To Label or Not to Label: Do young drinkers understand the alcohol content of supersized alcopops?

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Alcohol consumption is the 7th leading risk factor for burden of disease worldwide [1]. Poor understanding or underestimation of the alcohol content of different alcoholic drinks is considered an important factor contributing to the harm arising from alcohol consumption [2]. Underestimation of the alcohol content of drinks has clinical and public health implications, since underestimation is likely to result in overconsumption of alcoholic drinks [3; 4], which may have direct and/or indirect harmful effects for the individual and society at large. Studies find that consumers display poor knowledge of the alcohol units or standard drinks contained within alcoholic drinks, even when consumers are explicitly shown labels purporting to display such information [2 - 4]. Poor understanding may stem from the complex calculations that go into expressing alcohol units or standard drinks of different alcoholic beverages, but also from inconsistent and/or non-transparent labelling (both mandatory and non-mandatory). These causal factors are likely further compounded by cross-country differences in regulating the sale and consumption of alcoholic drinks.

Poor understanding or underestimation of the alcohol content of alcoholic drinks is of particular concern amongst young drinkers, who often display harmful levels of consumption and engage in bingeing behaviours more often than other segments of the population. The first article by Rossheim and colleagues [5] in this issue of the *American Journal of Drug and Alcohol Abuse* examined correlates of consumption of Four Loko amongst underage drinkers, a sugar sweetened and ready-to-drink supersized alcopop with strong alcohol concentration (ranging from 8%ABV to 14%ABV in some US states). Within a sample of 1,019 college students, Rossheim and colleagues found that amongst those who were alcohol drinkers, almost half had consumed Four Loko, with 93% of those consuming Four Loko before the legal age of drinking (below the age of 21). Worryingly, during their first drinking episode 57% reported consumption of at least one 23.5 ounce can of Four Loko – thus, exceeding

recommended standard drink recommendations per drinking occasion. Amongst those who exceeded the drinking recommendations and drank at least one can of Four Loko, 36% blacked out and 21% vomited (with such episodes being reported with higher frequency in states that allow the sale of Four Loko with higher alcohol strength).

The second article by Rossheim and colleagues [6] in this issue of the *American Journal of Drug and Alcohol Abuse* provides a possible explanation for the excessive consumption of Four Loko, especially the harmful levels of consumption of the alcopop containing higher %ABV. This article examines how a sample of 833 US college students understood the 2014 Federal Trade Commission's mandated labelling of alcohol content on Four Loko alcopop drinks. Rossheim et al. found that students were more likely to underestimate by one or more standard drinks the alcohol contained in a single Watermelon Four Loco can (which was given to students displaying the currently mandated FTC labelling). Importantly, levels of underestimation were higher in Florida and Virginia where Four Loko is sold in 12% and 14%ABV varieties, compared to Montana where state law mandates the strength of Four Loko at 8%ABV.

These findings underscore the poor understanding of alcohol content within a large US college sample, and highlight that young drinkers are especially poor at understanding and estimating the content of higher %ABV drinks. Thus, the higher levels of underestimation found in this study may help explain the levels of more excessive and harmful consumption found in the first target article. Rossheim and colleagues' findings are in line with a recent study amongst a nationally representative UK sample of weekly wine and beer drinkers, which found better understanding of alcohol content of wines and beers displaying labels of lower %ABV [7]. Taken together, these findings suggest that regulations and policies mandating the production and sale of alcoholic drinks of lower %ABV may be beneficial in altering harmful alcohol consumption at the population level. This

recommendation seems even more pertinent for alcopops, such as Four Loko, which are the alcoholic drink of choice of young drinkers, including underage drinkers. But, even more so, these recommendations seem pertinent for supersized alcopops containing particularly high %ABV per container.

Nevertheless, whilst these recent studies suggest that the development and sale of reduced %ABV drinks should be encouraged, we still lack an understanding of the mechanisms that drive this better understanding of alcohol content when alcoholic drinks are of lower or reduced strength. Future research should aim to examine underlying mechanisms, as well as gauge any potential moderators of the effects found thus far. For example, would the better understanding and estimations of alcohol content of drinks with lower %ABV appear in all contexts (*e.g.*, lone *vs.* group drinking; out-of-home *vs.* in-home drinking) and for all groups (*e.g.*, regular *vs.* heavy *vs.* occasional drinkers; younger *vs.* older drinkers)? Gauging the impact of different labelling regulations on consumer knowledge across countries would also provide valuable evidence as to what type of label is most easily understood and heeded by different drinkers.

Furthermore, whilst the findings gauging consumers' explicit knowledge of the alcohol content of drinks with reduced alcohol strength seem promising, a recent behavioural study which examined actual consumption in a bar laboratory setting advises caution regarding widespread regulation encouraging the production and promotion of lower strength alcoholic drinks. Vasiljevic and colleagues [8] found that regular drinkers consumed approximately 20% more wine and beer when it was labelled as lower in alcohol strength, suggesting that lower strength alcoholic drinks may engender paradoxical effects. Thus, better reported understanding of alcohol content when drinks are labelled as lower in %ABV may not translate into less harmful levels of consumption. This dissociation between better reported knowledge and actual behaviour has previously been found in relation to foods

labelled as lower in fat and calories and tobacco cigarettes labelled as ‘lighter’. So even though the evidence pertaining to alcohol consumption of alcoholic drinks labelled as lower in strength is limited, these studies in related domains do cautiously suggest that simply mandating the production and sale of lower/reduced strength alcoholic drinks may not be the solution to harmful levels of consumption amongst the population.

As such, particular caution may be required for supersized sweet-flavoured alcopops such as Four Loko, which appeal to young (including underage) drinkers. Prior research has found that young drinkers report using alcohol unit or standard drink labels to purchase the cheapest alcohol, the label being used as a reference cue to purchase products with higher alcohol content [9; see also 10]. Thus, the development and availability of lower strength alcohol products may be advisable, but without prominent labelling of the reduced content of alcohol contained in such drinks [see also 11]. Future research programmes should aim to address these gaps in our knowledge.

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References:

(1) Stanaway, J. D., Afshin, A., Gakidou, E., Lim, S. S., Abate, D., Abate, K. H., . . . Murray, C. J. L. (2018). Global, regional, and national comparative risk assessment of 84 behavioural, environmental and occupational, and metabolic risks or clusters of risks for 195 countries and territories, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017. *The Lancet, 392,* 1923-1994. doi:10.1016/S0140-6736(18)32225-6

(2) ONS (2010). *Drinking: Adults' behaviour and knowledge in 2009.* Newport, UK: Author.

(3) De Visser, R. O. , & Birch, J. D. (2012). My cup runneth over: Young people's lack of knowledge of low-risk drinking guidelines. *Drug and Alcohol Review, 31,* 206–212. doi:10.1111/j.1465-3362.2011.00371.x

(4) Devos-Comby, L., & Lange, J. E. (2008). "My drink is larger than yours"? A literature review of self-defined drink sizes and standard drinks. *Current Drug Abuse Reviews, 1,* 162-176.

(5) Rossheim, M. E., Greene, K. M., Yurasek, A. M., Barry, A. E., Gonzalez-Pons, K. M., Trangenstein, P. J., ... & Jernigan, D. H. (2019). Underage drinkers' first experience consuming a popular brand of supersized alcopop. *The American Journal of Drug and Alcohol Abuse,* 1-9. doi:10.1080/00952990.2019.1653316

(6) Rossheim, M. E., Yurasek, A. M., Greene, K. M., Gonzalez-Pons, K. M., Barry, A. E., Thombs, D. L., ... & Jernigan, D. H. (2019). The Federal Trade Commission's mandated Four Loko labeling fails to facilitate accurate estimation of alcohol content by college students. *The American Journal of Drug and Alcohol Abuse,* 1-8. doi:10.1080/00952990.2019.1671438

(7) Vasiljevic, M., Couturier, D. L., & Marteau, T. M. (2018). Impact on product appeal of labeling wine and beer with (a) lower strength alcohol verbal descriptors and (b) percent alcohol by volume (% ABV): An experimental study. *Psychology of Addictive Behaviors, 32,* 779-791. doi:10.1037/adb0000376

(8) Vasiljevic, M., Couturier, D. L., Frings, D., Moss, A. C., Albery, I. P., & Marteau, T. M. (2018). Impact of lower strength alcohol labeling on consumption: A randomized controlled trial. *Health Psychology, 37,* 658-667. doi:10.1037/hea0000622

(9) Jones, S. C., & Gregory, P. (2009). The impact of more visible standard drink labelling on youth alcohol consumption: Helping young people drink (ir) responsibly?. *Drug and Alcohol Review, 28,* 230-234.

(10) Bui, M., Burton, S., Howlett, E., & Kozup, J. (2008). What am I drinking? The effects of serving facts information on alcohol beverage containers. *Journal of Consumer Affairs, 42,* 81-99.

(11) Geller, E. S., Kalsher, M. J., & Clarke, S. W. (1991). Beer versus mixed-drink consumption at fraternity parties: a time and place for low-alcohol alternatives. *Journal of Studies on Alcohol and Drugs, 52,* 197-204.