, for Hawaiians, with role-modelling, in that in a family where there is someone with an alcohol problem, whose drinking is a cause of 'concern', morning drinking by the problem drinker is copied by the adolescent. Werner and Smith (1992) and others have reported on the association between parental use of alcohol and child/adolescent use. It is conceivable that genetic transmission of alcoholism might be stronger in Hawaiian, than non-Hawaiian, families. Common socio-environmental variables

may also play a role. The findings based on the multiple logistic regression indicated that unique predictors remained in each domain (i.e. demographics, self, family, friends) for Hawaiians. Only the main-wage earners' education level uniquely predicted 'morning drinking' for non-Hawaiians.

The prediction of the main-wage earners' education level proved to be interesting. For Hawaiian adolescents, the higher the earners' education, the less likely students sometimes drank too much. For non-Hawaiian adolescents, the converse was found (i.e. the higher the earners' education level, the more likely students sometimes drank too much). However, the variances accounted for were very low (i.e. <1%). Of greater importance, perhaps, was the higher variance accounted for (i.e. 3.3–4.3%) in the earners' education, predicting in a negative direction the non-Hawaiian students taking a drink in the morning.

The overall conclusion is that traditional risk and protective factors are associated with alcohol use for adolescents of Hawaiian and non-Hawaiian ancestry in Hawaii, although one difference between the two ethnic groups, the predictors of 'morning drinking', might merit further exploration. Variables related to psychiatric symptoms and major stressful life events for the student should be given ample consideration, as well as family, peer, and demographic factors, in developing and implementing prevention and treatment programmes. Further research is needed to extend these types of studies by examining the relationship between more comprehensive assessments of alcohol use and relating these measures to unique cultural variables (e.g. Hawaiian ethnic identity) in a longitudinal design to better understand risk and protective factors to enhance the efficacy of prevention and treatment programmes.

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