Exposure to alcohol social media marketing and associations with young adult’s drinking expectancies and behaviors: A study to inform regulation and health promotion

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Introduction: What is social media

- Social media applications: highly interactive online platforms at which users can share, collaborate, and communicate with each other as creators of user-generated content in a virtual community (Kietzmann 2011, Obar 2015). Well-known examples include: nclude Instagram, WhatsApp, Facebook, Twitter and YouTube.

- Globally the average 16-34 year old has 9.1 social media accounts. Hong Kong young adults aged 15-34 spent an average about 2.5 hours a day on social media) (Legislative Council Commission, 2018).
- At the time of the study, Facebook was the most popular social media platform globally with over 2.9 billion active monthly users, > 1/2 of world's adults aged 18 to 34 use Facebook (Kemp 2019)

Growth of alcohol social media marketing (SMM)

- Consolidation of the alcohol industry has allowed for large-scale global marketing campaigns – approximately $1 trillion USD/year (Institute of Alcohol Studies 2017). Traditionally marketing included advertisements on TV, radio, print and billboards along with events sponsorship.

香港7欖繼續狂熱
可能 ❤ 就係嘉士伯
Carlsberg
HK SEVENS
SKAL
PROBABLY THE BEST BEER IN THE WORLD

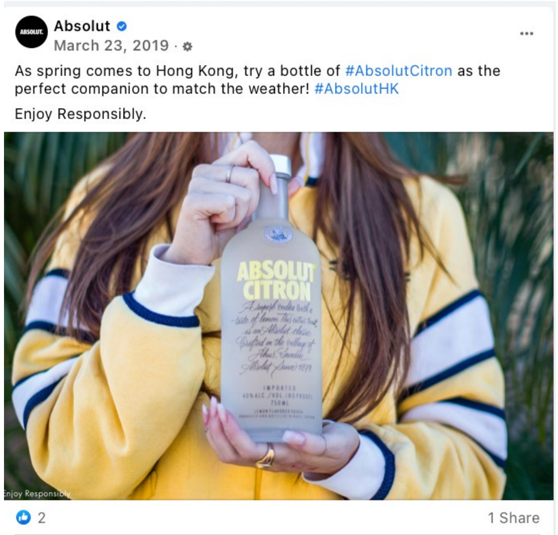
Instagram

Taste the Real Moment
BLUE GIRL
BLUE GIRL

Alcohol companies are spending >10% of their marketing dollars to online and digital marketing, a four-fold increase from 2008 (Zenith 2021). In Hong Kong , there are no restriction on digital forms of marketing of alcohol.

Alcohol SMM: 2-prong strategy

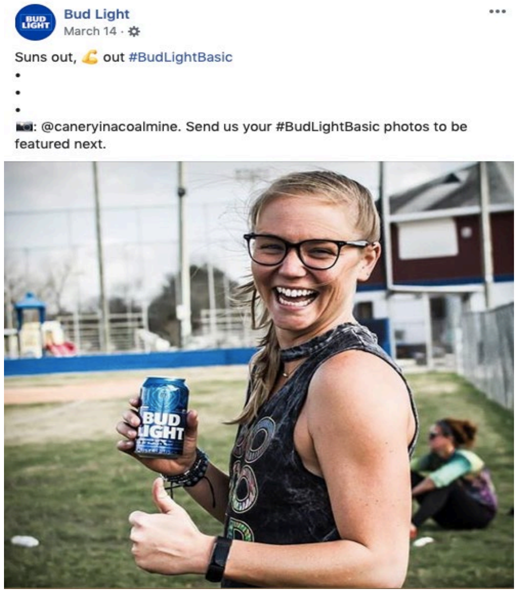
- **Direct business-to-consumer Alcohol SMM**
  - A unidirectional marketing activity from business to customer
- **Indirect Alcohol SMM—**Social media users voluntarily create and circulate product information in blogs or social media sites. More often, the users, "like" or comment on alcohol SMM posts which gets disseminated to their entire social network -- expanding its reach exponentially
- A systematic review noted that exposure to alcohol SMM promotes greater risk of drinking disorders (Gupta, 2016)



Absolut
March 23, 2019 ·

As spring comes to Hong Kong, try a bottle of #AbsolutCitron as the perfect companion to match the weather! #AbsolutHK

Enjoy Responsibly.



Bud Light
March 14 ·

Suns out, 💪 out #BudLightBasic
•
•
•
📷: @caneryinacoalmine. Send us your #BudLightBasic photos to be featured next.

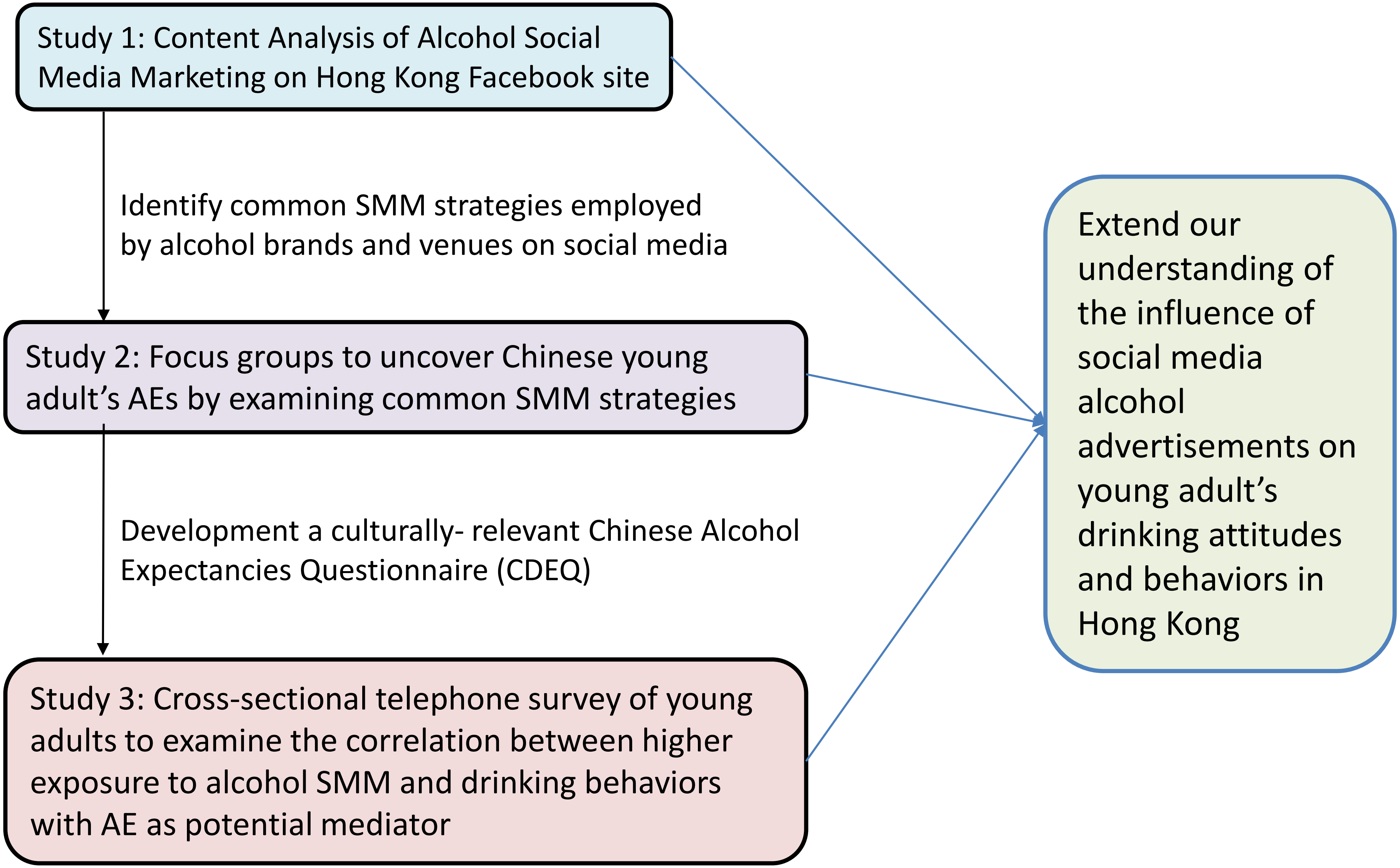
Research gap

- Given the growth of social media alcohol marketing, potentially large influence of this form of marketing on young adults, the lack of relevant studies in the region is surprising

- Almost all studies had been conducted in Western countries and findings cannot be easily extrapolated due to vastly different social and cultural context of drinking and differences in alcohol regulations between countries.

- Past studies in the East Asia region have mainly been limited to secondary and university-aged students rather than young adults who are the heaviest drinking group and most likely to be exposed to alcohol SMM (Kim et al. 2008)

Closing the gap



Study 1: Content Analysis of Alcohol Social Media Marketing on Hong Kong Facebook site

Identify common SMM strategies employed by alcohol brands and venues on social media

Study 2: Focus groups to uncover Chinese young adult's AEs by examining common SMM strategies

Development a culturally- relevant Chinese Alcohol Expectancies Questionnaire (CDEQ)

Study 3: Cross-sectional telephone survey of young adults to examine the correlation between higher exposure to alcohol SMM and drinking behaviors with AE as potential mediator

Extend our understanding of the influence of social media alcohol advertisements on young adult's drinking attitudes and behaviors in Hong Kong

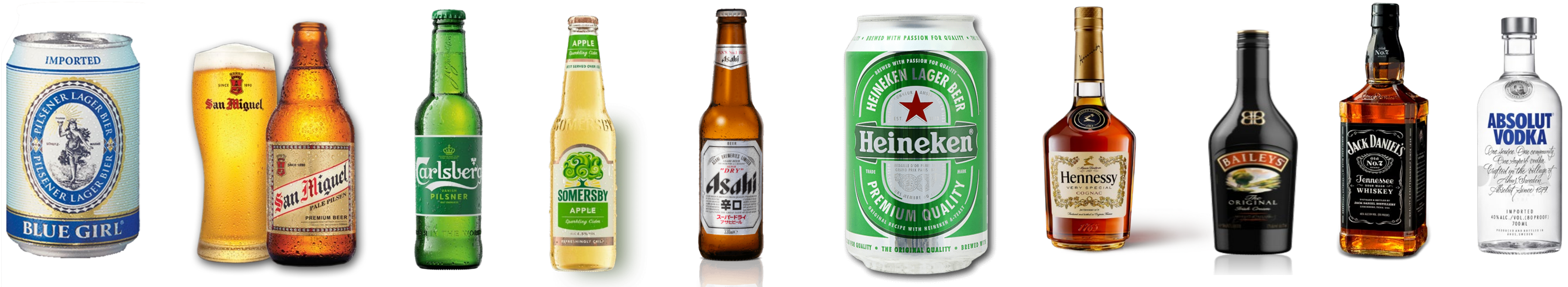
Research Question 1: How common is exposure to Alcohol SMM among Hong Kong young adults? What types of Alcohol SMM are they exposed to?

- An anonymous, random telephone survey was conducted on Hong Kong Chinese residents between 18 and 34 years old (n = 675) was conducted by the authors in June-August 2021
- Of respondents, 52.3% reported past-month exposure to alcohol SMM (68.6% of past-month drinkers and 48.0% of non-past-month drinkers, $p < 0.05$)
- Direct alcohol SMM exposure was reported by 40.9% (e.g., business-to-consumer postings, alcohol banner ads)
- Indirect alcohol SMM exposure was reported by 27.4% of respondents (e.g., shared/'liked' alcohol brand posts).
- Of those exposed to alcohol SMM, 13.7-15.5% reported that the various forms indirect alcohol SMM influenced them to drink more (vs. 6.2-8.9% for direct alcohol SMM) (Chan et al., 2024).

Chan RHW, Dong D, Yu J, Kim JH. Who is being targeted by alcohol social media marketing? A study of Chinese young adults in Hong Kong. Drug Alcohol Rev. 2024 Sep;43(6):1435-1444.

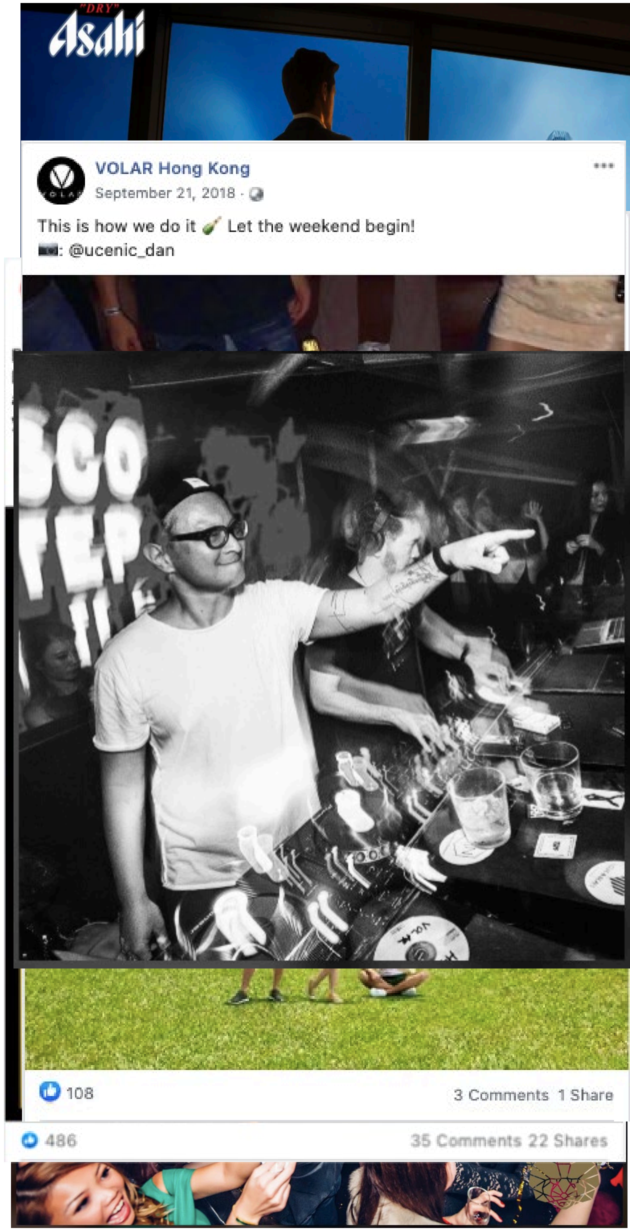
Research Question 2: What are the contents and characteristics of the direct alcohol SMM postings in Hong Kong?

- Randomly selected 974 Facebook posts published from 2011 to 2019 by 10 alcohol brands and 4 alcohol-serving venues that were popular among Hong Kong local young adults were collected for content analysis using a combination of inductive/deductive approaches with two coders.
- Only included alcohol brands and venues with an active social media presence, defined as posting material at least once a week



Venues:	Dragon-I Restaurant/Bar	Play Nightclub	Bar Pacific Bar Chan	Volar Night Club

Top 5 Alcohol SMM Themes	% of Venue Posts	% of Brand posts
Nightlife & party environment	59.4%	25.7%
Celebratory events	30.4%	21.9%
Aspirational Lifestyle	20.6%	25.0%
Engagement with popular music	40.3%	--
Use of Emojis & local slang	19.4%	18.0%
High quality of product	--	34.3%



VOLAR Hong Kong
September 21, 2018 ·

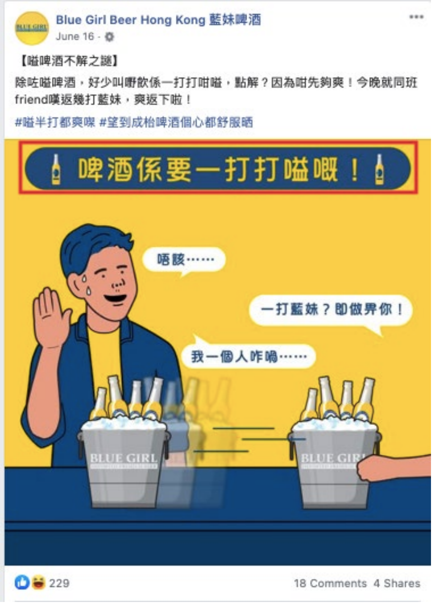
This is how we do it 🍾 Let the weekend begin!
📷: @ucenic_dan

108
3 Comments 1 Share

486
35 Comments 22 Shares

Direct Alcohol SMM contents

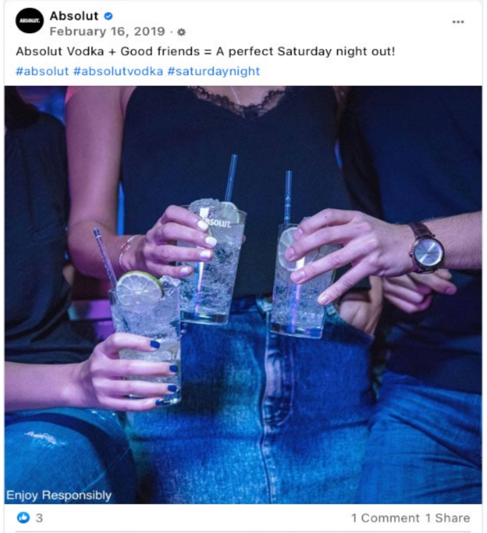
Alcohol industry marketing strategies to accommodate for the language, culture, values, and lifestyle differences in the local market --Over 50% of brand posts are in Cantonese, using local slang and heavy use of emojis to provide an informal tone. Drinking ads were tied to local traditions such as Dragon Boat Festival and local entertainment events.



Blue Girl Beer Hong Kong 藍妹啤酒
June 16 ·

【嗌啤酒不解之謎】
除咗嗌啤酒，好少叫嘢飲係一打打咁嗌，點解？因為咁先夠爽！今晚就同班friend嚟返幾打藍妹，爽返下啦！
#嗌半打都爽㗎 #望到成枱啤酒個心都舒服晒

229
18 Comments 4 Shares



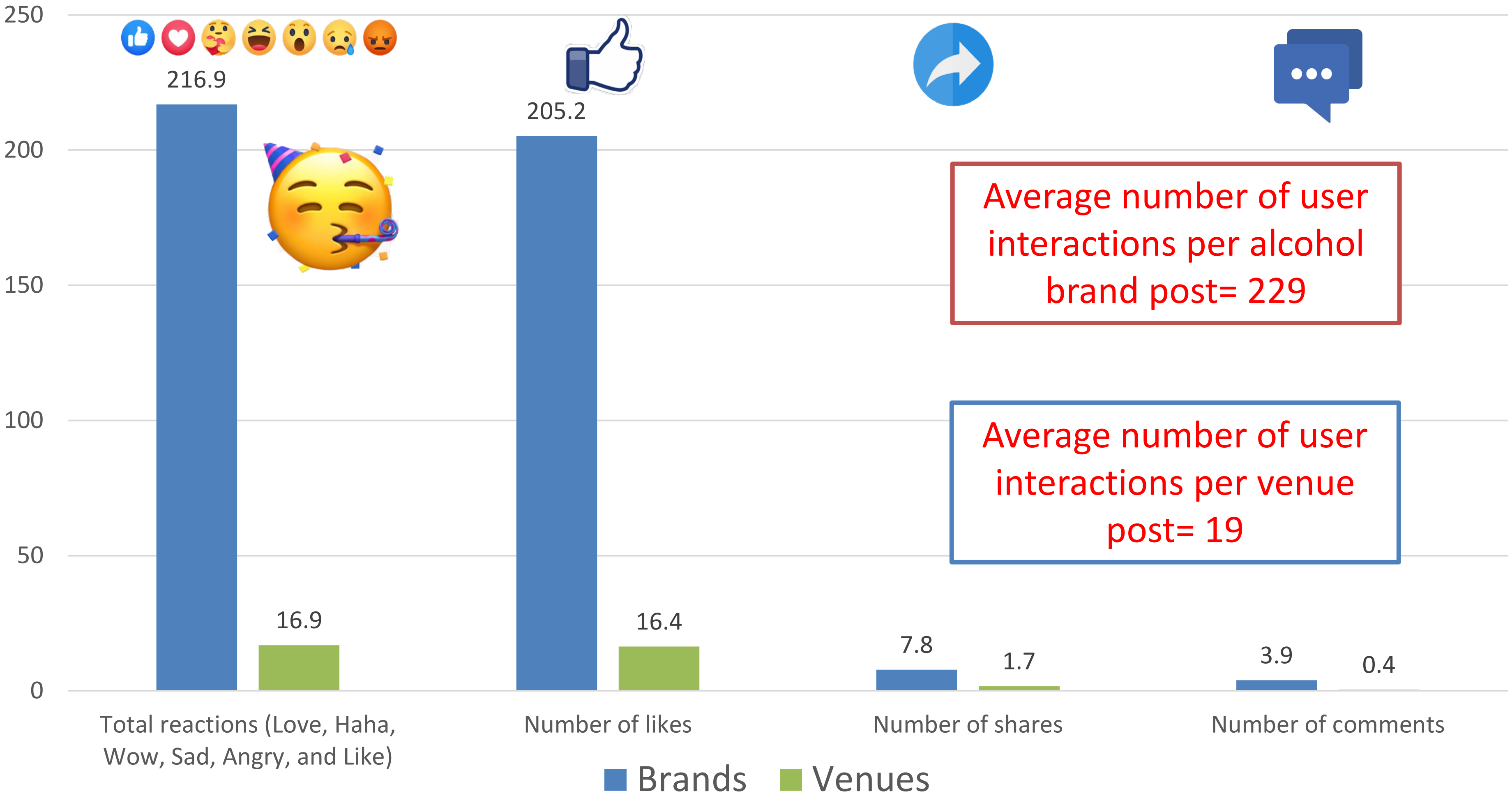
Absolut
February 16, 2019 ·
Absolut Vodka + Good friends = A perfect Saturday night out!
#absolut #absolutvodka #saturdaynight

3
1 Comment 1 Share

BLUE GIRL
無份搶都有淂食!

Frequent association of drinking with an aspirational lifestyle and higher social status as a form of lifestyle branding in the Hong Kong market to convey a desired image of sophistication and leisure, suggesting that alcohol is a symbol of success. Postings often emphasized friendship and social bonding themes.

Indirect Alcohol SMM (a form of peer endorsement): Average number of interactions to alcohol SMM posts



Average number of user interactions per alcohol brand post= 229

Average number of user interactions per venue post= 19

Research Question 3: What are the alcohol expectancies held by Hong Kong young adults after exposure to alcohol marketing?

- AE, or the perceived consequences of consuming alcohol, is a cognitive learning theory that has been used to explain and predict alcohol use in young drinkers

- Young adults who hold positive AE were long been noted to have higher alcohol consumption levels and problem drinking but AE are very culturally-based

- In 2020, two coders coders conducted thematic analysis of 8 focus groups (n=53) of Hong Kong Chinese young adults aged 18-34 (*n* = 53) that included drinkers and non-drinkers and a wide range of occupations. This was followed by development of a Chinese Drinking Expectancies Questionnaire using standard questionnaire development procedure on 675 respondents.

Chan RHW, Dong D, Kim JH. Drinking Expectancies among Chinese Young Adults: A Qualitative Study from Hong Kong. Int J Environ Res Public Health. 2022 Sep 20;19(19):11865.
Chan RHW, Dong D, Chong KC, Kim JH. Development and validation of a Chinese Drinking Expectancies Questionnaire for young adults: A Hong Kong study. Drug Alcohol Rev. 2024 Jan;43(1):233-244.

Drinking-related expectancies	Example statements
Negative Consequences	" *If I drink too much then I might lose consciousness and do things that I would regret*." (20, F, binge or weekly drinker)
Increased confidence	"*Alcohol has me open up myself. I can only complain about my grievances in daily life, work, or personnel relations with my friends when I am a bit tipsy*. " (23, M, binge or weekly drinker)
Tension reduction	" *When I am tired after work, I will just grab a drink*." (21, F, non-uni educated drinker)
New domain: Social bonding	" *Drinking helps me fit in in my social group and bond better with my peers. If I don't drink, I feel left out*." (22, F, non-uni educated drinker)
New domain: Business drinking culture	"*I will be seen as more knowledgeable, presentable, and high-class if know my alcohol*." (21, F, non-drinker)
New domain: Health benefits	"*Drinking is good for blood circulation and cardiovascular health.*" (26, M, binge or weekly drinker)

Table 9. Alcohol-related expectancy subscales and example statements

Chinese Drinking Expectancy Questionnaire (CDEQ) yielded a 31-item 5 factor model

Factor	No. of items	Cronbach's Alpha (α)
Negative consequences (e.g. hangover, worsened productivity)	11	0.94
Interpersonal benefits (e.g. benefits to business, better social life)	7	0.89
Increased confidence	7	0.85
Health benefits (improved sleep, blood circulation, skin, cv health)	4	0.74
Tension/Stress reduction	2	0.52

The split-half CFA noted good model fit (CFI= 0.96, SRMR=0.6 and RMSEA=0.7)

Research Question 4: is there an association between higher exposure to alcohol SMM with self-reported drinking behaviors, and future intent to drink among Hong Kong young adults.

- Anonymous cross-sectional telephone survey of Hong Kong Chinese residents between the ages of 18-34, who are the primary targets of SMM was conducted in June-July 2021 (n=675)

- A structured questionnaire was used to collect: Socio-demographic information, Drinking patterns and future drinking intentions, Exposure to traditional and social media alcohol marketing exposure, Alcohol expectancies (using the CDEQ developed by research team)general knowledge, attitudes, and perspectives around drinking.

- Respondents whose exposure was above the interquartile range (>IQR) were classified as having higher exposure.

- Backward logistic regression analysis was conducted to identify the factors associated with past month-drinking behaviors, and future drinking intentions

Demographic characteristics of telephone survey participants (n=675)

Category	Sample (N=675) % N)	2019 HKG Census
Gender		
Male	49.5% (334)	49.27%
Female	50.5% (341)	50.73%
Age		
18-24	32.4% (219)	33.47%
25-29	29.6% (200)	31.19%
30-34	37.9% (256)	35.34%
Education level		
Upper secondary non-degree or less	48.1% (187)	53.89%
University or higher	51.9% (488)	46.11%
Marital status		
Married/ Separated/divorced/others	27.7% (187)	30.34%
Single	72.3% (488)	69.66%
Employment		
Unemployed/student/ others	30.8% (208)	25.21%
Employed	69.2% (467)	74.79%
Household monthly income (HKD)		
Under 40,000	48.1% (325)	52.8%
40,000 or above	46.7% (315	47.2%
Drinking status		
Past-year drinker	53.0% (358)	NA
Non-drinker/Non-past-year drinker	47.0% (317)	NA

Drinking behaviors and preferences

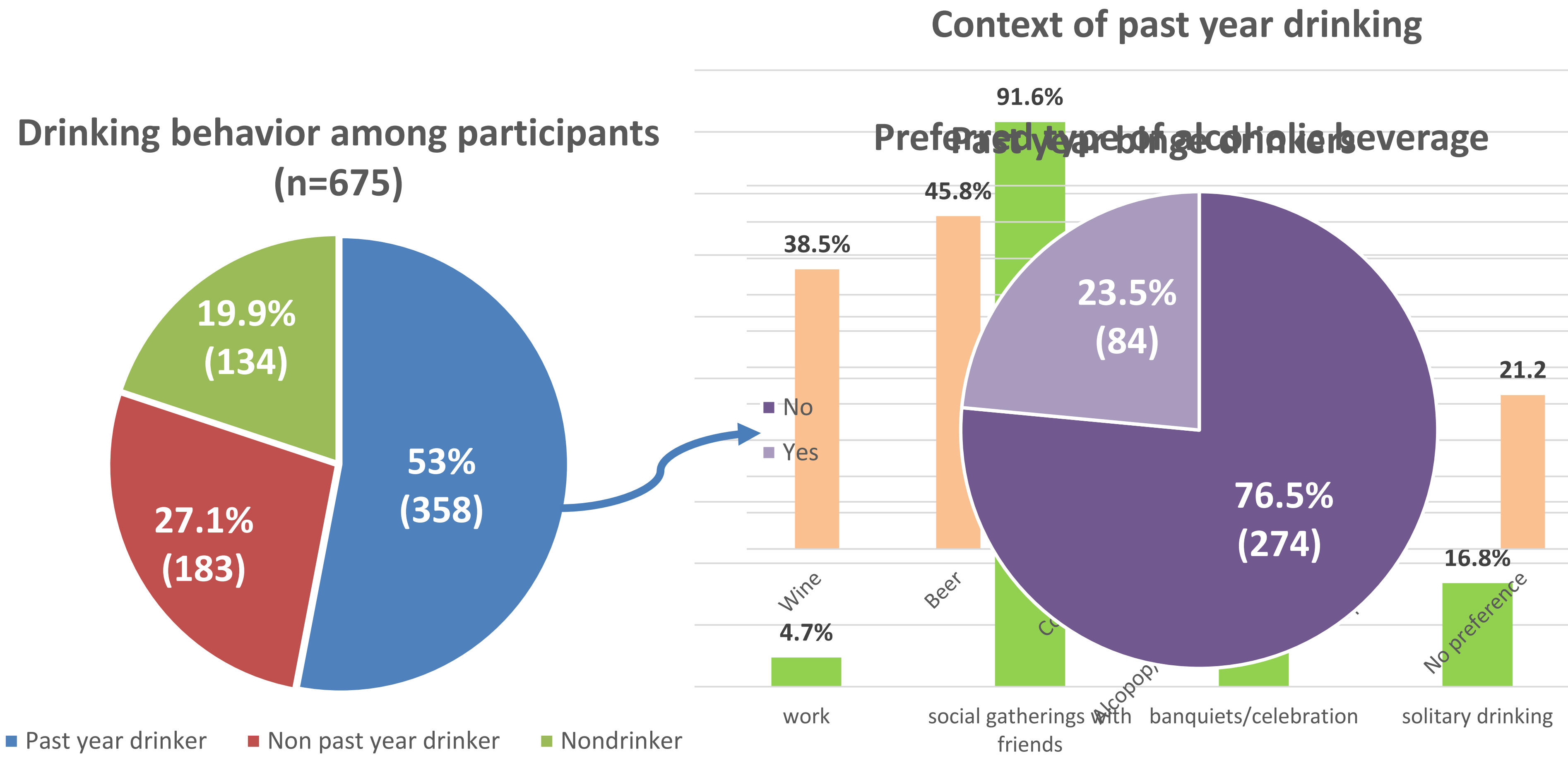


Figure 17-20. Drinking behaviors and preferences among participants (n=675)

Higher levels of past month exposure to alcohol SMM was significantly associated with all measured past month drinking behaviour and future drinking intention, even after adjustment for confounding factors

	Higher levels (>IQR) of past-month alcohol SMM exposure MV Odds Ratio (95 % CI)
Past month drinking	1.93 (1.28-2.90)‡
Weekly drinking	2.63 (1.16-5.95)†
Past month binge drinking	3.84 (2.37-6.23)§
Problematic drinking (CAGE)	3.49 (1.46-8.39)‡
Future intention to drink	4.85 (3.09-7.61)§
Future intention to get drunk	7.85 (1.68-36.6)‡

†P<0.05; ‡P<0.01; §P<0.001.

Research Question 5: is there is a mediation effect of Alcohol SMM exposure on Drinking behaviors by Alcohol Expectancies? Which expectancies are mediators?

Mediation analyses was conducted to test the potential mediation effects of drinking expectancies (m) on the relationship between higher SMM exposure levels (x) and drinking behaviors (y) (Baron and Kenny 1986)

We used the PROCESS macro (version 4.0) (Hayes 2017), a mediation influence test that allows for non-continuous outcome variables to estimate both the direct and indirect effect

Simple mediation model is used to test the mediation only effect

Estimated effects are presented in forms of regression coefficient and its bootstrapped estimated 95% CI with indirect effect (IE) equal to the product of regression coefficients a and b

CDEQ score of positive AEs only (omitting the negative expectancy subscale) showed statistically significant mediation effects on nearly all drinking behaviours

	Higher alcohol SMM exposure on outcome (x on y)	Indirect effect (m-x on y)	% mediation (IE/total effect)
Past month drinking	0.92 (0.19) §	0.11 (0.05) (0.03-0.22)	10.8%
Weekly drinking	0.78 (0.42) *	0.18 (0.09) (0.03-0.39)	18.9%
Binge drinking	1.24 (0.25) §	0.14 (0.07) (0.03-0.30)	10.1%
Problematic drinking	1.21 (0.44) ‡	0.19 (0.10) (0.04-0.43)	13.5%
Future intention to drink	1.90 (0.22) §	0.08 (0.04) (0.01-0.18)	4.1%

Note: Coeff=estimated regression coefficient, SE = Standard Error, CI= confidence interval, IE= indirect effect. *P<0.10; †P<0.05; ‡P<0.01; §P<0.001. % mediation= IE/Total effect. For IE, non-inclusion of zero values in the 95% CI indicates significant results. NA=non-applicable.

Mediation analysis model results by outcome measures with total positive drinking expectancies domain as mediator

	Higher alcohol SMM exposure on outcome (x→y)	Indirect effect (m-x on y)	% Mediation (IE/total effect)
Drinking outcome	**Coeff (SE)**	**IE (SE) 95% CI**	**%**
		Mediation by Interpersonal benefits subscale	
Past month drinking	0.96 (0.20)‡	0.14 (0.07) (0.02-0.38)	12.8%
Weekly drinking	0.87 (0.42)†	0.21 (0.11) (0.03-0.46)	19.6%
Binge drinking	1.29 (0.25)‡	0.12 (0.06) (0.02-0.27)	8.5%
Problematic drinking	1.32 (0.44)‡	0.1 (0.07) (0.01-0.29)	7.0%
Future intent to drink	1.92 (0.22)‡	0.09 (0.04) (0.01-0.19)	4.5%
		Mediation by Tension reduction subscale	
Past month drinking	0.91 (0.19) §	0.12 (0.06) (0.03-0.24)	11.6%
Weekly drinking	0.78 (0.43) *	0.16 (0.08) (0.03-0.33)	17.1%
Binge drinking	1.24 (0.25) §	0.11 (0.06) (0.02-0.24)	8.2%
Problematic drinking	1.24 (0.44) †	0.13 (0.07) (0.02-0.3)	9.5%
Future intent to drink	1.90 (0.22) §	0.07 (0.04) (0.01-0.16)	3.6%
		Mediation by Increased confidence subscale	
Binge drinking	1.21 (0.25)§	0.15 (0.07) (0.04-0.32)	11.0%
Problematic drinking	1.18 (0.44)‡	0.23 (0.12) (0.04-0.51)	16.4%

Note: Coeff=estimated regression coefficient, SE = Standard Error, CI= confidence interval, IE= indirect effect. *P<0.10; †P<0.05; ‡P<0.01; §P<0.001. NA=non-applicable. % mediation= IE/Total effect. For IE, non-inclusion of zero values in the 95% CI indicates significant results.

Summary of findings

- Alcohol SMM employs highly engaging young appealing marketing strategies that is tailored to this specific region with a notable lack of responsible drinking messages
- More than half of the respondents reported past-month exposure to alcohol SMM
- Higher alcohol SMM was associated with all past drinking behaviors and future drinking intentions

- Positive drinking expectancies mediate the effect of high exposure to alcohol SMM on various drinking behaviors

- Mediational effect was found in three subscales [**Interpersonal benefits, Increased confidence, and Tension Reduction**] may be because they measures positive alcohol expectancies that are actively promoted in online alcohol advertisements

Conclusion

Summative conclusions & implications

- SMM blurs the boundaries between advertising messages, consumer interactions, and everyday social activities making marketing regulations very challenging, particularly for indirect SMM.

- The high penetration of social media in East Asian regions like Hong Kong suggest the need for greater scrutiny of alcohol SMM and discussions about regulatory frameworks– but a total ban of all alcohol SMM is probably unfeasible in Hong Kong due to the very low levels of public support (0.4% supported ban of alcohol SMM)

- Strictly enforcing alcohol industry self-regulation, which includes restricting misrepresentation of the positive effect of consuming alcohol, maybe a partial solution since this also has domino effect on indirect SMM.

- Provision of media literacy training in secondary school may help young people critically evaluate alcohol SMM to which they are frequently exposed to.

Limitations & suggestions for future research

- All data were self-reported for this project and data were cross-sectional limiting causal inference

- Study overlapped with the COVID-19 pandemic (with bar closures) which may have affected young adult's drinking patterns or future drinking intentions.

- We limited the study to adults 18-34, and future studies should also examine younger age groups due to the high level of social media use in adolescents across a wider spectrum of social media platforms such as TikTok with longitudinal follow-up on drinking behaviors.

- Female drinkers are a noted emerging market in the region. The alcohol SMM strategies may evolve in the near future to engage female customers, necessitating periodic re-examination of alcohol SMM. Future studies may also explore gender differences in the effect of alcohol ads on drinking behaviour.

Paper and conference published as a result of this study

Journal Papers

- Chan RHW, Dong D, Yu J, Kim JH. Who is being targeted by alcohol social media marketing? A study of Chinese young adults in Hong Kong. Drug Alcohol Rev. 2024 Sep;43(6):1435-1444.
- Chan RHW, Dong D, Chong KC, Kim JH. Development and validation of a Chinese Drinking Expectancies Questionnaire for young adults: A Hong Kong study. Drug Alcohol Rev. 2024 Jan;43(1):233-244.
- Chan RHW, Wong TY, Dong D, Kim JH. Alcohol Social Media Marketing in Hong Kong: A Content Analysis of Facebook Posts. J Adolesc Health. 2023 Sep;73(3):461-469.
- Chan RHW, Dong D, Kim JH. Drinking Expectancies among Chinese Young Adults: A Qualitative Study from Hong Kong. Int J Environ Res Public Health. 2022 Sep 20;19(19):11865.
- Chan RHW, Dong D, Chong KC, Yip BHK,MP Wang, Kim JH. Do drinking expectancies mediate the association between alcohol social media marketing and drinking behaviors (submitted to Addiction) 2024

Participated conferences

- Chan, R.H., Dong, D., Yu, J., Kim, J.H..(2021, November 15-18). *Social media marketing practices by alcohol brands and drinking venues: Influence on youth drinking* [Oral presentation]. APRU Global Health Conference 2021, Hong Kong, China.
- Chan, R.H., Yu, J., Sumerlin, T., Wong, Y.S., Yip. B.H., Chung V.C., Kim J.H..(2021, November 15-18). *Public Acceptability of Alcohol Marketing Regulation in Hong Kong: A Population-Based Study* [Poster presentation]. APRU Global Health Conference 2021, Hong Kong, China.
- Chan, R.H., Dong, D., Kim, J.H..(2021, September 25). *Drinking behaviors of young Hong Kong adults during COVID-19* [poster presentation]. Hong Kong College of Community Medicine , Hong Kong, China.
- Chan, R.H., Dong, D., Yu, J., Kim, J.H..(2020, November 27-28). *Social media marketing practices by alcohol brands and drinking venues- Do they encourage alcohol misuse in Hong Kong* [oral presentation]. 5th Asian Pacific Problem Gambling and Addiction Conference, Hong Kong, China.

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Faculty of Medicine
The Chinese University of Hong Kong

Thank you
Q&A

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APPENDICES

Acceptability of social media alcohol marketing regulation

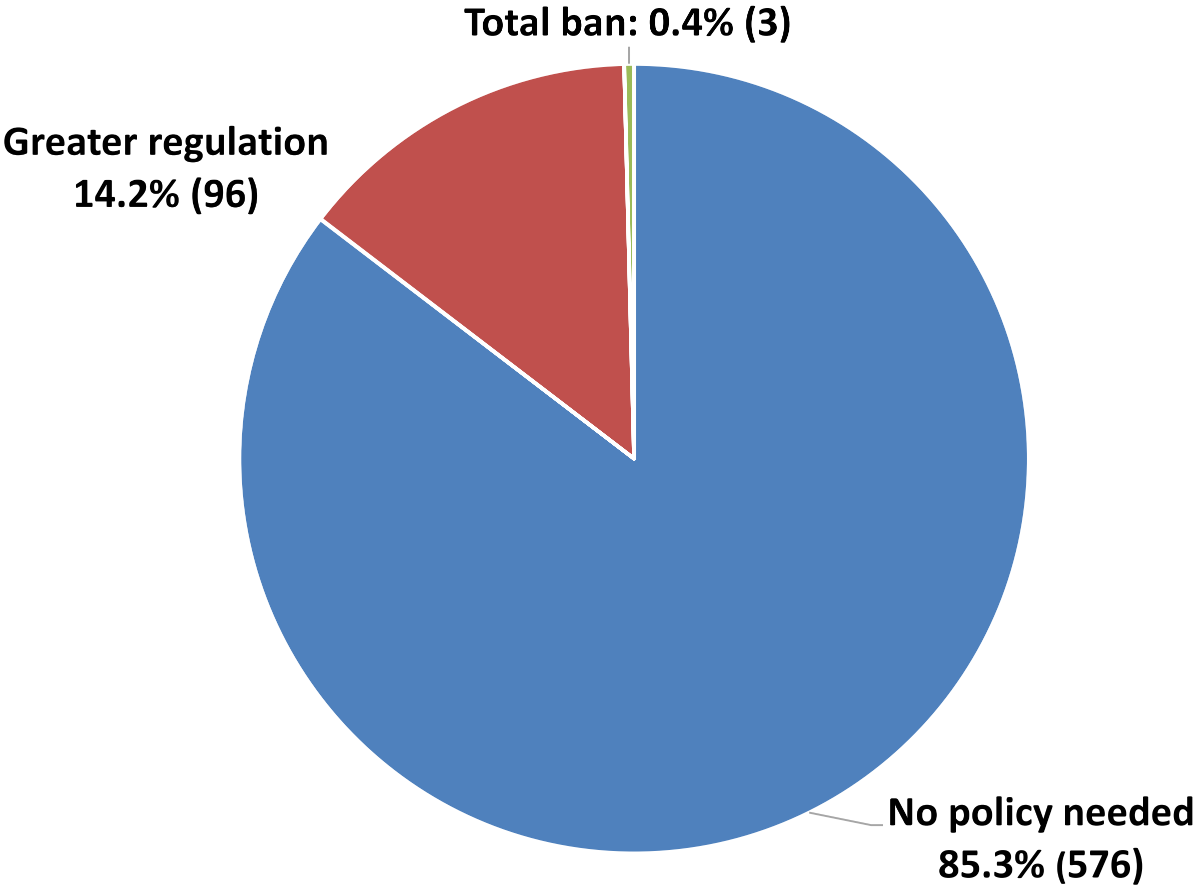


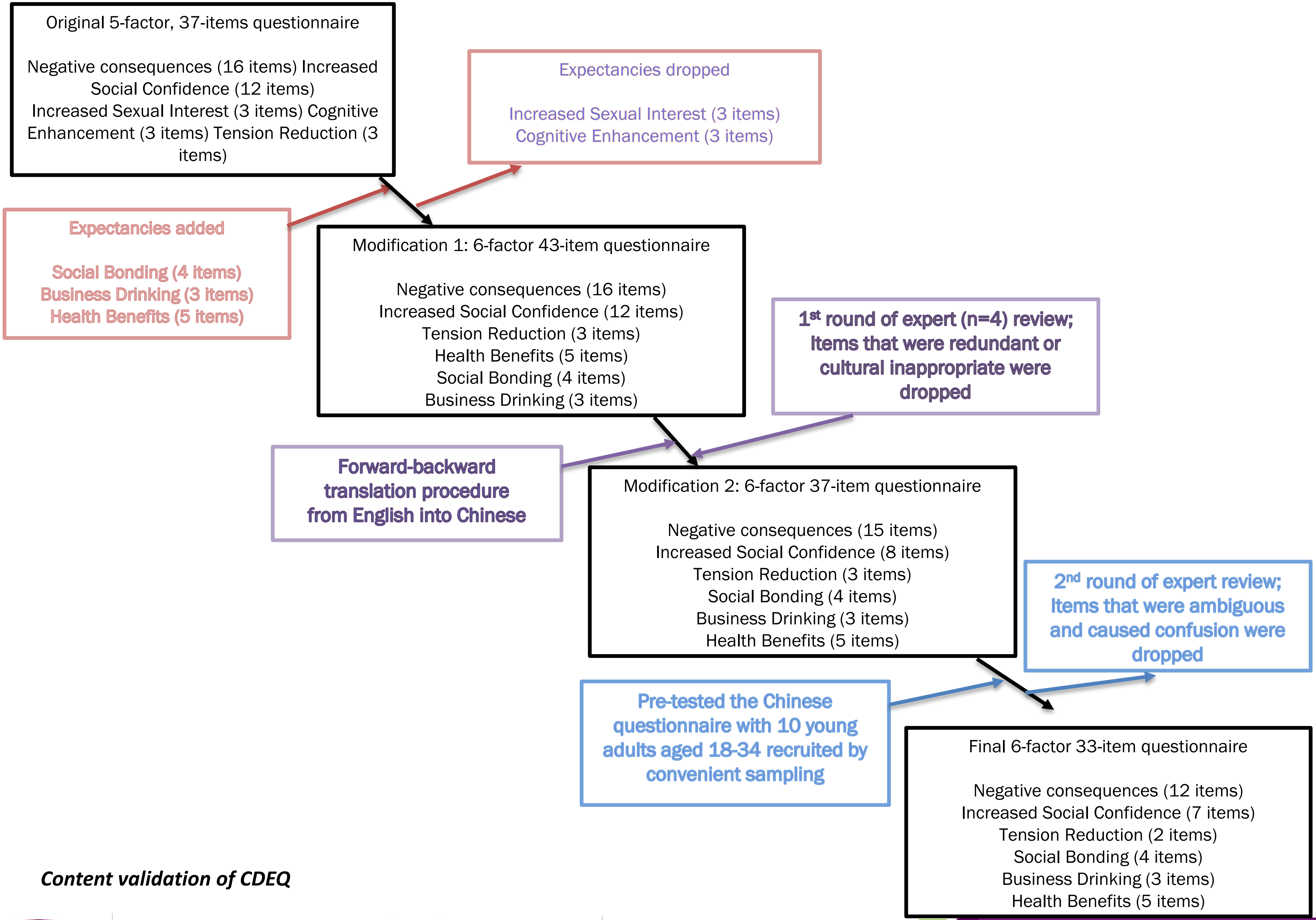
Figure 10. Acceptability of social media alcohol marketing regulation (n=675)

Focus Group Participant Characteristics

Categories	% (n= 53)
Sex	
Male	49.1 %
Female	50.9 %
Age	
18-24	52.8 %
25-29	37.7 %
30-34	9.4 %
Educational attainment	
Up to F.5	1.9 %
Higher diploma/associate degree	32.1 %
University or higher	66 %
Experienced abroad	
No	62.3 %
Yes	37.7 %
Marital status	
Single	90.6 %
Living with parents	86.6 %
Co-habituating	3.8 %
Married	5.7 %
Employment status	
Unemployed	15.1 %
Full-time student	41.5 %
Employed	43.4 %
Monthly household income (HKD)	
Under 20,000	26.4 %
$20,000-39,999	39.6 %
$40,000-59,999	15.1 %
$60,000 or above	18.9 %

		Monthly household income (HKD)			
		Under $20000	$20000-39999	$40000-59999	Above $60000
Drinking categories	Nondrinkers	14.3%	57.1%	14.3%	14.3%
	Non-uni educated drinkers	46.2%	30.8%	7.7%	15.4%
	Uni-educated dtinkers	25%	50%	16.7%	8.3%
	Binge/weekly drinkers	21.4%	21.4%	21.4%	25.7%

Table 7-8. Demographic and drinking characteristics of focus group participants (n=53)



Original 5-factor, 37-items questionnaire

Negative consequences (16 items) Increased Social Confidence (12 items)
Increased Sexual Interest (3 items) Cognitive Enhancement (3 items) Tension Reduction (3 items)

Expectancies dropped

Increased Sexual Interest (3 items)
Cognitive Enhancement (3 items)

Expectancies added

Social Bonding (4 items)
Business Drinking (3 items)
Health Benefits (5 items)

Modification 1: 6-factor 43-item questionnaire

Negative consequences (16 items)
Increased Social Confidence (12 items)
Tension Reduction (3 items)
Health Benefits (5 items)
Social Bonding (4 items)
Business Drinking (3 items)

1st round of expert (n=4) review; Items that were redundant or cultural inappropriate were dropped

Forward-backward translation procedure from English into Chinese

Modification 2: 6-factor 37-item questionnaire

Negative consequences (15 items)
Increased Social Confidence (8 items)
Tension Reduction (3 items)
Social Bonding (4 items)
Business Drinking (3 items)
Health Benefits (5 items)

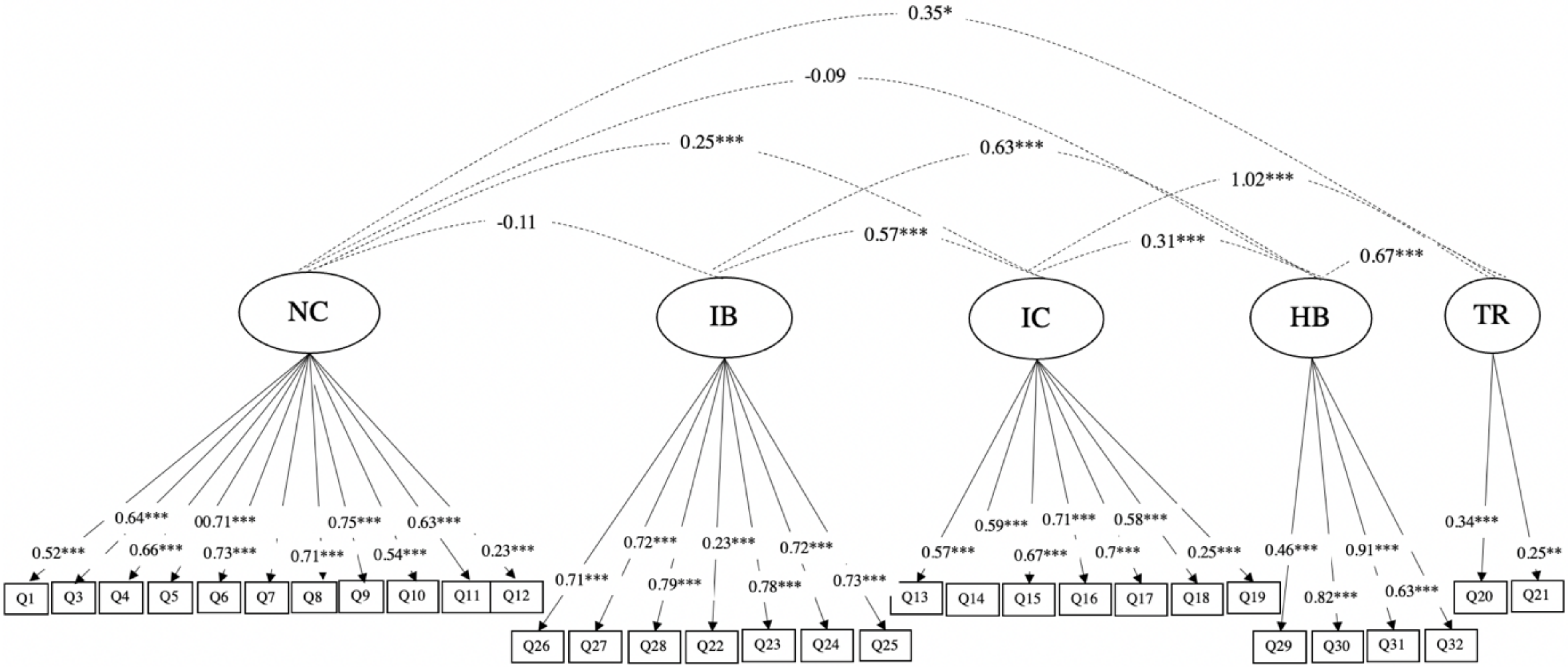
2nd round of expert review; Items that were ambiguous and caused confusion were dropped

Pre-tested the Chinese questionnaire with 10 young adults aged 18-34 recruited by convenient sampling

Final 6-factor 33-item questionnaire

Negative consequences (12 items)
Increased Social Confidence (7 items)
Tension Reduction (2 items)
Social Bonding (4 items)
Business Drinking (3 items)
Health Benefits (5 items)

Content validation of CDEQ


0.35*
-0.09
0.25***
0.63***
1.02***
-0.11
0.57***
0.31***
0.67***
NC
IB
IC
HB
TR
0.64***
00.71***
0.75***
0.63***
0.52***
0.66***
0.73***
0.71***
0.54***
0.23***
Q1
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
Q11
Q12
0.72***
0.23***
0.72***
0.71***
0.79***
0.78***
0.73***
Q26
Q27
Q28
Q22
Q23
Q24
Q25
0.59***
0.71***
0.58***
0.57***
0.67***
0.7***
0.25***
Q13
Q14
Q15
Q16
Q17
Q18
Q19
0.46***
0.91***
0.82***
0.63***
Q29
Q30
Q31
Q32
0.34***
0.25**
Q20
Q21

Note: NC= Negative consequences; IB= Interpersonal benefits; IC= Increased confidence; HB= Health benefits; TR= Tension reduction.

*$p < 0.05$, ** $p < 0.01$, ***$p < 0.001$.

The five-factor model of Chinese Drinking Expectancy Questionnaire (CDEQ) (N = 338)