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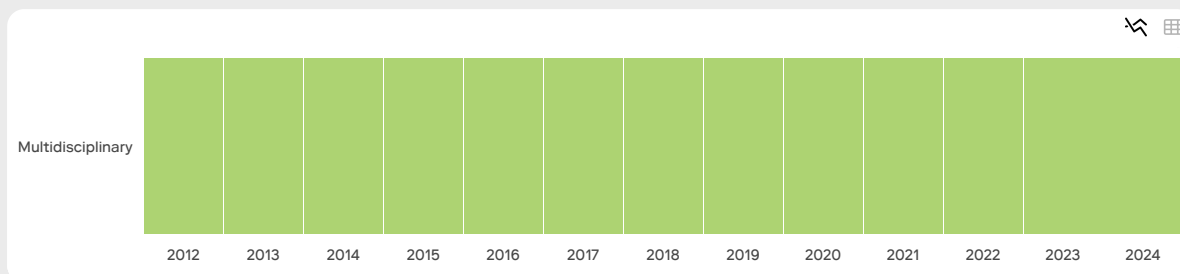Journals

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Factors influencing complete abstinence during Thailand's temporary alcohol abstinence campaign

Paithoon Sonthon, Nittaya Srisuk, Manolee Sripaoraya Penpong, Bundit Sornpaisarn, Jürgen Rehm & Udomsak Saengow ✉

⚠️ We are providing an unedited version of this manuscript to give early access to its findings. Before final publication, the manuscript will undergo further editing. Please note there may be errors present which affect the content, and all legal disclaimers apply.

Abstract

Thailand's temporary abstinence campaign aims to persuade drinkers to abstain from alcohol for three months during Buddhist Lent. In recent years, a decline in the popularity of the campaign has been observed. This study aims to determine factors associated with success in complete abstinence during the campaign period and to determine whether the associations change over time to provide insight into the decline in complete abstinence. This study analyzes pooled data of 5898 current drinkers from three waves (2015, 2018, and 2021) of the campaign evaluation survey. The primary outcome is complete abstinence during the campaign. Multivariable analysis indicated that campaign media exposure was associated with complete abstinence (OR, 1.42; 95% CI 1.17–1.72). Similarly, the year 2018, older age, lesser drinking frequency prior to the campaign, and higher level of affordability were positively associated with complete abstinence. There was a statistically significant interaction between year and drinking frequency prior to the campaign ($p <$ 0.001). The decline in complete abstinence was plausibly explained by reduced campaign media exposure, increased drinking frequency among drinkers, and the 2021 period effect (presumably COVID-19). Diversifying campaign media distribution across traditional, community-based, and digital platforms may enhance the campaign's success by ensuring wider exposure to campaign messages.

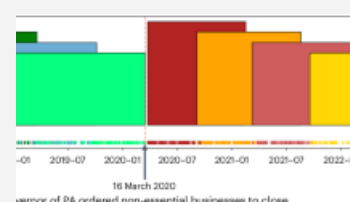Similar content being viewed by others
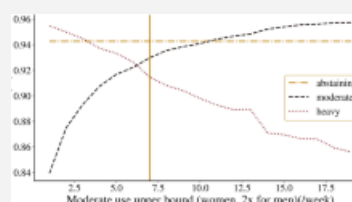
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Data availability

Authors obtained the data used in this study from the Center for Alcohol Studies under the terms specific to this research. Requests for the data can be made to the corresponding author ([saengow.udomsak@gmail.com](mailto: saengow.udomsak@gmail.com)). Approval of access to the data must be granted by the Center for Alcohol Studies.

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Author information

Authors and Affiliations

Faculty of Science and Technology, Phetchabun Rajabhat University, Sadeng, Muang, Phetchabun, 67000, Thailand
Paithoon Sonthon

Faculty of Nursing, Rajamangala University of Technology Thanyaburi, Klong Hok, Klong Laung District, Pathum Thani, 12110, Thailand
Nittaya Srisuk

Faculty of Management, Suratthani Rajabhat University, Khun Talae, Muang, Surat Thani, 84100, Thailand
Manolee Sripaoraya Penpong

Faculty of Public Health, Mahidol University, 420/1 Ratchawithi Rd, Ratchathewi, Bangkok, 10400, Thailand
Bundit Sornpaisarn

Dalla Lana School of Public Health, University of Toronto, 155 Colleges Street, Toronto, ON, M5T IP8, Canada
Bundit Sornpaisarn & Jürgen Rehm

Institute for Mental Health Policy Research, Centre for Addiction and Mental Health, 33 Ursula Franklin Street, Toronto, ON, M5S 2S1, Canada
Bundit Sornpaisarn & Jürgen Rehm

Campbell Family Mental Health Research Institute, Centre for Addiction and Mental Health, 33 Ursula Franklin Street, Toronto, ON, M5T 2S1, Canada
Jürgen Rehm

Department of Psychiatry and Institute of Medical Science, University of Toronto, 250 College Street, 8th floor, Toronto, ON, M5T 1R8, Canada
Jürgen Rehm

Department of Psychiatry and Psychotherapy, Center for Interdisciplinary Addiction Research (ZIS), University Medical Center Hamburg-Eppendorf (UKE), Martinistraße 52, 20246, Hamburg, Germany
Jürgen Rehm

Program on Substance Abuse & WHO Collaborating Center on Substance Use, Noncommunicable Diseases, and Policy Impact, Public Health Agency of Catalonia, 81–95 Roc Boronat St., Barcelona, 8005, Spain

Jürgen Rehm

Center of Excellence in Data Science for Health Study, Walailak University, Thai Buri, Tha Sala, Nakhon Si Thammarat, 80160, Thailand
Udomsak Saengow

School of Medicine, Walailak University, Thai Buri, Tha Sala, Nakhon Si Thammarat, 80160, Thailand
Udomsak Saengow

Contributions

P.S.: Conceptualization, Methodology, Data curation, Validation, Formal analysis, Writing - Original Draft. N.S.: Conceptualization, Formal analysis, Writing - Original Draft. M.S.P.: Conceptualization, Formal analysis, Writing - Original Draft. B.S.: Supervision and Manuscript improvement. J.R.: Supervision and Manuscript improvement. U.S.: Conceptualization, Methodology, Funding acquisition, Supervision, Validation, Writing- Review and Editing, Project administration.

Corresponding author

Correspondence to Udomsak Saengow.

Ethics declarations

Competing interests

The authors declare no competing interests.

Ethical approval

This study protocol was approved by the Human Research EthicsCommittee of Walailak University, Thailand (WU-EC-MD-3-090-65). Thedata were analyzed anonymously. This study was conducted in accordance with the Declaration of Helsinki.

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Factors influencing complete abstinence during Thailand's temporary alcohol abstinence campaign

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Paithoon Sonthon[1], Nittaya Srisuk[2], Manolee Sripaoraya Penpong[3],

Bundit Sornpaisarn[4-6], Jürgen Rehm[5-10], Udomsak Saengow[11-12]*

[1]   Faculty of Science and Technology, Phetchabun Rajabhat University, Sadeng, Muang,

   Phetchabun 67000, Thailand

[2]   Faculty of Nursing, Rajamangala University of Technology Thanyaburi, Klong Hok,

   Klong Laung District, Pathum Thani 12110, Thailand

[3]   Faculty of Management, Suratthani Rajabhat University, Khun Talae, Muang, Surat

   Thani 84100, Thailand

[4]   Faculty of Public Health, Mahidol University, 420/1 Ratchawithi Rd, Ratchathewi,

  Bangkok 10400, Thailand

[5]   Dalla Lana School of Public Health, University of Toronto, 155 Colleges Street, Toronto,

   Ontario, Canada, M5T IP8

[6]   Institute for Mental Health Policy Research, Centre for Addiction and Mental Health, 33

   Ursula Franklin Street, Toronto, Ontario, Canada, M5S 2S1

[7]   Campbell Family Mental Health Research Institute, Centre for Addiction and Mental

Health, 33 Ursula Franklin Street, Toronto, Ontario, Canada, M5T 2S1

8   Department of Psychiatry and Institute of Medical Science, University of Toronto, 250

College Street, 8th floor, Toronto, Ontario, Canada, M5T 1R8

9   Center for Interdisciplinary Addiction Research (ZIS), Department of Psychiatry and

Psychotherapy, University Medical Center Hamburg-Eppendorf (UKE), Martinistraße

52, 20246 Hamburg, Germany

10   Program on Substance Abuse & WHO Collaborating Center on Substance Use,

Noncommunicable Diseases, and Policy Impact, Public Health Agency of Catalonia,

81-95 Roc Boronat St., 8005, Barcelona, Spain

11   Center of Excellence in Data Science for Health Study, Walailak University, Thai Buri,

Tha Sala, Nakhon Si Thammarat 80160, Thailand

12   School of Medicine, Walailak University, Thai Buri, Tha Sala, Nakhon Si Thammarat

80160, Thailand

*Corresponding Author:
Udomsak Saengow
School of Medicine,
Walailak University, Thai Buri, Tha Sala,
Nakhon Si Thammarat 80160, Thailand

Tel: +66 83 6564582
E-mail: saengow.udomsak@gmail.com
ORCID: 0000-0001-6102-168X

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ABSTRACT

Thailand's temporary abstinence campaign aims to persuade drinkers to abstain from alcohol for three months during Buddhist Lent. In recent years, a decline in the popularity of the campaign has been observed. This study aims to determine factors associated with success in complete abstinence during the campaign period and to determine whether the associations change over time to provide insight into the decline in complete abstinence. This study analyzes pooled data of 5898 current drinkers from three waves (2015, 2018, and 2021) of the campaign evaluation survey. The primary outcome is complete abstinence during the campaign. Multivariable analysis indicated that campaign media exposure was associated with complete abstinence (OR, 1.42; 95% CI 1.17–1.72). Similarly, the year 2018, older age, lesser drinking frequency prior to the campaign, and higher level of affordability were positively associated with complete abstinence. There was a statistically significant interaction between year and drinking frequency prior to the campaign (p < 0.001). The decline in complete abstinence was plausibly explained by reduced campaign media exposure, increased drinking frequency among drinkers, and the 2021 period effect (presumably COVID-19). Diversifying campaign media distribution across traditional, community-based, and digital platforms may enhance the campaign's success by ensuring wider exposure to campaign messages.

Keywords: alcohol, temporary abstinence, mass media campaign, sobriety, media exposure

INTRODUCTION

Alcohol use is a major health risk[1-3]. In all comparative risk assessments to date, alcohol use had been ranked within the 10 leading causes of burden of disease[4]. Most recently—for the year 2021—alcohol has been ranked 10th, and has accounted for 0.8% of age-standardized female disability-adjusted life years (DALYs) and 3.9% of age-standardized male DALYs, globally[2]. Alcohol use is associated with non-communicable diseases (e.g., liver cirrhosis, cancers, and mental health problems), communicable diseases (e.g., tuberculosis, HIV/AIDS, and lower respiratory infections), and injuries (e.g., assault, crime, and road traffic accidents)[2,5-9]. According to a 2021 systematic review, in middle- and high-income countries, the cost of alcohol use and its consequences to the economy exceeded 2% of gross domestic product[10]. In Thailand, the setting of this study, alcohol consumption was the 3rd leading contributor of DALYs in 2019, accounting for 1.56 million DALYs (14.0% of total DALYs)[11].

Mass media campaigns are employed to modify health-related behaviors to improve health. These campaigns can influence behavior through various pathways, including cognition, emotion, setting public agenda, and establishing social norms[12]. For alcohol use, campaigns encouraging drinkers to temporarily abstain from alcohol consumption have been conducted in several countries. For instance, the Dry January campaign has been undertaken in the UK to challenge drinkers to pause drinking in January since 2013[13]. In Australia, the Dry July campaign—

encouraging alcohol-free in July and raising funds for cancer victims—has been conducted since 2008[14]. There is scant evidence that these temporary abstinence campaigns might be associated with alcohol harm reduction[15].

The Buddhist Lent Abstinence campaign, which is among the first of its kind, has been conducted in Thailand since 2003. Taking advantage of Thailand's predominately Buddhist population (93.5% of Thais were Buddhists according to the 2018 Social and Culture survey[16]), this campaign seeks to persuade drinkers to abstain from alcohol for three months during Buddhist Lent[17]. According to Buddhist beliefs, consuming intoxicants, including alcohol, should be avoided during this time. The period is based on the lunar calendar and typically occurs between July and October. The effectiveness of this campaign in reducing population-level alcohol consumption has been demonstrated in previous studies[18,19].

The Thai abstinence campaign has been promoted through various media channels—including newspapers, television, radio, billboards, and online media. In some localities, there are also campaign activities at the community level[18]. This campaign is also included in the National Alcohol Strategy of Thailand[20]. According to the 2016 campaign evaluation, 32.2% of drinkers completely abstained during the campaign period[18], making it the most significant alcohol-related campaign in Thailand. A recent time-series analysis demonstrated that the campaign has been associated with an approximately 10% decrease in population-level

alcohol consumption[19]. Campaign activities at the community level were associated with abstinence lasting for 3 months after the end of Lent[17].

In recent years, a decline in the popularity of the campaign has been observed. The rate of complete abstinence (i.e., abstaining from alcohol for three months during Buddhist Lent) steadily decreased from 32.3% in 2015 to 12.9% in 2021[21,22]. The explanations for the decline remain unclear. By analyzing data from a repeated cross-sectional survey (2015, 2018, and 2021 waves), this study aims to determine factors associated with complete abstinence during Thailand's three-month alcohol abstinence campaign and to determine whether the associations change over time. Knowledge about these can provide insight into the decline in complete abstinence. Given the emergence of temporary abstinence campaigns in several countries, this knowledge may improve campaign implementation in Thailand and elsewhere.

METHODS

Study design and data source

This study analyzed data from three waves of the Buddhist Lent Abstinence Evaluation Survey, a repeated cross-sectional survey conducted annually since 2014. Data used in this study were obtained from the 2015, 2018, and 2021 waves of the Buddhist Lent Alcohol Abstinence Evaluation Survey. These three waves were selected because they captured the period of an obvious decline in the campaign and because of the comparability of questionnaire items. Data collection was

carried out over a two-week period—varying from the final week of the Lent period to the first two weeks after the Lent period ended. The survey's target population was the general population aged 15 years and older. Eligibility criteria for participants included the age of ≥15 years old, fluency in Thai, and being a resident of the sampled subdistricts for at least three months.

A multistage stratified sampling was used in the survey. In the first stage, the provinces of Thailand were stratified into five strata: the Bangkok metropolitan region, the central region, the northern region, the northeastern region, and the southern region. In the 2015 wave, four, five, five, seven, and four provinces were selected from each stratum, respectively. In the 2018 and 2021 waves, three, two, two, three, and two provinces were selected from each stratum, respectively. The probability of a province being selected was proportional to population sizes. In the second and third stages, districts and subdistricts were randomly selected with a probability proportional to their size. In the fourth stage, households were randomly selected from the subdistrict's population registers. One member of a selected household who met the inclusion criteria was invited to participate in the survey. Those who provided consent were interviewed by trained interviewers[21-23]. Hence, informed consent was obtained from all survey participants. The total sample sizes were 7099, 3927, and 3916 for the 2015, 2018, and 2021 waves, respectively. The post-stratification weighting was not applied.

Study subjects

The present study analyzed data from current drinkers—i.e., those who consumed alcohol during the past 12 months prior to the beginning of the campaign. Survey participants who were not current drinkers were excluded. This study analyzed data of 2657, 1670, and 1571 participants from the 2015, 2018, and 2021 waves, respectively. In total, data from 5898 participants were included in the analysis. The diagram of participant selection is shown in Figure 1.

[insert Figure 1]

Data management

The primary outcome was complete abstinence during Buddhist Lent. The questionnaire item for complete abstinence was, "From the beginning of the Buddhist Lent period (3 months) this year until now, have you abstained from drinking alcohol?" The response options included: abstained for three months, abstained for a certain period, reduced the number of drinks per occasion, and continued drinking as usual. As the survey was conducted at the end of the Lent period or shortly thereafter, this item captured drinking behavior during the three-month Buddhist Lent. A dichotomous complete abstinence variable was created based on these responses. The response, abstained for three months, was classified as 'Success'; other responses were classified as 'No success.' As it is a nationwide campaign, either complete abstinence

or reduction in alcohol consumption during the Buddhist Lent period can be considered participation in the campaign. In a sensitivity analysis, an ordinal variable—campaign participation—based on original responses (abstained for three months > abstained for a certain period > reduced the number of drinks per occasion > continued drinking as usual) was used. This sensitivity analysis was conducted to determine whether the classification of the outcome variable affected the regression results.

Based on previous studies[18,24,25], the other variables included in the analysis were demographic characteristics, drinking frequency, affordability, and campaign-related variables. The demographic variables included sex (male and female), age (15-19, 20-30, 31-45, 46-60, and 61 years or higher), educational attainment (primary school or lower [Grade 6 or lower], secondary school [Grade 7-12], and college or higher), and religion (Buddhism and others).

Drinking frequency prior to the campaign (i.e., an average frequency in the past 12 months) was measured as weekly, monthly, or occasionally (less than once a month). The affordability variable was created by dividing self-reported monthly income (in Thai baht) by an average self-reported drinking expense per occasion (in Thai baht) and then classifying the resulting values into tertiles (the first tertile indicates the lowest level of affordability). This variable was included to account for potential changes in alcohol purchasing power across the three survey periods. The campaign-related variable was exposure to the campaign media (yes and no).

Statistical analysis

Continuous variables were described using means and standard deviations, while categorical variables were summarized using counts and percentages. To determine factors associated with success in complete abstinence during 2015 to 2021, firstly, data from three waves of the survey were pooled. The year of the suvey was included as a variable in the pooled dataset.

A multivariable analysis was performed using a binary logistic regression model. Complete abstinence (dichotomous) was a dependent variable in the regression model. Demographic characteristics, drinking-related variables, campaign-related variables, and year of survey were covariates in the model. Adjusted odds ratios (OR) with 95% confidence intervals (CI) and p-values were estimated to indicate a magnitude of association between each factor and success in complete abstinence. The sensitivity analysis was carried out by replacing the dichotomous complete abstinence variable with the ordinal campaign participation variable in the regression model, and ordinal regression was performed instead of the binary logistic regression. In the ordinal regression model, ORs greater than 1.00 indicate higher odds of shifting toward complete abstinence (the most intensive level of campaign participation). An interaction between year and each factor associated with success in complete abstinence (from the logistic regression model) was tested to determine whether an association between each covariate and complete

abstinence varied by time. Of 5898 participants, 543 were excluded from the regression analysis due to missing data on one or more covariates.

The R software version 4.0.3 was used to perform the statistical analysis[26]. R packages used in data management and data analysis included MASS[27], psych[28], and epicalc[29]. The significance level of 0.05 was employed in all analyses.

Ethics approval

This study protocol was approved by the Human Research Ethics Committee of Walailak University, Thailand (WU-EC-MD-3-090-65). The data were analyzed anonymously. This study was conducted in accordance with the Declaration of Helsinki.

RESULTS

Characteristics of drinkers

Characteristics of drinkers from three waves of the survey are shown in Table 1. The majority of drinkers were male. The mean age was between 37.9 and 39.9 years old. More than 40.0% of drinkers had secondary education. Nearly all participants were Buddhists. The prevalence of drinkers who drank at least once a week (regular drinkers) increased from 30.5% in 2015 to approximately 50% in 2018 and 2021. The percentage of drinkers exposed to the campaign media was

decreasing. Regarding drinking behavior during the campaign period, the percentage of complete abstinence reduced from 32.3% in 2015 to 30.2% in 2018 and to 12.9% in 2021. A more detailed examination of drinking during the Lent period unveiled a considerable reduction in the percentage of drinkers who abstained for a certain period between 2015 and 2018. Concurrently, there was an observed increase in those adhering to their usual drinking behavior during the Lent period from 2015 to 2021.

[insert Table 1]

Prevalence of success in complete abstinence during the campaign period by characteristics

The prevalence of complete abstinence during the campaign by characteristics is shown in Table 2. Females had higher percentages of abstinence than males across three waves of the survey. Half of the occasional drinkers completely abstained in 2015 and 2018; the figure decreased to only 17.7% in 2021. Drinkers who were exposed to the campaign media had a significantly higher prevalence of complete abstinence than those who did not in 2015 and 2018. Complete abstinence decreased across all categories in 2021.

[insert Table 2]

Factors associated with success in complete abstinence

The results of the multivariable analysis are shown in Table 3. The year of the survey was associated with complete abstinence. Contrary to the unadjusted analyses, compared to 2015, the year 2018 was associated with 21% higher odds of complete abstinence (OR 1.21; 95% CI 1.04–1.42), and the year 2021 was associated with 64% lower odds of complete abstinence (OR 0.36; 95% CI 0.30–0.44). The higher odds of complete abstinence in 2018, which contradicted the crude prevalence of complete abstinence (Table 2), were largely attributable to adjustment for drinking frequency (see Supplementary Table S1). Females had 14% higher odds of complete abstinence than males; however, the association was borderline and was not statistically significant (OR 1.14; 95% CI 0.99–1.31). The odds of complete abstinence tended to increase with age. Lower frequency of drinking prior to the campaign period was associated with higher odds of complete abstinence. A higher level of affordability was associated with higher odds of complete abstinence**.** Exposure to the campaign media was associated with 42% higher odds of complete abstinence (OR 1.42; 95% CI 1.17–1.72).

[insert Table 3]

Sensitivity analysis: factors associated with campaign participation (ordinal outcome)

The results of the sensitivity analysis are shown in Table 4. The year of the survey was associated with campaign participation. Compared to 2015, the years 2018 and 2021 were associated with lower odds of shifting toward abstinence (OR 0.86; 95% CI 0.76–0.97 for 2018; OR 0.25; 95% CI 0.21–0.28 for 2021). Female sex was 1.21 times the odds of shifting toward abstinence (95% CI 1.13–1.42). Associations of age, drinking prior to the campaign period, and exposure to the campaign media with drinking during the Lent period were consistent with the result presented in Table 3. On the other hand, affordability was not associated with drinking during the Lent period in this analysis.

[insert Table 4]

The discrepancy between the results in Table 3 and Table 4 was because the two models examine factors associated with different outcomes. The model in Table 3 determined factors associated with success in complete abstinence; drinking behaviors other than complete abstinence (including reduced drinking) were classified as no success. On the other hand, the model in Table 4 determined factors associated with campaign participation (ordinal outcome), in which both reduced drinking and complete abstinence were classified as forms of participation, with reduced drinking regarded as a lower level of participation than complete abstinence.

Interaction between year and factors associated with complete abstinence

The interactions between year and factors associated with complete abstinence are presented in Table 5. There was a significant interaction between year and drinking frequency prior to the campaign. The odds of complete abstinence were 0.51 times lower for occasional drinkers in 2021 compared to 2015 (95% CI 0.32–0.82).

[insert Table 5]

DISCUSSION

The analysis of three waves of the Buddhist Lent Abstinence Evaluation Survey revealed that the year 2018, older age, lesser drinking frequency prior to the campaign, higher level of affordability, and campaign media exposure were positively associated with success in complete abstinence. Occasional drinkers in 2021 were less likely to abstain completely compared to occasional drinkers in 2015.

After adjusting for several factors, the year variable still had a significant association with complete abstinence. The year variable in the regression model can represent a combination of factors not accounted for in the model. The most prominent event of 2021 is probably the COVID-19 pandemic. The impact of COVID-19 on alcohol consumption was complex. Globally, consumption decreased, for instance, by 8% from

2019 to 2020[30]. However, even in countries where the level of alcohol use decreased, all systematic reviews showed that some groups increased their consumption[30-34], often associated with stress or mental problems [35-37]. In 2021, the main slogan of the Thai abstinence campaign was "Stop drinking, stay safe from COVID," and campaign participants were encouraged to express their commitment to abstinence via an online platform[38]. Hence, the replacement of on-ground campaign activities with the usage of online platforms may contribute to the decrease in complete abstinence in 2021.

A change in level of religiosity during the study period may also contribute to the effect of the year variable. Evidence from the Health, Aging, and Retirement in Thailand survey—a longitudinal study of Thai citizens aged 45 years and older and their spouses—suggests a mixed pattern[39]. The proportion of respondents who reported frequent prayer increased from 46.9% in 2015 to 53.7% in 2020 and slightly decreased to 51.7% in 2022. The proportion of those engaging in merit-making as part of religious observance increased from 40.8% in 2015 to 53.3% in 2020, then considerably declined to 41.8% in 2022. The proportion of those observing Buddhist teachings showed a significant decline, from 61.9% in 2015 to 29.5% in 2020 and to 22.2% in 2022. As refraining from alcohol is one of the Buddhist precepts (i.e., basic moral guidelines), the decline in the level of observing Buddhist teachings may partly account for the effect of the year variable.

As this campaign can be considered faith-based, one explanation for the association between age and complete abstinence may also be

related to religiosity. A recent Gallup survey suggests that older age groups are more likely to identify themselves as being religious or spiritual[40]. A structural equation modeling study found that age was positively related to religiosity, and religiosity was associated with a healthy lifestyle[41]. Religious service attendance was associated with less consumption of alcohol and cigarettes[42]. The Health, Aging, and Retirement in Thailand survey in 2020 and 2022 showed that respondents aged 60–79 years generally had higher rates of participation in religious activities than those aged 45–59 years[39,43]. Hence, older participants in the present study may also be more religious. Those with stronger religious identities may be more likely to attend to adhere to the conduct suggested in this faith-based campaign and have a tendency toward a healthier lifestyle.

Drinking behavior prior to the campaign period has been consistently shown to be a predictor of campaign completion (completely abstaining from alcohol throughout the campaign period). Two prospective studies of Dry January in the UK found that the frequency of drunkenness in the month preceding Dry January was negatively associated with successful abstinence[24,44]. A study of the 2016 Thai abstinence campaign found that a lower drinking frequency prior to the campaign was associated with alcohol abstinence during the campaign period[18]. Baseline drinking behavior has also been identified as a predictor of success in alcoholism treatment[44]. Hence, drinking behavior prior to the attempt to reduce consumption is a strong predictor of the success of the attempt. It should be noted that while both Dry January

and the Thai abstinence campaign aim to temporarily reduce alcohol consumption, they are embedded in distinct cultural and social contexts. Dry January emphasizes individual health improvements and social media support[45,46]. The Thai campaign is rooted in Buddhist tradition and is more collective in nature, reflecting conformity to community moral norms[18].

A considerable amount of evidence demonstrates a consistent relationship between affordability and alcohol consumption and alcohol-related problems[47-50]. However, the association between the level of affordability and success of an alcohol reduction attempt, as our finding suggests, is still unexplored in other alcohol studies. The observed association in this study may suggest that the level of affordability serves as an indicator for participant socioeconomic status (SES). Evidence from a smoking cessation study showed that smoking cessation rates were consistently greater among those in higher SES categories, as determined by various SES indicators[51]. Hence, the relationship between affordability along with other SES indicators and attempts to reduce or quit alcohol may be an area for further investigation.

Our findings can shed light on factors plausibly contributing to the decline in campaign success (complete abstinence) from 2015 to 2021. The first factor was a steady decline in exposure to the campaign media over the period—from 91.4% in 2015 to 79.5% in 2018 to 74.1% in 2021. Lesser exposure to traditional media (such as television), where campaign media is usually broadcast, may have contributed to this decline in media exposure—particularly among younger age groups in

urban areas[52]. Meanwhile, there was a higher percentage of drinkers who drank more frequently (who were less likely to abstain). Moreover, occasional drinkers who had high odds of complete abstinence (Tables 3 and 4) became less likely to completely abstain in 2021, as shown by the interaction model (Table 5). Furthermore, the decline in complete abstinence became more prominent in 2021, presumably as a result of the pandemic, as discussed earlier.

Strength and limitations

The primary strength of this study is that it used data from three waves of a repeated nationally representative survey spanning seven years. A limitation of this study is the self-reported nature of drinking behaviors. The assessment of drinking behavior during the campaign is based on self-report, which may be affected by social desirability bias— i.e., survey participants may state state they drink less than they actually do, as it is more socially desirable. Additionally, the drinking frequency item and the exposure to the campaign media item were susceptible to recall bias. The drinking frequency item referred to a 12-month period, which is a relatively long timeframe. Furthermore, participants who did not pay attention to the campaign might not have accurately remembered the exposure to the related media.

Another important issue is the classification of the outcome variables. A comparison between the main analysis (which used a dichotomous outcome) and the sensitivity analysis (which used an ordinal

outcome) revealed differences in the direction of associations between certain covariates and the outcome. Nevertheless, each classification serves different purposes. When the emphasis is on success in complete abstinence and other categories of alcohol use—including reduced consumption—are regarded as no success, the dichotomous outcome is preferred. On the other hand, if categories of reduced drinking other than complete abstinence are regarded as partial success, the ordinal outcome is more appropriate. Moreover, there are remaining potential confounding factors that were not captured by the surveys. These factors encompass alcohol marketing campaigns and the prices of alcoholic beverages, among others.

Conclusions

Year, age, drinking frequency prior to the campaign, affordability, and exposure to the campaign media were identified as factors associated with success in complete abstinence. During 2015 and 2021, a decrease in exposure to campaign media and an increase in the proportion of drinkers who drank more frequently were plausibly responsible for the decline in complete abstinence. A period effect in 2021, likely linked to COVID-19, may have contributed to the decline as well. To enhance the campaign's success, campaign media distribution should be diversified across traditional, community-based, and digital platforms to better reach younger, urban populations and ensure wider exposure to campaign messages. To investigate the role of religiosity,

the decline in abstinence among occasional drinkers, and the influence of other unmeasured factors, a prospective study guided by psychological frameworks, such as the Theory of Planned Behavior, is recommended for future research.

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Author contributions

Paithoon Sonthon: Conceptualization, Methodology, Data curation, Validation, Formal analysis, Writing - Original Draft.

Nittaya Srisuk: Conceptualization, Formal analysis, Writing - Original Draft.

Manolee Sripaoraya Penpong: Conceptualization, Formal analysis, Writing - Original Draft.

Bundit Sornpaisarn: Supervision and Manuscript improvement.

Jürgen Rehm: Supervision and Manuscript improvement.

Udomsak Saengow: Conceptualization, Methodology, Funding acquisition, Supervision, Validation, Writing-Review and Editing, Project administration.

Data availability statement

Authors obtained the data used in this study from the Center for Alcohol Studies under the terms specific to this research. Requests for the data can be made to the corresponding author (saengow.udomsak@gmail.com). Approval of access to the data must be granted by the Center for Alcohol Studies.

Declaration of interest statement

None declared.

TABLE

Table 1. Characteristics of drinking survey participants across three survey waves (2015, 2018, and 2021)

Characteristics	2015		2018		2021	
	n	%	n	%	n	%
Total	2,657	100.0	1,67	100.0	1,571	100.0
Sex						
Male	1,815	68.3	1,159	69.4	1,016	64.7
Female	842	31.7	511	30.6	555	35.3
Age (years)						
Mean (SD)	37.9 (13.2)		39.5 (12.4)		39.9 (13.5)	
15-19	190	7.2	62	3.7	69	4.4
20-30	700	26.4	430	25.8	412	26.2
31-45	975	36.8	573	34.5	525	33.4
46-60	656	24.7	561	33.7	463	29.5
≥61	132	4.9	38	2.3	102	6.5
Educational attainment						
Primary school or lower	799	30.3	219	13.2	327	20.8
Secondary school	1,062	40.3	893	53.6	794	50.6
College or higher	776	29.4	553	33.2	448	28.6
Religion						
Buddhism	2,589	99.0	1,653	99.0	1,527	97.7
Others	26	1.0	17	1.2	36	2.3
Drinking frequency prior to the campaign						
Weekly	803	30.5	878	52.6	752	48.0
Monthly	1,063	40.4	417	25.0	465	29.6
Occasionally	767	29.1	374	22.4	351	22.4

Characteristics	2015		2018		2021	
	n	%	n	%	n	%
Total	2,657	100.0	1,67	100.0	1,571	100.0
Affordability						
First tertile	1,178	52.0	605	37.1	458	30.0
Second tertile	570	25.2	617	37.9	479	31.3
Third tertile	516	22.8	408	25.0	591	38.7
Exposure to campaign media						
No	228	8.6	343	20.5	407	25.9
Yes	2,429	91.4	1,327	79.5	1,164	74.1
Complete abstinence						
No	1,800	67.7	1,165	69.8	1,368	87.1
Yes	857	32.3	505	30.2	203	12.9
Drinking during the Lent period						
Continued drinking as usual	774	29.1	746	44.7	1,095	69.7
Reduced the number of drinks per occasion	429	16.1	255	15.3	174	11.1
Abstained for a certain period	597	22.5	164	9.8	99	6.3
Abstained for three months	857	32.3	505	30.2	203	12.9

Note. SD, Standard deviation.

Data source: Buddhist Lent Abstinence Evaluation Survey 2015, 2018, and 2021.

Table 2. Percentage of success in complete abstinence during the campaign period by participant characteristics across three survey waves (2015, 2018, and 2021)

Characteristics	2015			2018			2021		
	%	95%CI	P-value	%	95%CI	P-value	%	95%CI	P-value
Overall	32.3	30.5, 34.1	-	30.2	28.1, 32.5	-	12.9	11.4, 14.	-
Sex			< 0.001			0.015			< 0.001
Male	28.0	26.0, 30.1		28.4	25.9, 31.1		10.3	8.6, 12.4	
Female	41.4	38.2, 44.8		34.4	30.5, 38.7		17.7	14.7, 21.0	
Age (years)			0.422			<.001			0.256
15-19	31.6	25.4, 38.5		24.2	15.2, 36.2		14.5	8.1, 24.7	
20-30	30.7	27.4, 34.2		23.5	19.7, 27.7		9.7	7.2, 13.0	

Characteristics	2015			2018			2021		
	%	95%CI	P-value	%	95%CI	P-value	%	95%CI	P-value
31-45	31.5	28.6, 34.5		34.0	30.3, 39.0		14.3	11.6, 17.5	
46-60	34.0	30.5, 37.7		30.1	26.5, 34.0		14.0	11.2, 17.5	
≥61	37.9	30.1, 46.4		57.9	42.2, 72.1		12.7	7.6, 20.6	
Educational attainment			0.160			0.486			0.710
Primary school or lower	29.5	26.5, 32.8		29.2	23.6, 35.6		14.1	10.7, 18.3	
Secondary school	32.9	30.1, 35.7		29.3	26.4, 32.4		12.8	10.7, 15.4	
College or higher	33.8	30.5, 37.2		32.2	28.4, 36.2		12.1	9.4, 15.4	
Religion			0.999			0.384			0.999
Others	30.8	16.5, 50.0		17.6	6.2, 41.0		13.9	6.1, 28.7	

Characteristics	2015			2018			2021		
	%	95%CI	P-value	%	95%CI	P-value	%	95%CI	P-value
Buddhism	32.4	30.6, 34.2		30.4	28.2, 32.6		12.9	11.3, 14.7	
Drinking frequency prior to the campaign			< 0.001			< 0.001			< 0.001
Weekly	16.9	14.5, 19.7		18.6	16.1, 21.3		7.6	5.9, 9.7	
Monthly	29.7	27.1, 32.5		31.4	27.1, 36.0		17.6	14.4, 21.4	
Occasionally	50.8	47.3, 54.4		56.2	51.1, 61.1		17.7	14.0, 22.0	
Affordability			0.003			0.269			0.787
First tertile	27.8	25.3, 30.4		27.6	24.2, 31.3		12.4	9.7, 15.8	
Second tertile	31.4	27.7, 35.3		30.6	27.1, 34.4		12.5	9.9, 15.8	

Characteristics	2015			2018			2021		
	%	95%CI	P-value	%	95%CI	P-value	%	95%CI	P-value
Third tertile	35.9	31.8, 40.1		32.1	27.8, 36.8		13.7	11.2, 16.7	
Exposure to campaign media			0.002			< 0.001			0.720
No	22.8	17.8, 28.7		21.9	17.8, 26.5		12.3	9.4, 15.8	
Yes	33.1	31.3, 35.0		32.4	29.9, 35.0		13.1	11.3, 15.2	

Note. Complete abstinence, completely abstained from drinking for three months during the Buddhist Lent period; 95%CI, 95% confidence interval.

Data source: Buddhist Lent Abstinence Evaluation Survey 2015, 2018, and 2021.

Table 3. Factors associated with success in complete abstinence during the campaign period (multivariable logistic regression; pooled data from three survey waves)

Factors	AOR	95%CI	p-value Wald's test	p-value LR-test
Year				< 0.001
2015	1			
2018	1.21	1.04, 1.42	0.015	
2021	0.36	0.30, 0.44	< 0.001	
Sex				0.076
Male	1			
Female	1.14	0.99, 1.31	0.075	
Age (years)				< 0.001
15-19	1			
20-30	0.98	0.71, 1.36	0.908	
31-45	1.39	1.01, 1.91	0.041	
46-60	1.36	0.98, 1.88	0.066	
≥61	2.37	1.55, 3.62	< 0.001	
Educational attainment				0.555

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Factors	AOR	95%CI	p-value	
			Wald's test	LR-test
Primary school or lower	1			
Secondary school	1.09	0.91, 1.29	0.356	
College or higher	1.02	0.84, 1.23	0.869	
Religion				0.308
Others	1			
Buddhism	1.39	0.73, 2.64	0.320	
Drinking frequency prior to the campaign				< 0.001
Weekly	1			
Monthly	2.29	1.94, 2.71	< 0.001	
Occasionally	4.74	3.97, 5.65	< 0.001	
Affordability				0.003
First tertile	1			
Second tertile	1.20	1.02, 1.40	0.029	
Third tertile	1.34	1.13, 1.58	< 0.001	
Exposure to campaign media				< 0.001
No	1			
Yes	1.42	1.17, 1.72	< 0.001	

Factors	AOR	95%CI	p-value	
			Wald's test	LR-test

McFadden's pseudo-R^2: 0.101

Note. AOR, adjusted odds ratio; 95%CI, 95% confidence interval; LR-test, likelihood ratio test.

Dependent variable: complete abstinence (dichotomous)—completely abstained from drinking for three months during the Buddhist Lent period.

Data source: pooled data from the Buddhist Lent Abstinence Evaluation Survey 2015, 2018, and 2021.

Table 4. Factors associated with campaign participation (ordinal regression; pooled data from three survey waves)

Factors	AOR	95%CI	p-value Wald's test	p-value LR-test
Year				< 0.001
2015				
2018	0.86	0.76, 0.97	0.002	
2021	0.25	0.21, 0.28	< 0.001	
Sex				< 0.001
Male	1			
Female	1.27	1.13, 1.42	< 0.001	
Age (years)				< 0.001
15-19	1			
20-30	1.02	0.80, 1.31	0.859	
31-45	1.35	1.06, 1.71	0.016	
46-60	1.31	1.02, 1.68	0.033	
≥61	2.31	1.64, 3.24	< 0.001	
Educational attainment				0.064
Primary school or lower	1			
Secondary school	1.08	0.95, 1.24	0.241	
College or higher	1.14	0.98, 1.32	0.079	

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Factors	AOR	95%CI	p-value Wald's test	p-value LR-test
Religion				0.597
Others	1			
Buddhism	0.88	0.56, 1.39	0.597	
Drinking frequency prior to the campaign				< 0.001
Weekly	1			
Monthly	2.18	1.93, 2.47	< 0.001	
Occasionally	3.29	2.86, 3.79	< 0.001	
Affordability				0.402
First tertile	1			
Second tertile	0.94	0.83, 1.07	0.352	
Third tertile	0.97	0.85, 1.11	0.645	
Exposure to campaign media				< 0.001
No	1			
Yes	1.40	1.21, 1.62	< 0.001	

McFadden's pseudo-R^2: 0.072

Note. AOR, adjusted odds ratio; 95% CI, 95% confidence interval; LR-test, likelihood ratio test.

Dependent variable: campaign participation (ordinal)—complete abstinence > abstained from drinking for a certain period > reduced the number of drinks per occasion > continued drinking as usual.

Data source: pooled data from the Buddhist Lent Abstinence Evaluation Survey 2015, 2018, and 2021.

Table 5. Interaction between year and factors associated with complete abstinence (multivariable logistic regression; pooled data from three survey waves)

Factors	AOR	95%CI	Wald's test	LR-test
			p-value	
Interaction: Year*Age (years)[†]				0.051
2018: 20-30	0.78	0.36, 1.72	0.543	
2018: 31-45	1.30	0.61, 2.80	0.500	
2018: 46-60	1.15	0.53, 2.51	0.719	
2018: ≥61	2.85	0.95, 8.50	0.060	
2021: 20-30	0.59	0.24, 1.45	0.253	
2021: 31-45	0.96	0.41, 2.28	0.930	
2021: 46-60	1.03	0.43, 2.48	0.951	
2021: ≥61	0.91	0.30, 2.72	0.865	

McFadden's pseudo-R^2: 0.104

Factors	AOR	95%CI	Wald's test	LR-test
Interaction: Year*Drinking frequency prior to the campaign[†]				< 0.001

Factors	AOR	95%CI	p-value Wald's test	LR-test
2018: Monthly	0.95	0.65, 1.37	0.770	
2018: Occasionally	1.02	0.70, 1.49	0.926	
2021: Monthly	1.27	0.82, 1.99	0.289	
2021: Occasionally	0.51	0.32, 0.82	0.005	
McFadden's pseudo-R^2: 0.105				
Interaction: Year*Affordability[†]				0.310
2018: Second tertile	1.01	0.71, 1.42	0.977	
2018: Third tertile	0.72	0.49, 1.04	0.081	
2021: Second tertile	0.81	0.51, 1.29	0.381	
2021: Third tertile	0.81	0.52, 1.26	0.358	
McFadden's pseudo-R^2: 0.102				
Interaction: Year*Exposure to campaign media[†]				0.120

Factors	AOR	95%CI	p-value	
			Wald's test	LR-test
2018: Yes	0.98	0.61, 1.57	0.922	
2021: Yes	0.63	0.38, 1.05	0.073	
McFadden's pseudo-R^2: 0.102				

Note. AOR, adjusted odds ratio; 95% CI, 95% confidence interval; LR-test, likelihood ratio test.

†Adjusted for year, sex, age, education, religion, drinking frequency prior to the campaign, affordability, and exposure to campaign media

Dependent variable: complete abstinence (dichotomous)—completely abstained from drinking for three months during the Buddhist Lent period.

Data source: pooled data from the Buddhist Lent Abstinence Evaluation Survey 2015, 2018, and 2021.

FIGURE
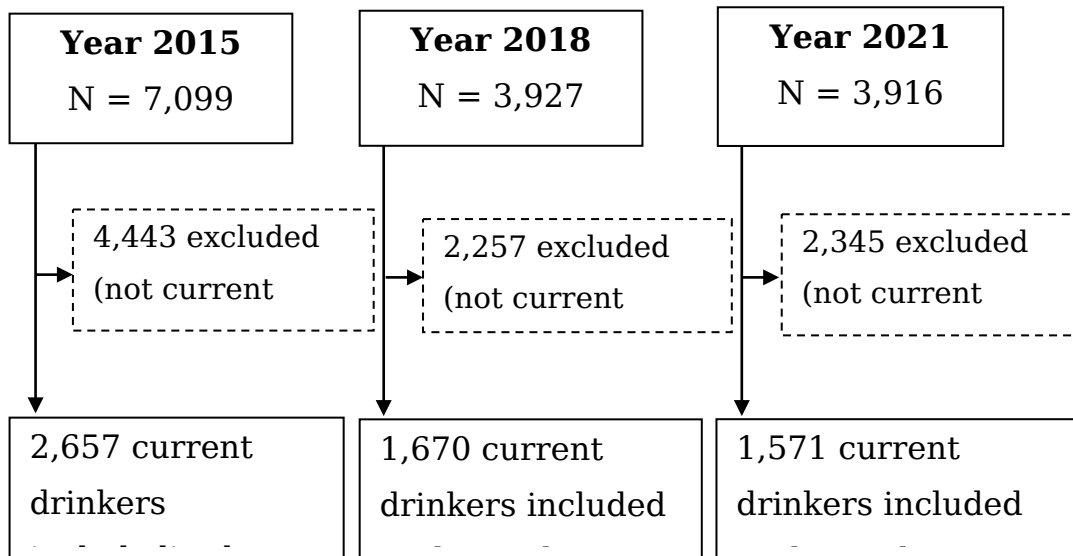
Figure 1. Participant selection in the analysis