Financial Literacy and Alcohol Drinking Behavior: Evidence from Japan

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Abstract: Alcohol consumption is an important public health issue in Japan due to its association with numerous side effects. Recent studies find that financial literacy helps people abstain from risky health behaviors such as smoking, lack of exercise, and gambling. This study investigates how financial literacy, as a rational decision-making instrument, is associated with alcohol consumption behavior in Japan. Using data from the Preference Parameter Study (PPS) of Osaka University, we categorize respondents into daily drinkers and non-daily drinkers. We find that financial literacy is not significantly associated with alcohol consumption among Japanese people. We argue that the prevailing social belief that alcohol consumption is not entirely negative from the health perspective and can be beneficial for socialization to some extent overrides people’s rationality and plays a significant role in alcohol consumption decisions. However, our study provides evidence that respondents who are males, middle-aged, have children, have higher household income, have smoking habits, and place more importance on the future are more likely to be daily drinkers. We argue that the availability and easy access to alcohol drinking opportunities likely make people irrational and tempts them to drink frequently. Thus, authorities might consider revising current policies regarding alcohol availability and accessibility to limit alcohol consumption.

Keywords: financial literacy; alcohol consumption; rationality; Japan

1. Introduction

Recent studies find that financially literate people are less likely to engage in risky health behaviors such as smoking [1,2], gambling [3], and lack of exercise [4]. These studies argue that financial literacy, being a rational decision-making instrument, helps people think and behave more rationally, thereby reducing the tendency to engage in health-damaging behaviors. These studies motivate us to investigate alcohol consumption, another risky health behavior, from the viewpoint of rationality. There is substantial evidence that alcohol consumption is associated with numerous physical and mental health problems [5,6]. Moreover, it creates burdens on the healthcare system and lowers economic productivity [6–8]. Due to the health and economic cost of alcohol consumption, the rationality explanation of previous studies seems to be relevant for alcohol consumption as well. However, unlike other risky health behaviors, many people do not consider alcohol consumption harmful but rather socially beneficial. Thus, it would be interesting to observe how the rationality explanation of alcohol consumption works when there is a social cause to consume.

Alcohol consumption has become an important public issue in Japan over the past several decades. Given the numerous adverse effects of alcohol misuse, there has long been an effort to reduce alcohol consumption in Japan [6,9]. Governments implemented population-level alcohol prevention policies, such as taxation and health warnings, on alcohol advertisements and containers [6,10]. Following the national health promotion plan announced in 2012, the Japanese Government set targets to reduce the percentage of individuals who consume alcohol beyond the recommended limits (male > 40 g, female > 20 g...
per day) to 13% for men and 6.4% for women by 2022 [11]. However, the midterm evaluation in 2018 shows little progress toward meeting these targets [12,13]. According to the Ministry of Health, Labor and Welfare (MHLW), the prevalence of alcohol consumption beyond the recommended limits among men has remained steady, while that of women has shown a significant increase since 2010 [12]. Recent data indicate that Japan’s annual per-capita consumption of pure alcohol increased in 2019 compared to 2010 [14]. An estimated 28.7% of Japanese adults—approximately 32 million people—still engage in harmful alcohol use [15].

Our study examines alcohol consumption using financial literacy as a proxy for rational decision making. We propose that enhancing people’s rational decision-making abilities through financial literacy can be an effective approach to mitigating harmful alcohol consumption. Financial literacy helps people make more informed economic and finance-related decisions [16–25]. Moreover, prior studies demonstrate that financial literacy also has behavioral consequences, as it can reduce anxiety and increase financial satisfaction [26–28]. Lusardi et al. [29] find that financial literacy is associated with improved cognitive ability—a means to encourage rational decision making [30] and greater health [31]. Supporting the significance of financial literacy and its relation to better health, previous studies provide evidence that financially literate people tend to make better healthcare decisions [32,33], engage less in smoking [1,2], participate less in gambling [3] and exercise more [4]. In light of these previous findings, it is evident that financial literacy can enhance people’s cognitive abilities and provide them with rational finance- and health-related decision-making skills.

To the best of our knowledge, no previous study addresses the relationship between financial literacy and alcohol consumption. To fill this gap, our study investigates the relationship between financial literacy and alcohol consumption in Japan. We hypothesize that financial literacy reduces the likelihood that a person engages in daily alcohol consumption. Based on Grossman’s health capital model [34], we conceive of daily alcohol consumption as a negative investment because it can put a person at risk for long-term alcohol misuse and various negative health outcomes [35–37]. Therefore, our study regards daily alcohol consumption as irrational behavior. We postulate that financially literate people, who have rational decision-making skills, are less likely to be daily drinkers. Our study contributes to the existing literature by providing empirical evidence on the links between financial literacy as a rational decision-making tool and how it affects people’s irrational decisions to consume alcohol. Our results can help policymakers implement effective countermeasures to influence alcohol drinking behavior and minimize the negative alcohol-related issues among the Japanese population.

2. Materials and Methods

2.1. Data

The data source for this study is the Preference Parameters Study (PPS) conducted by the Institute of Social and Economic Research at Osaka University. The PPS is a panel survey that collects information on socioeconomic characteristics and preferences from a representative sample of the Japanese population [38]. The panel survey applied the multistage stratified random sampling method to select prospective participants. The interviewers used a structured questionnaire to collect information from prospective participants through visits and placement surveys. The questionnaire included dichotomous, multiple, and scaling questions on demographic, socioeconomic, and psychological characteristics and preferences of the prospective participants. The scales used to measure respondents’ characteristics and preferences are reliable and have already been used in similar studies [1–4]. The panel survey was conducted on a nationwide random sample of individuals every year from 2003 to 2013. In this study, we utilized data from the 2010 wave, which contained questions about alcohol consumption behavior and financial literacy. The sample includes data from 3706 individuals, or approximately 69% of all respondents in
We excluded individuals with missing data on alcohol drinking behavior, financial literacy, and demographic variables (1680 individuals).

2.2. Variable Definitions

The dependent variable is alcohol drinking behavior. The PPS contains the question “Do you drink alcoholic beverages?” and provides six responses, where one means “do not drink at all”, two means “hardly drink”, three means “drink sometimes”, four means “a can of beer (12 oz.) or its equivalent a day, every day”, five means “3 cans of beer (36 oz.) or its equivalent a day, every day”, and six means “5 cans of beer (60 oz.) or its equivalent a day, every day”. We grouped these responses into a binary scale by coding respondents who answered one, two, or three as “zero” or “non-daily drinkers” and those who answered four, five, or six as “one” or “daily drinkers”.

The main variable of interest is financial literacy, which we measure following Lusardi and Mitchell [39] as in other studies (e.g., [1–4,20,26,27,40–46]). We provide financial literacy questions in Appendix A. The first two questions measure the respondent’s understanding of compound interest and the effect of inflation. Indeed, the questions help evaluate a respondent’s understanding of economic concepts and basic numeracy [39]. The third question evaluates respondents’ understanding of the concept of risk diversification. We assigned a score of 1 for each correct answer and 0 for each incorrect answer. We obtained the financial literacy variable by taking the equally weighted average scores of the three questions.

Our demographic variables include gender, age, university degree, marital status, household members, parental status, employment status, household income, household assets, and financial education through the children’s bank campaign. We also control for risky behaviors (exercise, smoking, and gambling behaviors), myopic view of the future (placing less importance on the future), risk preference, level of happiness, and anxiety about health. Table 1 provides the definitions of all the variables.

| Variable                         | Definition                                                                 |
|----------------------------------|---------------------------------------------------------------------------|
| Daily drinker                    | Binary variable: 1 = daily drinker (drink one/three/five cans of beer daily) and 0 = otherwise (do not drink at all, hardly drink, or drink sometimes) |
| Financial literacy              | Continuous variable: number of correct answers on three financial literacy questions |
| Male                             | Binary variable: 1 = male and 0 = female                                   |
| Age                              | Age of respondent                                                          |
| Age squared                      | Age squared                                                                |
| University degree                | Binary variable: 1 = obtained university degree and 0 = otherwise           |
| Marriage                         | Binary variable: 1 = married and 0 = otherwise                             |
| Divorce                          | Binary variable: 1 = divorced or separated and 0 = otherwise               |
| Household member                 | Continuous variable: number of people currently living in the household    |
| Children                         | Binary variable: 1 = have child/children and 0 = otherwise                 |
| Unemployed                       | Binary variable: 1 = respondent is unemployed and 0 = otherwise            |
| Household income                 | Continuous variable: annual earned income before taxes and with bonuses of entire household in 2009 (unit: JPY) |
| Log of household income          | Log (household income)                                                     |
| Household assets                 | Continuous variable: balance of financial assets (savings, stocks, insurance, etc.) of entire household (unit: JPY) |
| Log of household assets          | Log (household assets)                                                     |
| Children’s bank campaign         | Binary variable: 1 = yes (received compulsory financial education through the children’s bank campaign in elementary school) and 0 = otherwise |
| Regular exercise                 | Binary variable: 1 = regular exercise (exercise once a week or more) and 0 = otherwise |
| Current smoker                   | Binary variable: 1 = current smoker (sometimes—more than two packs a day) and 0 = otherwise (do not smoke at all, quit, or hardly smoke) |
| Frequent gambler                 | Binary variable: 1 = frequent gambler (gamble once a week or more) and 0 = otherwise |
| Myopic view of the future        | Binary variable: 1 = yes (Since the future is uncertain, it is a waste to think about it) and 0 = otherwise |
| Risk preference                  | Continuous variable: percentage score from the question “Usually when you go out, how high does the probability of rain have to be before you take an umbrella?” |
| Current level of happiness       | Continuous variable: Overall, how happy would you say you are currently?    |
| Anxiety about health             | Binary variable: 1 = yes (I have anxieties about my health) and 0 = otherwise |
2.3. Statistical Analysis

We use descriptive statistics to show the distribution of financial literacy and alcohol consumption behavior of the respondents along with their demographic, socioeconomic, and psychological characteristics. We have also shown the distribution of alcohol drinking behavior classified by age group, demographic characteristic, and risky behavior, respectively, together with the test statistics and significance levels. Finally, we use probit regression to investigate the association between alcohol drinking behavior and financial literacy using Equation (1).

\[ Y_i = f(FL_i, X_i, \varepsilon_i), \]

where \( Y_i \) is the alcohol drinking behavior of the \( i \)th respondent (daily drinkers or non-daily drinkers), \( FL \) represents the score on the financial literacy questions, \( X \) is a vector of individual characteristics, and \( \varepsilon \) is the error term. Since a probit model is used to model the probability of an event falling into one of the specified categories, we have used this model to predict alcohol consumption behavior against financial literacy after controlling for socioeconomic and psychological variables.

As there is a potential for multicollinearity between the explanatory variables in the models (i.e., individuals with a high level of education could have high financial knowledge, or individuals with a high net worth may have more financial knowledge because of their experience managing assets), we conducted correlation and multicollinearity tests in all models (available upon request). The correlation matrix shows a weak relationship between the explanatory variables (lower than 0.70). In addition, the variance inflation factor tests of the explanatory variables are below 10, indicating that multicollinearity is not significant in all models.

Equation (2) provides the full model specification:

Alcohol drinking behavior, \( (1 = \text{daily drinkers and } 0 = \text{non-daily drinkers}) \)

\[ = \beta_0 + \beta_1 \text{financial literacy}_i + \beta_2 \text{male}_i + \beta_3 \text{age}_i \\
+ \beta_4 \text{age squared}_i + \beta_5 \text{university degree}_i + \beta_6 \text{marriage}_i \\
+ \beta_7 \text{divorce}_i + \beta_8 \text{household members}_i + \beta_9 \text{children}_i \\
+ \beta_{10} \text{unemployed}_i + \beta_{11} \text{log of household income}_i + \beta_{12} \text{log of household assets}_i \\
+ \beta_{13} \text{children’s bank campaign}_i + \beta_{14} \text{regular exercise}_i \\
+ \beta_{15} \text{current smokers}_i + \beta_{16} \text{frequent gamblers}_i \\
+ \beta_{17} \text{myopic view of the future}_i + \beta_{18} \text{level of risk preference}_i \\
+ \beta_{19} \text{current level of happiness}_i + \beta_{20} \text{anxiety about health}_i + \varepsilon_i \]

3. Results

3.1. Descriptive Statistics

Table 2 presents the descriptive statistics of the sample. Of the full sample of 3706 individuals, (1047) 28.25% of them were daily alcohol drinkers. The average financial literacy score of the sample was 0.59. For the demographic variables, about 49.24% of the sample were men, and the average age was 49.79 years. Approximately 27.06% of the sample hold a university degree, 82.25% were currently married, and 3.45% were divorced. The respondents had four household members on average, and about 84.43% of the sample had children. Only 2.40% of the sample were currently unemployed. Respondents had annual household incomes of approximately JPY 6.49 million on average (73,707.30 USD) and JPY 13.10 million (148,863.60 USD) in household assets in 2009. Overall, 15.33% of the sample received financial education through the children’s bank campaign at school. For risky behaviors, 37.13% of the participants exercised regularly, while 24.26% were current smokers and 9.42% were frequent gamblers. Overall, 14.54% of the respondents had a myopic view of the future and risk preferences of 49.08%; in other words, they were risk-neutral. Respondents rated their current level of happiness at 64.72%, and 41.99% of the sample were anxious about their health.
Table 2. Descriptive statistics.

| Variable               | Mean  | Standard Deviation (SD) | Min   | Max  |
|------------------------|-------|-------------------------|-------|------|
| Daily drinker          | 0.28  | 0.45                    | 0     | 1    |
| Financial literacy     | 0.59  | 0.34                    | 0     | 1    |
| Male                   | 0.49  | 0.50                    | 0     | 1    |
| Age                    | 49.8  | 12.6                    | 20    | 76   |
| Age squared            | 2637.6| 1239.7                  | 400   | 5776 |
| University degree      | 0.27  | 0.44                    | 0     | 1    |
| Marriage               | 0.82  | 0.38                    | 0     | 1    |
| Divorce                | 0.04  | 0.18                    | 0     | 1    |
| Household members      | 3.5   | 1.4                     | 1     | 10   |
| Children               | 0.84  | 0.36                    | 0     | 1    |
| Unemployed             | 0.02  | 0.15                    | 0     | 1    |
| Household income (USD) | 73,707.3 | 42,927.7                  | 1,136,364 | 227,272.7 |
| Household income (JPY) | 6,486,239.0 | 3,777,635.0                | 1,000,000 | 20,000,000 |
| Log of household income| 15.5  | 0.6                     | 13.8  | 16.8 |
| Household assets (USD) | 148,863.6 | 200,000.0                | 28,409.1 | 1,136,363.6 |
| Household assets (JPY) | 13,100,000.0 | 17,600,000.0             | 2,500,000 | 100,000,000 |
| Log of household assets| 15.8  | 1.0                     | 14.7  | 18.4 |
| Children’s bank campaign| 0.15  | 0.36                    | 0     | 1    |
| Regular exercise       | 0.37  | 0.48                    | 0     | 1    |
| Current smoker         | 0.24  | 0.43                    | 0     | 1    |
| Frequent gambler       | 0.09  | 0.29                    | 0     | 1    |
| Myopic view of the future| 0.15  | 0.36                    | 0     | 1    |
| Level of risk preference| 0.49  | 0.19                    | 0     | 1    |
| Current level of happiness| 0.65  | 0.18                    | 0     | 1    |
| Anxiety about health   | 0.42  | 0.49                    | 0     | 1    |

Observations 3706

Tables 3–5 present the distribution of alcohol drinking behavior classified by age group, demographic characteristic, and risky behavior, respectively, together with the test statistics and significance levels.

Table 3. Distribution of alcohol drinking behavior by age group.

| Alcohol Drinking Behavior (Number of Respondents) | Age            | Total |
|--------------------------------------------------|---------------|-------|
| Non-daily drinker                                | 250           | 543   | 640   | 640   | 586   | 2659 |
| Daily drinker                                    | 22            | 148   | 289   | 323   | 265   | 1047 |
| Total                                            | 272           | 691   | 929   | 963   | 851   | 3706 |

Mean difference $F = 23.29 ***$

Note: *** p < 0.01.

Table 4. Distribution of alcohol drinking behavior by demographic characteristic.

| Alcohol Drinking Behavior (Number of Respondents) | Gender       | Education       | Unemployed    | Total |
|--------------------------------------------------|--------------|-----------------|---------------|-------|
| Non-daily drinker                                | 1656         | 1983            | 676           | 2584  | 75   | 2659 |
| Daily drinker                                    | 225          | 73.4%           | 67.4%         | 71.4% | 84.3% | 71.8% |
| Total                                            | 1881         | 2703            | 1003          | 3617  | 89   | 3706 |

Mean difference $t = −24.04 ***$

Note: *** p < 0.01.

| Alcohol Drinking Behavior (Number of Respondents) | Unemployed   | Total |
|--------------------------------------------------|--------------|-------|
| Non-daily drinker                                | 103          | 1003  |
| Daily drinker                                    | 822          | 88.0% |
| Total                                            | 1825         | 100%  |

Mean difference $t = −3.59 ***$

Note: *** p < 0.01.

| Alcohol Drinking Behavior (Number of Respondents) | Total |
|--------------------------------------------------|-------|
| Non-daily drinker                                | 2659  |
| Daily drinker                                    | 1047  |
| Total                                            | 3706  |

Mean difference $t = 2.67 ***$

Note: *** p < 0.01.
Table 5. Distribution of alcohol drinking behavior by risk behavior.

| Alcohol Drinking Behavior (Number of Respondents) | Regular Exercise | Current Smoker | Frequent Gambler | Total |
|--------------------------------------------------|------------------|----------------|------------------|-------|
|                                                   | No               | Yes            | No               | Yes   |
| Non-daily drinker                                 | 1679             | 980            | 2159             | 500   | 2451 | 208 | 2659 |
|                                                   | 72.1%            | 71.2%          | 76.9%            | 55.6% | 73.0% | 59.6% | 71.8% |
| Daily drinker                                     | 651              | 396            | 648              | 399   | 906  | 141 | 1047 |
|                                                   | 27.9%            | 28.8%          | 23.1%            | 44.4% | 27.0% | 40.4% | 28.3% |
| Total                                            | 2330             | 1376           | 2807             | 899   | 3357 | 349 | 3706 |
|                                                   | 100%             | 100%           | 100%             | 100%  | 100% | 100% | 100% |
| Mean difference                                  | t = −0.55        | t = −13.73 *** | t = −5.32 ***    |       |

Note: *** p < 0.01.

The statistics in Table 3 indicate significant differences in alcohol drinking behavior among age groups. The proportions of daily drinkers in the younger age groups are 8.09% in the sample age 30 and below and 21.42% in the sample age 31–40. These are lower than older age groups, where the proportions of daily drinkers exceed 31%.

In Table 4, we see significant differences in alcohol drinking behavior by gender, education level, and employment status. About 45.04% of male respondents were daily drinkers compared to 11.96% of female respondents. For education level, 32.60% of respondents who obtained a university degree and higher were daily drinkers compared to their counterparts at 26.64%. For employment status, 28.56% of employed respondents were daily drinkers, while only 15.73% of unemployed respondents were daily drinkers.

The statistics in Table 5 for risky behaviors demonstrate considerable differences in alcohol drinking behavior between current smokers and non-smokers and between frequent gamblers and non-frequent gamblers. Specifically, 44.40% of current smokers and 40.40% of frequent gamblers were daily drinkers compared to 23.10% of non-smokers and 27.0% of non-frequent gamblers. However, the differences in alcohol drinking behavior by exercise activity are insignificant. Results show that 28.80% of respondents who exercised regularly are daily drinkers compared to 27.94% of respondents who did not exercise regularly.

3.2. Regression Results

In Table 6, we provide the probit regression results for four different specifications of the explanatory variables (Models 1.1–1.4). In all models, the dependent variable is alcohol drinking behavior (1 = daily drinker). The first specification (Model 1.1) includes controls only for the demographic variables. In the second specification (Model 1.2), we add risky behaviors, including exercise, smoking, and gambling. The third specification (Model 1.3) includes respondents’ myopic views of the future and risk preferences. Finally, the fourth specification (Model 1.4) includes respondents’ self-rated level of happiness and anxiety about health.

Financial literacy has the expected negative impact on daily drinking across the models in Table 6, but the results are not statistically significant. For the demographic and other control variables, most of the signs and significance levels of the coefficients are consistent across specifications. Male, age, children, and log of household income have a positive impact on daily alcohol consumption. In contrast, age squared has a negative and significant impact on being a daily drinker, indicating that age has a non-linear relationship with daily alcohol drinking behavior. However, university degree, marriage, divorce, household members, unemployment status, log of household assets, and children’s bank campaign show insignificant effects. In terms of risky behaviors, being a current smoker has a positive and strongly significant impact on being a daily drinker at the 1% level, while regular exercise and frequent gambling show insignificant impacts. Furthermore, a myopic view of the future is negatively associated with being a daily drinker. However, risk preference, current level of happiness, and anxiety about health have insignificant impacts on daily alcohol consumption.
Table 6. Probit model regression results.

| Variable                        | Dependent Variable: Daily Drinker |
|---------------------------------|------------------------------------|
|                                 | Model 1.1  | Model 1.2  | Model 1.3  | Model 1.4  |
| Financial literacy              | −0.068     | −0.043     | −0.048     | −0.046     |
|                                 | (0.075)    | (0.075)    | (0.076)    | (0.076)    |
| Male                            | 1.081 ***  | 0.986 ***  | 0.987 ***  | 0.986 ***  |
|                                 | (0.052)    | (0.055)    | (0.055)    | (0.055)    |
| Age                             | 0.0880 *** | 0.0800 *** | 0.0797 *** | 0.0790 *** |
|                                 | (0.016)    | (0.016)    | (0.016)    | (0.016)    |
| Age squared                     | −0.000766 *** | −0.000671 *** | −0.000664 *** | −0.000658 *** |
|                                 | (0.000)    | (0.000)    | (0.000)    | (0.000)    |
| University degree               | −0.056     | −0.023     | −0.022     | −0.021     |
|                                 | (0.057)    | (0.058)    | (0.058)    | (0.058)    |
| Marriage                        | 0.120      | 0.135      | 0.136      | 0.141      |
|                                 | (0.107)    | (0.105)    | (0.106)    | (0.106)    |
| Divorce                         | 0.143      | 0.102      | 0.109      | 0.109      |
|                                 | (0.165)    | (0.167)    | (0.167)    | (0.167)    |
| Household members               | −0.006     | −0.005     | −0.005     | −0.006     |
|                                 | (0.019)    | (0.019)    | (0.019)    | (0.019)    |
| Children                        | 0.197 *    | 0.197 *    | 0.195 *    | 0.197 *    |
|                                 | (0.108)    | (0.107)    | (0.107)    | (0.107)    |
| Unemployed                      | −0.258     | −0.247     | −0.234     | −0.240     |
|                                 | (0.190)    | (0.192)    | (0.192)    | (0.192)    |
| Log of household income         | 0.116 **   | 0.127 ***  | 0.126 ***  | 0.129 ***  |
|                                 | (0.046)    | (0.046)    | (0.046)    | (0.047)    |
| Log of household assets         | −0.0515 *  | −0.041     | −0.040     | −0.039     |
|                                 | (0.027)    | (0.027)    | (0.027)    | (0.028)    |
| Children’s bank campaign        | −0.106     | −0.091     | −0.098     | −0.100     |
|                                 | (0.066)    | (0.066)    | (0.066)    | (0.066)    |
| Regular exercise                | −0.038     | −0.037     | −0.037     | −0.034     |
|                                 | (0.050)    | (0.050)    | (0.050)    | (0.051)    |
| Current smoker                  | 0.342 ***  | 0.343 ***  | 0.341 ***  | 0.341 ***  |
|                                 | (0.057)    | (0.057)    | (0.057)    | (0.081)    |
| Frequent gambler                | 0.041      | 0.035      | 0.034      | 0.043      |
|                                 | (0.081)    | (0.081)    | (0.081)    | (0.081)    |
| Myopic view of the future       | −0.122 *   | −0.125 *   | (0.068)    | (0.069)    |
|                                 | (0.027)    | (0.027)    | (0.027)    | (0.028)    |
| Level of risk preference        | 0.142      | 0.143      | 0.128      | 0.128      |
|                                 | (0.128)    | (0.128)   (0.128) |
| Current level of happiness      | −0.046     |             | 0.022      |             |
|                                 |             |             | (0.049)    |             |
| Anxiety about health            |             |             |             |             |
|                                 |             |             |             |             |
| Constant                        | −4.732 *** | −4.999 *** | −5.052 *** | −5.076 *** |
|                                 | −0.732     | −0.736     | −0.746     | −0.748     |
| Observations                    | 3706       | 3706       | 3706       | 3706       |
| Log likelihood                  | −1881      | −1861      | −1859      | −1859      |
| Chi² statistics                 | 545        | 593        | 596        | 596        |
| p-value                         | 0          | 0          | 0          | 0          |

Note: Robust standard errors are in parentheses; *** \( p < 0.01 \), ** \( p < 0.05 \), * \( p < 0.10 \).

4. Discussion

Unlike previous studies, which provide evidence that financial literacy can reduce irrational behaviors such as smoking, gambling, and lack of exercise [1–4], our study demonstrated that financial literacy has no impact on people’s decisions to engage in daily alcohol consumption. We find that respondents who are males, middle-aged, have children, have higher household income, have smoking habits, and place more importance on the future are more likely to be daily drinkers. However, respondents’ education, marital
status, household members, employment status, household assets, basic knowledge about saving, exercise, gambling status, risk preference, level of happiness, and anxiety about health have insignificant effects on drinking behavior.

Various sociocultural factors can explain the insignificant association between financial literacy and alcohol consumption. In Japan, alcohol is commonly used to enhance social interactions [47–51]. Many Japanese also hold shared beliefs that drinking alcohol, contrary to cigarette smoking, is good for general health [48]. In support of the shared beliefs about health, previous studies in Japan claim that low-volume daily alcohol consumption has health benefits and improves life expectancy [52–54]. Another possible explanation for the insignificant relationship between financial literacy and daily alcohol consumption may be the influence of some contextual factors, such as alcohol availability and accessibility. In Japan, there are no time/place restrictions for on-/off-premise sales of alcoholic beverages [6]. Alcoholic beverages are available through many distribution channels such as bars, restaurants, convenience stores, and alcohol vending machines throughout the country [48,55,56]. Gruenewald [57], Pereira et al. [58], and Shimotsu et al. [59] provide evidence that ease of access to drinking opportunities can lead to higher alcohol consumption. Thus, a combination of contextual and sociocultural factors may lessen the impact of financial literacy on daily alcohol drinking behavior.

Among the sociodemographic variables, we find that being male, being older (until a certain age), having children, and having high household income are associated with daily drinking status. Our results are in line with the findings of previous studies reporting that the prevalence of daily alcohol consumption is greater among males [60,61] and people with high household income [62–64]. Braun et al. [62], Heckley et al. [63], and Ritchie and Roser [64] find that daily drinkers tend to be more professionally employed, earn higher income, and can afford to buy alcohol more regularly compared with non-daily drinkers. Regarding the age variable, the non-linear positive association between age and daily alcohol drinking behavior suggests that people tend to drink habitually on a daily basis until they reach a certain age, at which point their drinking frequency declines. Our finding on age is consistent with those of Higuchi et al. [48] and Kawado et al. [65]. Nonetheless, the National Health and Medical Research Council (NHMRC) [66] and Wilsnack et al. [67,68] find that the frequency of alcohol consumption tends not to decline with age. Calvo et al. [69] find that older adults who live in more-developed countries tend to continue to consume alcohol more than individuals living in less-developed countries. We find that parental status is related to alcohol consumption. In line with our findings, Emslie et al. [70] and Wolf and Chávez [71] report that parents often use alcohol to reduce their parenting stress and facilitate their social interactions with others in the new environment. Yet, Bowden et al. [72], Cho and Crittenden [73], Leonard and Eiden [74], and Paradis [75] observe that people with children tend to engage less in alcohol drinking due to their increased parenthood responsibilities and decreased ability to afford frequent alcohol use.

Among the risky health behavior variables, our results show that smoking is related to alcohol drinking behavior, which is consistent with previous studies (e.g., [1,2,76–78]). Dawson et al. [35] and Doyon et al. [79] also argue that cigarette smoking can lead to frequent alcohol use. For the myopic view of the future variable, the weak negative relationship between a myopic view of the future and daily alcohol consumption implies that forward-thinking people, who are likely to be health-conscious, may drink alcohol because of its long-term health-beneficial effects [48].

5. Conclusions

Our study examined the relationship between financial literacy and daily alcohol consumption among the Japanese population. We hypothesized that financially literate individuals, who are capable of making rational decisions, are less likely to consume alcohol daily. The probit regression analysis of data from Osaka University’s 2010 PPS provides no evidence to support our hypothesis. Our findings reveal that financial literacy
as a rational decision-making tool has no impact on people’s decisions to consume alcohol daily. The results are not consistent with the findings of previous studies on risky health behaviors among Japanese adults, which provided evidence that financial literacy can help reduce the likelihood of smoking [2] and gambling [3] and increase the likelihood of exercising regularly [4]. Our results further demonstrate that respondents who are males, middle-aged, have children, have higher household income, have smoking habits, and place more importance on the future are more likely to be daily drinkers.

Our study suggests that some sociocultural factors, such as people’s shared beliefs about alcohol’s beneficial effects on health and socialization, may lessen the impact of financial literacy on people’s decisions to drink alcohol daily. Moreover, we argue that some contextual factors, such as alcohol availability and ease of access to drinking opportunities, tend to make people irrational and tempt them to drink frequently, leading them to develop long-term alcohol misuse. Thus, authorities may need to revise their current policies regarding alcohol availability and accessibility to limit alcohol consumption. As culture plays an important role in influencing health-related behavior [80,81], further research is needed to explore the impact of financial literacy on alcohol consumption in different cultural contexts.

Our study has some limitations. First, the financial literacy measurement developed by Lusardi and Mitchell [39], which we used in our study, is limited to three questions. Since this measurement is widely accepted (e.g., [1–4,20,26,27,40–46]) and well confirmed in terms of its viability [82], our choice to use this instrument is justified. Second, we measured alcohol consumption solely by drinking frequency due to our data limitations. More work is needed to further develop the methodology to include other dimensions of alcohol consumption, such as the quantity of pure alcohol intake, for more generalizable results. Third, we used data from the 2010 wave of the PPS because the latest waves do not include questions on financial literacy and alcohol consumption behavior. “The National Health and Nutrition Survey” conducted annually by the MHLW reported consumption of alcohol beyond the recommended limits for respondents aged 20 and over [12]. The survey results show that during the period between 2010 and 2019, men’s alcohol drinking behaviors have not changed much, while those of women have increased. Thus, explaining alcohol drinking behavior by financial literacy as a rational decision-making instrument is worthy even though the dataset reflected respondents’ alcohol drinking behavior in 2010. However, we cannot rule out the possibility of a different outcome with recent data. Despite these limitations, our pioneering study provides insights into how financial literacy impacts alcohol drinking behavior in Japan.

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Appendix A
(a) Suppose you had 10,000 JPY in a savings account, the interest rate is 2% per year, and you never withdraw money or receive interest payments. After 5 years, how much would you have in this account in total?
- More than 10,200 JPY (correct answer)
- Exactly 10,200 JPY
- Less than 10,200 JPY
- Do not know
- Refuse to answer

(b) Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, how much would you be able to buy with the money in this account?
- More than today
- Exactly the same
- Less than today (correct answer)
- Do not know
- Refuse to answer

(c) Please indicate whether the following statement is true or false. “Buying a company stock usually provides a safer return than buying a stock mutual fund.”
- True
- False (correct answer)
- Do not know
- Refuse to answer

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