



# Binge Drinking, Drunkenness and Depressive Symptoms among Hong Kong Secondary School Students

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## Background:

Binge drinking, referring to consuming 5/4 or more standard drinks in a row for men/women,<sup>1</sup> was assumed to be associated with depression, while the results were controversial.<sup>2</sup> Binge drinking has an inherent limitation of not reflecting the negative consequences of high alcohol concentration in blood.<sup>3</sup> It may not necessarily lead to alcohol intoxication as alcohol tolerance varies by individuals. Drunkenness referring to excessive drinking that leads to loss of control,<sup>3</sup> may be a better indicator of high-risk alcohol drinking. Therefore, the biological effect of binge drinking on depression, if any, may mediate through drunkenness. However, little is known about this hypothesis.

The present study investigated the associations of depressive symptoms with binge drinking and drunkenness, and the potential mediating role of drunkenness in Hong Kong adolescents.

## References:

1. Wechsler H, Nelson TF. Binge drinking and the American college students: What's five drinks? *Psychology of Addictive Behaviors*. 2001;15(4):287.
2. Pedrelli P, Shapero B, Archibald A, Dale C. Alcohol use and depression during adolescence and young adulthood: a summary and interpretation of mixed findings. *Current addiction reports*. 2016;3(1):91-7.
3. Beccaria F, Petrilli E, Rolando S. Binge drinking vs. drunkenness. The questionable threshold of excess for young Italians. *Journal of Youth Studies*. 2015;18(7):823-38.

# Methods

- **Year:** 2012/13                      **Setting:** Hong Kong                      **Subjects:** 10973 current drinkers (aged 11-20 years, 50.1% girls)
- **Methods:** 44 secondary schools were randomly selected, and all secondary 1-6 students were invited
- **Data collected:** Self-administered anonymous questionnaires
- **Statistics:** Associations were analyzed using logistic regression adjusting for potential confounders (socioeconomic status, smoking and drug use). Potential mediating effect of drunkenness was also investigated

## *Drinking status*

**Never drinking** - I have never drunk alcohol

**Former drinking** - I drank alcohol in the past, but not now

**Current drinking** – I drink alcohol now

## *Binge drinking (How often do you have 6 or more drinks on one occasion?)*

**Non-binge** - drinking but never binge

**Infrequent binge** - binge drinking less than once a month

**Frequent binge** -monthly or more frequent binges



## *Drunkenness (How many times have you been drunk in the past 12 months?)*

**Non-drunk drinking** - drinking but never drunk

**Drunk for 1-2 times**

**Drunk for 3 times or more**

## *Depressive symptoms (Patient Health Questionnaire - 2)*

*How often have you been bothered by any of the following two problems over the past 2 weeks:*

- 1) Little interest or pleasure in doing things;
- 2) Feeling down, depressed or hopeless.

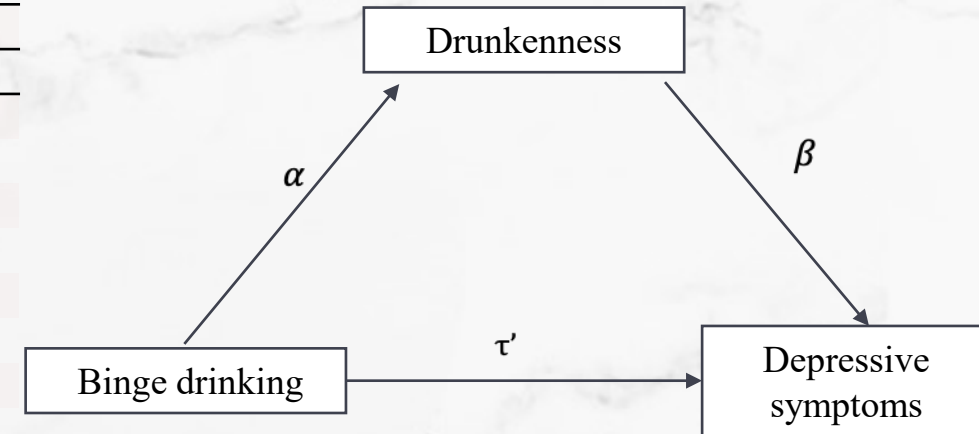


# Results and Conclusions

Table. Association of binge drinking and drunkenness with depressive symptoms (DS) in current drinkers

	N (%) of DS	Adjusted odds ratio (95%CI)	
		Model 1	Model 2
<b>Binge drinking</b>			
Non-binge drinking	1934 (20.8%)	1	1
Infrequent bingeing	315 (27.6%)	1.36 (1.16, 1.58)***	1.17 (1.00, 1.37)
Frequent bingeing	155 (33.0%)	1.40 (1.09, 1.78)**	1.12 (0.86, 1.44)
<i>P</i> for trend		0.021	0.10
<b>Drunkenness</b>			
Non-drunk drinking	1786 (20.0)	1	1
Drunk for 1-2 times	394 (29.1)	1.52 (1.33, 1.74)***	1.46 (1.26, 1.67)***
Drunk for 3 times +	235 (37.1)	2.05 (1.68, 2.49)***	1.90 (1.54, 2.35)***
<i>P</i> for trend		<0.001	<0.001

Model1 adjusted for age, sex, perceived family affluence, place of birth, family structure, housing type, smoking and illicit drug use; Model 2 further mutually adjusted for binge drinking and drunkenness



Direct effect:  $\tau' = 0.03 (-0.02, 0.08)$

Indirect effect:  $\alpha\beta = 0.13 (0.10, 0.16)$

Proportion of mediation: 81.6%

**Conclusions:** Both binge drinking and drunkenness were associated with depressive symptoms after accounting for potential confounders. The effect of drunkenness was independent of the frequency of binge drinking, while the effect of binge drinking on depressive symptoms was largely mediated through drunkenness. If these associations are causal, avoiding alcohol use or at least drunkenness may prevent depressive symptoms in Chinese adolescents.

**Conflict of interest:** Not applicable

**Funding:** Health and Medical Research Fund