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SOCIAL PSYCHOLOGY | RESEARCH ARTICLE

Effect of alcohol-related poems on drinking

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Abstract: This study explored exposure to literature related to drinking as a potential contributor to alcohol consumption. It focused on literature of classical Chinese poems and lyrics depicting a drinking scenario, or narratives with characters drinking alcohol. These texts were chosen because they are widely accessible to the public that some poems are also taught in the high school curriculum. The main hypothesis was that familiarity with alcohol-related poems would lead to positive attitudes towards drinking and heavier drinking. Knowledge of drinking-unrelated poems as well as cultural knowledge related to drinking were statistically controlled for in order to establish a causal relation that exposure to alcohol-related poems contributed to drinking. 126 individuals recruited through convenience sampling via Facebook participated in an online survey. Respondents were tested on their knowledge of poems related to and unrelated to drinking, and cultural knowledge related to drinking. Respondents also reported their attitudes towards drinking and drinking behaviors including volume of alcohol consumption, drinking frequency, solitary drinking frequency, and binge drinking frequency. By controlling for knowledge of poems unrelated to drinking and cultural knowledge related to drinking, this study eliminated confounding factors and the reverse causal direction that drinking caused enhanced knowledge in drinking-related literature. Regression analyses showed that knowledge of poems related to drinking resulted in positive attitudes and behaviors towards drinking. These results extended past findings to demonstrate the effect of narratives on drinking attitudes and behaviors. The unintended effect of exposure to drinking-related literature promoting drinking attitudes and behaviors should not be overlooked.

ABOUT THE AUTHOR

Pun Tung Chu Our research team focuses on experiences and impacts of arts and cultures through a psychological and quantitative approach. We have examined audience experiences of theatre performances and street performances. We are also looking at motivations and expectations towards dance, classical music, contemporary art and cultural heritage sites. This study extends our interest to literary arts examining how exposure to a specific genre of literary art affects readers.

PUBLIC INTEREST STATEMENT

In this study we found that exposure to alcohol-related text, specifically literature of classical Chinese poems and lyrics depicting a drinking scenario, or narratives with characters drinking alcohol, could have inadvertently induced readers to drink more that readers reported more positive attitudes towards drinking and reported drinking more frequently. Our research design refuted the possible reverse causal explanation that perhaps liking on drinking could have induced interest in literature related to drinking by controlling for knowledge of literature unrelated to drinking and also cultural knowledge related to drinking. However, our results should be received with caution given that it is a cross-sectional design with a small sample size. However, we believe that the results are insightful as a reminder of the unintended consequences of exposure to literature that could be romanticizing drinking.

Subjects: Chinese Culture & Society; Applied Social Psychology; Literature & Culture

Keywords: alcohol consumption; Chinese poems; cultural knowledge

1. Introduction

Reading is an intrinsically pleasurable activity (McQuillan & Conde, 1996), regardless of whether it is reading genres of descriptive, expository, or narrative text (Ghonsooly & Hamed, 2014) or even for the purpose of academic cramming (Brinthaup & Shin, 2001). According to the narrative collective-assimilation hypothesis, reading fulfills the need for social affiliation for us to connect psychologically with a larger collective described in the narrative (Gabriel & Young, 2011). Reading, even as early as from infancy on, stimulates an upward spiral effect on enhancing language and reading ability and academic achievement (Mol & Bus, 2011). Through the effect of priming, reading also affects cognitive performance—readers who were primed to identify with a stupid character in a story performed worse on a knowledge test, and vice versa (Appel, 2011). Exposure to narrative fiction, especially romance and suspense/thriller, has also been found to enhance interpersonal sensitivity (e.g. Fong, Mullin, & Mar, 2013). Narratives are also an effective means of persuasion. Although readers know that fiction is not true, fiction provides a cognitive simulation that serves as a coherence of truth and a personally involving emotional simulation that gives rise to insight (Oatley, 1999). Through imagery and embodied cognition, fiction builds a simulated social world that enhances readers' sympathetic and empathetic growth, and social knowledge (Mar & Oatley, 2008). In addition, as postulated by the transportation imagery model (Green & Brock, 2000, 2002), when recipients were in a state of psychological transportation that they were immersed attentively and emotionally with the imagery of the story events, recipients became emotionally connected with the characters in the story (e.g. Heath, Bell, & Sternberg, 2001) and were less eager to argue against the persuasive communication (e.g. Slater & Rouner, 2002). While most studies focused on the beneficial effects of reading, this study explored if reading could induce undesirable behaviors—drinking.

Earliest literary work on drinking could be attributed to the Greek poet Anacreon (c.582-c.485 BC) who was well known for his drinking songs and hymns ("Anacreon," n.d.). Drinking was one of original subjects in lyric poetry that poetry regarding alcoholic drink appears in all literary cultures like the Arabic, Persian, Chinese, European, and American culture (Roth, 2000). While English Romantics, like Wordsworth, portray the social concern on the effects of alcohol on mind and body and addiction, and German Romantics draw on the communal nature of classical wine drinking to envision a unified German nation (Hart, 2018), drinking poetry typically eulogizes the ecstasy of intoxication.

1.1. Alcohol consumption

Alcohol consumption is common especially in high-income countries (World Health Organization, 2014). Given the popularity of alcohol consumption and the risks associated with drinking (Chikritzhs, Jonas, Stockwell, Heale, & Dietze, 2001; NIAAA, 2000; Viner & Taylor, 2007), factors leading to risky drinking behaviors have been extensively investigated. For example, in a multinational study involving respondents from 35 countries, Wilsnack, Wilsnack, Kristjanson, Vogeltanz-Holm, and Gmel (2009) showed that the prevalence of drinking and high-volume drinking was consistently higher among men than women. Pedersen and Soest (2013) found that parental binge drinking predicted respondents' binge drinking. Alcohol consumption has also been linked to personality traits that psychoticism, extraversion and novelty-seeking were associated with alcohol misuse in adolescents (George, Connor, Gullo, & Young, 2010). Virtanen et al. (2015) reviewed 60 studies with a total of over 300000 respondents from 14 countries and concluded that workers with long working hours (over 48 hours per week) were more likely to engage in risky alcohol use (defined as more than 14 drinks per week among women and more than 21 drinks per week among men). Other factors that have been studied include educational attainment (e.g. Huerta & Borgonovi, 2010), student leadership (e.g.

Spratt & Turrentine, 2001), religiosity (e.g. Francis, 1992), expectancies of alcohol (e.g. Hershberger, Karyadi, VanderVeen, & Cyders, 2016), and even sweet taste preference (Kranzler, Sandstrom, & Kirk, 2001).

Plenty of research has also demonstrated the impact of alcohol advertisement and portrayal of alcohol use on increasing the likelihood of drinking in different media, e.g. television programs, films, magazines, and reporting of sports events (Anderson, De Bruijn, Angus, Gordon, & Hastings, 2009). This study explored exposure to literature related to drinking as a potential contributor to alcohol consumption.

1.2. Psychological impacts of alcohol-related literature

Literature covers a wide range of written works including fiction and non-fiction, poetry and prose, novel, short story and drama. Literary influences thoughts, attitude and behaviors. Subjective knowledge theory (Stroud, 2008) states that literary work opens up the subjective perspectives or experiences to readers and hence allows them to gain understanding of what it is like in specific situations without actually exposing to those situations. Gerrig and Rapp (2004) showed that readers eagerly believed what they read, a “willing construction of disbelief”, that they needed strategic effort to reject information acquired from literary work. Their experiments showed that readers formed expectations based on literary narrative despite the fact that such expectations might be contradictory to real life experiences. Mikkonen (2015) also suggested that literary work could alter individuals’ understanding about different subjective experiences. Given the impact of literary work on one’s perception, it is possible that exposure to alcohol-related literature affects one’s attitude towards alcohol as well as drinking behaviors. When someone reads about positive experiences of drinking from poems or lyrics, he or she may associate drinking with positive experiences and form a positive attitude towards drinking and become more inclined to drinking.

Although reading a poem depicting a drinking scene does not make readers actually see a drinking scene, the visual mental imagery process associated with reading may give rise to the same effects through observational learning (Bandura, 2012). The formation of a mental image shares much similarity with the actual perception of a corresponding external stimulus (Finke, 1985; Kosslyn, 1988, 1994). Kosslyn (1988) suggested that information on the visual features of an external stimulus (e.g. a bird) is available when a person is creating a visual imagery of the stimulus so that the person can “construct” the visual image of the stimulus as if the person is actually seeing it. Exposure to literary work depicting a drinking scene may trigger observational learning through a visual imagery process and hence affects readers’ drinking behaviors.

Literary work romanticizing drinking could also induce drinking through classical conditioning. The process of classical conditional does not necessarily require an external stimulus; it can be induced through imagery as well. For example, Dadds, Bovbjerg, Redd, and Cutmore (1997) showed that mental imagery was not only able to facilitate or diminish the outcome of classical conditioning but could also substitute for external stimulus in the process of conditioning. Rossiter and Percy (1980) also suggested that advertisements could influence consumers’ attitudes through the processes of mental imagery and classical conditioning. Many poems and lyrics associate drinking with beautiful and romantic scenes. Li-bai, perhaps the most well-known poet in ancient China, is the most famous for writing about drinking—“while some may have drunk more wine than Li, no-one has written more poems about wine” (Wu, 1972). For example, his work “Drinking Alone by Moonlight” romanticized solitary drinking under the moon. Drinking was paired with beautiful sceneries such as moon and flowers as wells as joyful behaviors such as dancing. As readers mentally visualize the scene, the process of classical conditioning may take place which induces a more positive attitude towards drinking.

Literary work depicting drinking behaviors may also serve as a prime for alcohol consumption as like alcohol-related advertisements priming alcohol consumption. Smith and Foxcroft (2009) concluded that exposure to advertisement or promotional activities for alcohol was associated with

increased alcohol consumption among young people after controlling for gender. In particular, research has shown that positive alcohol expectancies and alcohol consumption could be primed by exposure to advertisements in which actors drank alcohol (Dunn & Yniguez, 1999; Roerich & Goldman, 1995). Other studies demonstrated that priming worked together with imitation and mimicry processes to affect perception and behaviors (Chartrand & Bargh, 1999; Dijksterhuis & Bargh, 2001). Reading alcohol-related literature could prime readers towards drinking.

Repeated exposure to literary work featuring drinking could induce drinking through the mere exposure effect (Zajonc, 2001). The mere exposure effect can take place even if the stimulus is not recognized consciously (Bornstein, 1989; Bornstein & D'Agostino, 1992). In a review of 13 longitudinal studies on 38000 young people, Anderson et al. (2009) found that exposure to media and commercial communications on alcohol increased the likelihood of adolescent drinking. Zerhouni, Begue, Duke, and Flaudias (2016) also showed that exposure to alcohol advertisements during a sports game was associated with a more positive implicit attitude towards alcohol even when alcohol consumption patterns were controlled for. Repeated exposure to alcohol-related literary work may be sufficient to induce a more positive attitude towards alcohol.

1.3. Current study

This study examined the hypothesis that familiarity with literature related to alcohol would be associated with positive attitudes and behaviors towards drinking. This study focused on literature of classical Chinese poems and lyrics written in the Tang and Song Dynasties depicting a drinking scenario, or narratives with characters drinking alcohol. These texts were chosen because they are widely accessible to the general public in the Chinese population and some of these poems are also taught in the high school curriculum.

The difficulty in examining the association between literature and drinking is establishing a causal relation. While this study aimed to examine whether more exposure to drinking-related literature would lead to more drinking, there could be at least two alternative hypotheses which need to be ruled out in order to establish the causal relation under examination. The first alternative hypothesis is the effect of literature *in general* on drinking. The common sense belief is that the artistic- or literacy-type people are more congenial towards drinking because drinking is a symbol or vehicle towards disinhibition that aligns with their value for freedom of expression and creativity. Therefore, in addition to familiarity with alcohol-related literature, this study also measured familiarity with non-alcohol-related literature as a control variable. It is hypothesized that familiarity with non-alcohol-related literature will not be associated with drinking.

The second alternative hypothesis is the reverse causal direction that drinking actually causes familiarity with alcohol-related literature. It is possible that people who have a positive attitude towards drinking are more eager to read alcohol-related literature. If this reverse causal direction is true, people who like drinking are also expected to show higher interest in other things related to alcohol such as alcohol-related cultural knowledge. The reverse causal hypothesis predicts that drinking is associated with familiarity with not only alcohol-related literature but also other alcohol-related cultural knowledge. However, our main hypothesis that alcohol-related literature induces drinking predicts that drinking is associated with familiarity with alcohol-related literature only but not with other alcohol-related cultural knowledge.

2. Methods

2.1. Research design

The causal relation that exposure to more drinking-related literature would lead to more drinking was examined by a cross-sectional survey research study. This study eliminated the possibility of a reverse-causal direction that drinking could lead to exposure of alcohol-related literature by statistically controlling for knowledge of drinking-unrelated poems and cultural knowledge related to drinking.

2.2. Respondents

A sample of 126 individuals recruited through convenience sampling on Facebook participated in an online survey study. Respondents provided their informed consent (presented in Appendix 1) before they could proceed to completing the survey. About 52% of the respondents were men. All respondents were above 18, which is the legal drinking age in Hong Kong. Majority of the respondents (67%) were 21 to 40 years old, 12% were 18 to 20 years old, and 21% were above 41 years old. Majority of the respondents (83%) had a bachelor degree education or above. Recruiting research respondents via social media such as Facebook has been widely used as a research tool in social sciences nowadays (e.g. Huang & Park, 2013; Peters, Winschiers-Theophilus, & Mennecke, 2013; Stillwell & Kosinski, 2015). Sampling through Facebook have advantages like accessing large and diverse samples over traditional sampling methods (Kosinski, Matz, Gosling, Popov, & Stillwell, 2015). While sampling of respondents could be different via online versus offline methods, psychometric properties of the constructs measured were negligibly different between different forms of assessment platforms (Riva, Teruzzi, & Anolli, 2003).

2.3. Measures on attitudes and behaviors towards alcohol

2.3.1. Attitude towards alcohol

Attitude towards alcohol was measured using the Chinese version of the Scale of Attitude towards Alcohol with 16 items measured on a five-point Likert scale from 1 “strong disagree” to 5 “strongly agree” (SATA, Francis, 1992). Sample items are “young people should be discouraged from taking up drinking” and “alcohol is responsible for an increase in the breakdown of family life”. After recoding items that were reverse-scored, an arithmetic average was computed over the 16 items as the central tendency measure of attitudes towards alcohol. A higher score indicates a more positive attitude towards alcohol. The scale demonstrated good reliability with a Cronbach’s alpha of .89.

2.3.2. Attitude towards solitary drinking

Solitary drinking refers to drinking while alone as opposed to social drinking. Attitude towards solitary drinking was measured by three items adopted from Creswell et al. (2015) on a five-point Likert scale from 1 “strong disagree” to 5 “strongly agree”. A sample item is “solitary drinkers usually have deficits in social skills”. A higher mean score indicates a more positive attitude towards solitary drinking. The scale showed satisfactory reliability with a Cronbach’s alpha of .68.

2.3.3. Drinking frequency, solitary drinking frequency, and binge drinking frequency

Various operational definitions for binge drinking have been suggested. Some researchers (e.g. Courtney & Polich, 2009; Kuntsche, Rehm, & Gmel, 2004; Wechsler, Dowdall, Davenport, & Rimm, 1995) as well as the National Health Service (NHS) of the United Kingdom (2016b) define binge drinking quantitatively by the quantity of alcohol consumed in a row, while some other researchers (e.g. Pedersen & Soest, 2013) define binge drinking psychologically by the subjective experience of drunkenness felt by the drinkers. This study adopted a quantitative definition of binge drinking as consuming six or more units of alcohol in a row (Courtney & Polich, 2009; Kuntsche et al., 2004). According to the NHS of the United Kingdom (2016a), one unit of alcohol is defined as 10 ml of pure alcohol.

The classical Quantity/Frequency (QF) approach (Stahre, Naimi, Brewer, & Holt, 2006) was employed to measure alcohol consumption. In particular, drinking frequency, solitary drinking frequency and binge drinking frequency were measured separately, each by a single question to indicate directly the corresponding frequency, with choices ranging from “never”, “once or less per 3 months”, “once per 2 months”, “once per month”, “2 to 4 times per month”, “2 to 3 times per week”, “4 to 5 times per week”, and “more than 5 times per week”. Single-item Quantity/Frequency measures of alcohol consumption have been the norm among researchers on alcoholism (Pedersen & Soest, 2013). Dollinger and Malmquist (2009) showed that single-item measures of drinking frequency were highly reliable, with a test-retest reliability of .84.

2.3.4. Average volume of alcohol consumption

Average volume of alcohol consumption was measured by a single item to measure the number of units of alcohol respondents typically consumed per drinking occasion, with choices ranging from “less than 1 unit” to “more than 10 units”. In order to help respondents understand what “one unit of alcohol” meant, it was stated on the questionnaire that one unit of alcohol was approximately equal to 250 ml of beer, 80 ml of wine, or 25 ml of spirit.

2.3.5. Overall drinking index

The standardized scores on the above six drinking measures (attitude towards alcohol, attitude towards solitary drinking, drinking frequency, solitary drinking frequency, binge drinking frequency, and average volume of alcohol consumption) were averaged to create an overall drinking index. This aggregate measure summarized respondents’ attitude, frequency, and average heaviness of drinking. The reliability of this measurement was good with a Cronbach’s alpha of .84.

2.4. Familiarity with poems related and unrelated to alcohol

Familiarity with alcohol-related poems was measured by a 10-item knowledge test requiring respondents to correctly arrange the order of four lines of text from drinking-related classical Chinese poems and lyrics written in the Tang and Song Dynasties. Such poems or lyrics involved descriptions of a drinking scenario or writer’s comments about drinking. A similar 10-item knowledge test was constructed on poems and lyrics in the same period that were unrelated to drinking. The total counts of correct answers on the two 10-item tests served as measures of familiarity with drinking-related knowledge and with drinking-unrelated knowledge, respectively. Internal consistencies of both drinking-related and drinking-unrelated scales were good, with Cronbach’s alphas of .82 and .80, respectively.

2.5. Familiarity with alcohol-related cultural knowledge

Drinking-related cultural knowledge was assessed by a 6-item multiple choice test with four choices per question. The test examined both Western and Eastern cultural knowledge related to drinking. Sample items include “Who is the God of Wine in Greek mythology” and “Which is one of the Chinese myths about the origin of wine”.

2.6. Control variables

Various personal characteristics including personality, drinking habits of parents and demographic variables were also measured in order to control for their effects on drinking.

2.6.1. Personality

The Big Five personality factors, namely, neuroticism (N), extraversion (E), openness (O), agreeableness (A), and conscientiousness (C), were measured using the Chinese version of the short 15-item Big Five Inventory (BFI-S, Lang, John, Ludtke, Schupp, & Wagner, 2011). The BFI-S measures each of the Big Five personality factors with 3 items on a 7-point Likert scale from 1 “strongly disagree” to 7 “strongly agree”. A higher mean score indicates a stronger tendency to demonstrate the corresponding personality trait. The BFI-S has been used in a number of large surveys (Lang, 2005; Lang, Ludtke, & Asendorpf, 2001; Rammstedt, Goldberg, & Borg, 2010). Acceptable validity and reliability of the BFI-S were reported (Gerlitz & Schupp, 2005; Lang, 2005). The BFI-S was translated into Chinese with acceptable internal consistency across the five subscales for neuroticism, extraversion, openness, agreeableness and conscientiousness (Cronbach’s alphas = .75, .71, .83, .38 & .70, respectively).

2.6.2. Parental drinking habits

Respondents reported drinking habits of their father and mother, respectively, on a single-item identical to that concerning drinking frequencies.

2.6.3. Demographic characteristics

Respondents reported sex, age and education in the last section of the questionnaire.

3. Results

Multiple linear regression analyses were conducted to examine the effects of drinking-related poems, drinking-unrelated poems and drinking-related cultural knowledge on drinking attitudes and behaviors while controlling for demographic characteristics, personality, and parental drinking habits. Table 1 presents the correlation matrix and Table 2 presents standardized coefficients (β) of regression of drinking attitudes and behaviors on the three variables concerned, namely, knowledge of poems related to drinking, knowledge of poems unrelated to drinking, and cultural knowledge related to drinking.

Consistent with the main hypothesis, the first row of Table 2 shows that knowledge of drinking-related poems was a significant predictor of attitude towards alcohol ($\beta = .327, p = .022$), drinking frequency ($\beta = .271, p = .032$), solitary drinking frequency ($\beta = .301, p = .028$), binge drinking frequency ($\beta = .481, p = .0004$), average volume of alcohol consumption ($\beta = .339, p = .019$), and overall drinking index ($\beta = .430, p = .001$). However, the effect of familiarity with alcohol-related poems on attitude towards solitary drinking was not significant ($\beta = .257, p = .076$). These results demonstrate a strong support for the hypothesis that exposure to drinking-related poems was associated with drinking attitudes and behaviors.

Noting the high correlation between knowledge of alcohol-related literature and knowledge of non-alcohol-related literature ($r = .77$), we examined if there was a problem with collinearity that might affect the interpretation of the results. Appendix 2 presents the collinearity statistics to show that collinearity was not a problem that the regression results could be correctly interpreted.

Consistent with the prediction of a null finding for the first alternative hypothesis, standardized betas of the multiple linear regression results in the second row on Table 2 indicate that exposure to alcohol-unrelated poems had a negligible effect on drinking attitudes and behaviors. These results suggest that it was alcohol-related poems but not poems in general that predicted drinking. Moreover, standardized betas of the multiple linear regression results in the third row on Table 2 also show that familiarity with alcohol-related cultural knowledge had a negligible effect on drinking. This is consistent with the prediction of a null finding for the second alternative hypothesis that discredits the reverse causality explanation.

These results altogether suggest a causal direction that exposure to alcohol-related poems induces drinking but not the other way around.

4. Discussion

Results of this study suggest a causal effect that exposure to alcohol-related Chinese poems could induce favorable attitudes and behaviors towards alcohol. Extant research on literary impact focused almost exclusively on literary narratives such as fictions (Gerrig & Rapp, 2004; Stroud, 2008). The current study showed that poetry might have similar effects on attitudes and behaviors as literary narratives do. Gerrig (1993) used the metaphor of “being transported” to describe reader’s experiences while reading literary narratives. He suggested that the process of reading is like a journey during which some aspects of reality become inaccessible to the readers and after which the readers experience some changes. Mazzocco, Green, Sasota, and Jones (2010) showed that individuals who were highly transportable were more likely to be persuaded by stories. Poetry may influence readers’ attitude and behaviors through the same mechanism, especially those poems with more vivid descriptions of actions that could enhance transportability or on readers who are more transportable.

Poetry has been an integral part in the teaching of the Chinese language in schools. In fact, a number of alcohol-related classical poems and lyrics are included in the senior secondary school Chinese Language and Chinese Literature curriculum in Hong Kong. Given that exposure to such alcohol-related literary work could predispose readers towards drinking, educators should be aware of such unintended effects when teaching these texts. Perhaps the social or historical

Table 1. Correlations among drinking attitudes and behaviors and their predictors

	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. Knowledge of Poems Related to Drinking	0.77*	0.40*	0.27*	0.22*	0.20*	0.18*	0.22*	0.30*	0.13	0.13	-0.05	0.13	0.09	-0.14	0.15	-0.06	-0.07	-0.01	0.13
2. Knowledge of Poems Unrelated to Drinking		0.50*	0.08	0.09	0.09	0.04	0.08	0.13	-0.02	0.14	0.01	0.13	0.16	-0.10	0.11	-0.12	-0.13	0.12	0.09
3. Cultural Knowledge Related to Drinking			0.03	0.02	0.01	0.04	0.06	0.02	-0.03	0.11	0.01	0.05	0.08	-0.17	0.03	-0.03	0.02	0.04	0.09
4. Overall Drinking Index				0.56*	0.58*	0.86*	0.84*	0.84*	0.71*	-0.03	-0.08	0.05	-0.04	-0.06	0.28*	0.14	0.30*	-0.12	0.08
5. Attitude Towards Alcohol					0.43*	0.51*	0.40*	0.41*	0.40*	-0.03	-0.09	-0.01	-0.06	0.02	0.17	0.17	0.03	-0.17	0.03
6. Attitude Towards Solitude Drinking						0.40*	0.41*	0.24*	0.17	0.02	-0.17	0.00	0.06	-0.01	0.15	0.06	0.06	-0.14	0.12
7. Drinking Frequency							0.72*	0.65*	0.52*	-0.11	0.03	0.10	-0.08	0.02	0.34*	0.20*	0.36*	-0.10	0.11
8. Solitude Drinking Frequency								0.69*	0.41*	-0.02	-0.14	0.05	0.01	-0.14	0.27*	0.11	0.27*	-0.05	0.07
9. Binge Drinking Frequency									0.63*	0.05	-0.03	0.02	0.03	-0.06	0.17	0.11	0.28*	-0.04	0.10
10. Average Volume of Alcohol Consumption										-0.04	-0.01	0.00	-0.18*	-0.06	0.12	0.06	0.16	-0.13	-0.07
11. Neuroticism											-0.34*	-0.11	-0.10	-0.24*	-0.03	0.06	-0.09	-0.14	0.00
12. Extraversion												0.19*	0.07	0.25*	-0.05	0.03	-0.17	0.11	-0.06
13. Openness													0.12	0.18*	-0.03	0.04	0.01	0.11	-0.05
14. Agreeableness														0.15	0.01	0.02	-0.06	0.19*	0.09
15. Conscientiousness															-0.04	-0.08	0.02	0.35*	0.06
16. Father Drinking Frequency																0.36*	-0.00	-0.10	-0.05

(Continued)

Table 1. (Continued)

	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
17. Mother Drinking Frequency																	-0.08	-0.26*	-0.01
18. Sex																		0.02	0.13
19. Age																			0.06
20. Education																			

* $p < .05$. Sex was coded as 0 = female and 1 = male.

Table 2. Standardized coefficients of regression of drinking attitudes and behaviors on literature and cultural knowledge related and unrelated to drinking

	Attitude Towards Alcohol	Attitude Towards Solitude Drinking	Drinking Frequency	Solitude Drinking Frequency	Binge Drinking Frequency	Average Volume of Alcohol Consumption	Overall Drinking Index
$R^2(13, 112)$	0.051	0.020	0.258	0.130	0.162	0.034	0.185
Knowledge of Poems Related to Drinking	β 0.327*	0.257	0.271*	0.301*	0.481*	0.339*	0.430*
	t 2.319	1.789	2.172	2.226	3.628	2.378	3.286
Knowledge of Poems Unrelated to Drinking	β -0.068	-0.079	-0.111	-0.140	-0.160	-0.197	-0.179
	t -0.449	-0.513	-0.830	-0.962	-1.126	-1.288	-1.276
Cultural Knowledge Related to Drinking	β -0.027	-0.041	-0.017	-0.024	-0.125	-0.045	-0.066
	t -0.261	-0.398	-0.182	-0.240	-1.296	-0.436	-0.690
Neuroticism	β -0.107	-0.045	-0.063	-0.055	0.074	-0.053	-0.037
	t -1.095	-0.455	-0.730	-0.584	0.808	-0.542	-0.410
Extraversion	β -0.119	-0.163	0.095	-0.067	0.092	0.032	-0.003
	t -1.201	-1.626	1.087	-0.704	0.992	0.322	-0.031
Openness	β -0.040	0.004	0.070	0.059	-0.033	-0.011	0.023
	t -0.437	0.047	0.853	0.666	-0.375	-0.119	0.272
Agreeableness	β -0.071	0.073	-0.087	0.024	0.036	-0.158	-0.029
	t -0.772	0.790	-1.083	0.274	0.415	-1.714	-0.347
Conscientiousness	β 0.138	0.075	0.028	-0.127	-0.042	-0.001	-0.018
	t 1.372	0.739	0.315	-1.325	-0.449	-0.012	-0.189
Paternal Drinking Frequency	β 0.058	0.099	0.278*	0.216*	0.085	0.077	0.197*
	t 0.598	1.001	3.242	2.323	0.937	0.782	2.188
Maternal Drinking Frequency	β 0.144	0.004	0.117	0.054	0.115	0.027	0.082
	t 1.439	0.036	1.321	0.563	1.228	0.264	0.890

(Continued)

Table 2. (Continued)

		Attitude Towards Alcohol	Attitude Towards Solitude Drinking	Drinking Frequency	Solitude Drinking Frequency	Binge Drinking Frequency	Average Volume of Alcohol Consumption	Overall Drinking Index
Sex	β	0.029	0.037	0.374*	0.264*	0.329*	0.165	0.305*
	<i>t</i>	0.319	0.393	4.582	2.987	3.788	1.769	3.560
Age	β	-0.152	-0.152	-0.055	0.029	0.034	-0.069	-0.056
	<i>t</i>	-1.533	-1.510	-0.633	0.306	0.364	-0.688	-0.605
Education	β	-0.003	0.081	0.069	0.025	0.026	-0.087	0.030
	<i>t</i>	-0.035	0.887	0.860	0.287	0.306	-0.955	0.355

β = standardized beta. * $p < .05$. Sex was coded as 0 = female and 1 = male.

context that prompted these poets to write favorably towards drinking should be discussed in order to de-romanticize drinking. Teachers may also need to offer warnings on the harmful effects of drinking.

Many of the factors associated with alcoholism identified in previous research are hardly controllable on the part of an individual. Such factors include gender (e.g. Wilsnack et al., 2009), parental drinking (e.g. Pedersen & Soest, 2013) and personality (e.g. George et al., 2010). The factor identified in this study, namely, exposure to alcohol-related literature, could easily be manipulated. While literary work depicting positive images of drinking leads to a more favorable attitude towards alcohol and more frequent drinking, literature suggesting negative images of drinking may have the opposite effect, which could be an intervention strategy to alleviate alcohol use.

This study examined only classical Chinese poems and lyrics written in the Tang and Song Dynasties. These texts were chosen because they are easily accessible by and are popular among the general population. However, they could hardly represent the diverse spectrum of literature. Whether the current results can be generalized to literature in other languages requires further investigation. Writing depicting drinking is not limited to the Chinese literature; western writers like Eugene O'Neill, John Berryman, George Orwell, to name just a few, have also written work portraying drinking (Gilmore, 1987). These western works may not be romanticizing drinking as much as Chinese poetry has done; but these being "good" literature resisting the stereotyping of the alcoholic could also have rendered a more tolerant and positive image of drinking to the readers. It is also unclear if our findings could be restricted to poetry as a specific kind of writing. The language style and wordings used in poems and lyrics are quite different from modern plain language. Readers normally need to exert extra effort to comprehend them. The deeper processing required for comprehension may account for their impact on readers. In addition, the structures and intonations of poems and lyrics make them generally easier to remember and recall than passages written in plain language. Their impact on readers may be partly due to their ease of recall. If so, passages written in plain language may not have as much impact on their readers as poems and lyrics do. This study only included a very restricted set of literary work; generalizability of our findings to other types of literature has yet to be examined.

In this study, the causal direction that alcohol-related poems induce drinking is established by the logical argument that drinking is not associated with other confounding factors. If the reverse-causation is true that drinking causes exposure to drinking-related literature, it is also expected to see drinking causes exposure to other drinking-related matters, e.g. drinking-related cultural knowledge. Multiple regression results showed that drinking was not related to drinking-related cultural knowledge, which refuted the reverse causal explanation. Multiple regression results also showed that it was alcohol related-literature but not literature in general that caused more drinking. These results as a whole demonstrated that exposure to alcohol-related poems caused more drinking. However, a longitudinal instead of a cross-sectional design should provide a much stronger test of the hypothesized causal direction. In addition, the current study relied on self-report measures and could suffer from a common-method bias. However, because familiarity with alcohol-related and alcohol-unrelated literature and other alcohol-related cultural knowledge were operationalized as knowledge tests that respondents could not fake-good on their answers, the results should not be much affected by a percept-percept bias despite the reliance on self-report in the survey.

5. Conclusion

The current study demonstrated that exposure to alcohol-related poems and lyrics caused a more positive attitude towards alcohol as well as more frequent and heavier drinking behaviors. Parents and educators should be aware of such effects when choosing reading materials for their children and students.

While we all enjoy the beauty of poetry and their nourishment to our cultural life, they could assert unintended impacts on our mind and heart, and also liver if they are alcohol-related.

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Appendix 1 Informed consent statement

香港中文大學心理學系現正進行一項有關飲酒文化的研究，誠邀閣下撥冗10 – 15分鐘填寫問卷。

[The Chinese University of Hong Kong is currently conducting a research study on culture of drinking. We sincerely invite you to spare 10-15 minutes to participate in this research study.]

問卷不記名，而閣下所填寫的資料亦會絕對保密，並只用作學術用途。

[The survey is anonymous and the data are used for academic research purposes only and they will be kept strictly confidential.]

若閣下希望了解更多關於是項研究的資訊，歡迎電郵至 wintonau@cuhk.edu.hk，與區永東教授聯絡。

[If you want to know more about this research project, please contact Prof. Winton Au at wintonau@cuhk.edu.hk.]

若閣下同意參與本研究，請按下一頁

[If you agree to participate in this research, please press the “next” button.]

Appendix 2 Multiple linear regression on overall drinking index

Noting the high correlation between knowledge of alcohol-related literature and knowledge of non-alcohol-related literature ($r = .77$), we examined if collinearity might violate the assumptions of independence among predictors in multiple regressions. Collinearity could be a problem if the variance inflation factor (VIF) is greater than 10 (Hair, Black, Babin, Anderson, & Tatham, 1998). Table A1 presents the regression results on the overall drinking index. We found that VIFs for all predictors were smaller than 4, which indicated that there was no problem with collinearity.

Table A1. Multiple regression on overall drinking index

	Beta	t	p	Partial correlation	VIF	Partial η^2
Literature Knowledge Related to Drinking	0.430	3.286	0.001	0.292	2.626	0.088
Literature Knowledge Unrelated to Drinking	-0.179	-1.276	0.205	-0.147	3.026	0.014
Cultural Knowledge Related to Drinking	-0.066	-0.690	0.492	0.000	1.387	0.004
Neuroticism	-0.037	-0.410	0.683	-0.041	1.255	0.002
Extraversion	-0.003	-0.031	0.976	-0.008	1.286	0.000
Openness	0.023	0.272	0.786	0.026	1.121	0.001
Agreeableness	-0.029	-0.347	0.729	-0.034	1.100	0.001
Conscientiousness	-0.018	-0.189	0.850	-0.008	1.325	0.000
Paternal Drinking Frequency	0.197	2.188	0.031	0.204	1.241	0.041
Maternal Drinking Frequency	0.082	0.890	0.375	0.080	1.314	0.007
Sex	0.305	3.560	0.001	0.312	1.123	0.102
Age	-0.056	-0.605	0.546	-0.059	1.293	0.003
Education	0.030	0.355	0.723	0.030	1.075	0.001

Beta = standardized beta coefficient. VIF = Variance inflation factor. Sex was coded as 0 = female and 1 = male.



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