Received: 21 June 2024 | Accepted: 11 September 2024

DOI: 10.1111/acer.15453

ALCOHOL CLINICAL & EXPERIMENTAL RESEARCH ISBRA

COMMENTARY

The need for further alcohol control research: A response to a functional magnetic resonance imaging study on alcohol warnings by Gallopel-Morvan et al.

Frank Houghton

Technological University of the Shannon Midlands Midwest, Limerick, Ireland

Correspondence
Frank Houghton, Technological University of the Shannon Midlands Midwest, Limerick V94 EC5T, Ireland.
Email: frank.houghton@tus.ie

Gallopel-Morvan et al. (2024) should be commended for their recent multi-disciplinary functional magnetic resonance imaging (fMRI)-based study exploring the impact of alcohol warning labels. This research is the first neuroimaging-based study to examine the impacts of small text-only alcohol warnings compared with larger text-and-picture alcohol warnings. The results are important, as they clearly demonstrate that enhanced warnings elicit less activity in key regions of the brain's reward system and may diminish the desire to consume alcohol.

This type of robust research related to alcohol control is vital given the significant negative impact of alcohol on mortality and morbidity (GBD 2019 Risk Factors Collaborators, 2020; Mayshak et al., 2022; Younossi et al., 2023). Alcohol is an important Commercial Determinant of Health (CDoH) that inflicts a deadly toll (WHO, 2024). The World Health Organization estimates that alcohol is responsible for three million deaths per annum, as well as reaping a huge toll in terms of morbidity and negative social impacts (WHO, 2018, 2022).

It must be acknowledged there is a well-established and large range of robust empirical and experimental research on the topic of alcohol warning labels, now subject to multiple systematic reviews and meta-analyses (Clarke et al., 2020; Correia et al., 2024; Giesbrecht et al., 2022; Joyce et al., 2024; Kokole et al., 2021; Zuckermann et al., 2014), including some real-world evaluation (Vallance, et al., 2020). Recent research has also explored the use of eye-tracking software to explore this topic (Kersbergen & Field, 2017; Lacoste-Badie et al., 2022). However, in its use of fMRI to explore alcohol warning labels, Gallopel-Morvan et al. (2024) have pioneered cutting-edge research in this field.

Concerns over robust research should not be taken lightly as the global alcohol industry, "Big Alcohol," similar to the tobacco and sugar industries, has an established track record of malfeasance in the research arena (Ennis, 2023; Houghton, 2024; Mitchell & McCambridge, 2022, 2023). The strong influence of the Wine and Beer lobbies, both within the EU and elsewhere, should not be under-estimated (Millot, Maani, et al., 2022; Millot, Serra, & Gallopel-Morvan, 2022; Severi & Hawkins, 2024. Gallopel-Morvan et al.'s (2024) fMRI-based research will be harder for the industry to debunk or misrepresent.

Figure 1 details the combined text and pictograph alcohol warning label that will be required on containers of alcohol in Ireland by 2026, as required under the Public Health (Alcohol) Act, 2018. Obvious limitations with this warning include the lack of more impactful imagery, as the general public is now familiar with via tobacco packaging, and the limited number of negative outcomes associated with alcohol addressed. Ireland is currently at the forefront of legislated alcohol control initiatives within the European Union based on this initiative, despite legal hurdles (Lancet, 2023) and industry opposition (Lesch & McCambridge, 2022; Vallance et al., 2020). Recent research suggests that public support for alcohol warning labels in Ireland is at odds with industry opposition, with over 80% of the population supporting such warning labels (Calnan et al., 2023).

The type of fMRI research conducted by Gallopel-Morvan et al. (2024), alongside more standard survey and qualitative approaches, should now be used to help develop a suite of impactful alcohol warning labels. The staleness of warning imagery is an accepted issue in media and advertising, hence why EU regulations require tobacco packaging to include a rotating suite of 14 different text warnings, and three different images for each warning.

Therefore, any packet of cigarettes purchased in the EU features 1 of 42 potential warnings.

However, the Irish legislation should be seen as just a first step at the EU level on the road to more comprehensive alcohol warning labels and alcohol control. Table 1 details a potential list of topics that future alcohol warnings could include, each with associated and impactful imagery. Similar to EU tobacco control measures, such warnings could be varied on alcohol packaging, with accompanying warning imagery also being rotated. In developing such alcohol warnings, fMRI could help produce robust evidence of effectiveness. The high volume of alcohol consumed within blocs such as the EU would ensure that most people who drink alcohol would be exposed to the full range of adverts within a relatively short time period (Jané-Llopis et al., 2020).

Approaches such as fMRI and more routine research methods should also be combined to explore how to fine-tune alcohol warning labels for maximum impact. Potential elements to be examined are outlined in Table 2. Further investigations might also usefully explore issues such as bland packaging and container shape to minimize the appeal of this toxic, carcinogenic, mutagenic, addictive, and psychotropic product.

FIGURE 1 Forthcoming mandatory alcohol warning label for Ireland.

TABLE 1 Negative outcomes of alcohol that could be included on alcohol warning labels.

Cancers	Homicide/assault
Cardiovascular disease	Domestic violence/Family violence
Liver disease	Rape/Sexual assault
Fertility (both men & women)	Road traffic incidents
Fetal Alcohol Syndrome (FAS)	Working at heights/with ladders
Addiction	Working with electricity/ machinery
Brain damage	Swimming/Drowning
Youth cognitive/social development	Financial difficulties Absenteeism
Illicit drug interactions	Job loss/Productivity loss
Prescribed drug interactions	Environmental impacts: water & energy use; pesticides; transport factors

TABLE 2 Elements of alcohol warning labels that could be explored.

Alcohol warning label size
The effectiveness of photographs versus pictographs
The effectiveness of color photographs versus black & white photographs
Font size
Font type (e.g., Times New Roman vs. Gotham)
Font color (e.g. Black, Red, Amber)
The inclusion of signal words on warnings (e.g., Caution, Warning, or Danger)
The inclusion of warning icons (e.g., an exclamation mark, cross, or skull & crossbones)
The inclusion of a reputable authoritative source on warning labels: (e.g., WHO, Chief Medical Officer, Surgeon General)
Border around the warning (e.g., Black, Red, Amber, or Yellow & Black)

For such a technologically complex study, Gallopel-Morvan et al.'s study impressively includes an impressive achieved sample of 74 people. However, all 74 are male. Future research using fMRI and allied approaches to alcohol control must be sure to include women in their studies. The history of medical research, especially before the 1990s, exhibits an alarming gender imbalance, with women routinely and systematically excluded from many studies (Plevkova et al., 2020). Similarly, future photographic alcohol warning labels must also be balanced for gender and race, something lacking in current EU tobacco warning labels (O'Doherty, Houghton, McInerney, Duncan, & Houghton, 2019; O'Doherty, Houghton, McInerney, Houghton, & Duncan, 2019).

Gallopel-Morvan et al.'s study represents an important step forward in alcohol control. More studies incorporating this approach are required to develop and fine-tune effective alcohol warning labels, as well as much-needed warnings in cognate areas, including gambling control. However, even coordinated action on alcohol warning labels at the EU level, which we are currently far from achieving, would only help protect less than 450 million people. Effective and comprehensive global action on alcohol control will require a WHO Framework Convention on Alcohol Control, similar to that which already exists for tobacco (Room & Cisneros Örnberg, 2021).

ACKNOWLEDGMENTS

The authors would like to thanks Ms. Daisy Houghton, University of Galway, for insightful comments. Open access funding provided by IReL.

CONFLICT OF INTEREST STATEMENT

Dr. Frank Houghton is in receipt of a grant from the Higher Education Authority (HEA) in Ireland to develop alcohol warning labels for the island of Ireland.

ORCID

Frank Houghton https://orcid.org/0000-0002-7599-5255

REFERENCES

Calnan, S., Millar, S.R. & Mongan, D. (2023) Support for evidence-based alcohol policy in Ireland: results from a representative household survey. *European Journal of Public Health*, 33(2), 323–330.

Clarke, N., Pechey, E., Kosīte, D., König, L.M., Mantzari, E., Blackwell, A.K.M. et al. (2020) Impact of health warning labels on selection and consumption of food and alcohol products: systematic review with meta-analysis. *Health Psychology Review*, 15(3), 430–453. Available from: https://doi.org/10.1080/17437199.2020.1780147

Correia, D., Kokole, D., Rehm, J., Tran, A., Ferreira-Borges, C., Galea, G. et al. (2024) Effect of alcohol health warning labels on knowledge related to the ill effects of alcohol on cancer risk and their public perceptions in 14 European countries: an online survey experiment. *The Lancet Public Health*, 9(7), e470–e480.

Ennis, G. (2023) *Dark PR*. Wakefield, Quebec: Daraja Press.

Gallopel-Morvan, K., Duche, Q., Diouf, J.F., Lacoste-Badie, S., Droulers, O., Moirand, R. et al. (2024) Impact of text-only versus large text-and-picture alcohol warning formats: a functional magnetic resonance imaging study in French young male drinkers. *Alcoholism: Clinical and Experimental Research*, 48(8), 1610–1620. Available from: https://doi.org/10.1111/acer.15389

GBD 2019 Risk Factors Collaborators. (2020) Global burden of 87 risk factors in 204 countries and territories, 1990-2019: a systematic analysis for the global burden of disease study 2019. *Lancet*, 396(10258), 1223–1249. Available from: https://doi.org/10.1016/S0140-6736(20)30752-2

Giesbrecht, N., Reisdorfer, E. & Rios, I. (2022) Alcohol health warning labels: a rapid review with action recommendations. *International Journal of Environmental Research and Public Health*, 19, 11676. Available from: https://doi.org/10.3390/ijerph191811676

Houghton, F. (2024) Maintaining integrity in alcohol research in Ireland: a commentary. *Journal of Global, Public and One Health* https://jgpoh.com/wp-content/uploads/2024/02/Houghton-F.-Maintaining-Integrity-in-Alcohol-Research-2024-01-02.pdf

Jané-Llopis, E., Kokole, D., Neufeld, M., Hasan, O.S. & Rehm, J. (2020) *What is the current alcohol labelling practice in the WHO European region and what are barriers and facilitators to development and implementation of alcohol labelling policy?* Geneva: World Health Organization. Regional Office for Europe.

Joyce, K.M., Davidson, M., Manly, E., Stewart, S.H. & Al-Hamdani, M. (2024) A systematic review on the impact of alcohol warning labels. *Journal of Addictive Diseases*, 42(3), 170–193. Available from: https://doi.org/10.1080/10550887.2023.2210020

Kersbergen, I. & Field, M. (2017) Alcohol consumers' attention to warning labels and brand information on alcohol packaging: findings from cross-sectional and experimental studies. *BMC Public Health*, 17(1), 123.

Kokole, D., Anderson, P. & Jané-Llopis, E. (2021) Nature and potential impact of alcohol health warning labels: a scoping review. *Nutrients*, 13(9), 3065. Available from: https://doi.org/10.3390/nu13093065

Lacoste-Badie, S., Droulers, O., Dossou, G. & Gallopel-Morvan, K. (2022) Improving the effectiveness of pregnancy warning labels displayed on alcohol containers: a French eye-tracking study. *Public Health*, 212, 22–27.

Lesch, M. & McCambridge, J. (2022) Understanding the political organization and tactics of the alcohol industry in Ireland 2009–2018. *Journal of Studies on Alcohol and Drugs*, 83(4), 574–581. Available from: https://doi.org/10.15288/jsad.2022.83.574

Mayshak, R., Curtis, A., Coomber, K., Tonner, L., Walker, A., Hyder, S. et al. (2022) Alcohol-involved family and domestic violence reported to police in Australia. *Journal of Interpersonal Violence*, 37(3–4), 1658–1685.

Millot, A., Maani, N., Knai, C., Petticrew, M., Guillou-Landréat, M. & Gallopel-Morvan, K. (2022) Analysis of how lobbying by the alcohol industry has eroded the French Évin law since 1991. *Journal of Studies on Alcohol and Drugs*, 83(1), 37–44.

Millot, A., Serra, M. & Gallopel-Morvan, K. (2022) How the alcohol industry fought against pregnancy warning labels in France. A press coverage analysis spanning 20 years. *Frontiers in Public Health*, 10, 933164. Available from: https://doi.org/10.3389/fpubh.2022.933164

Mitchell, G. & McCambridge, J. (2022) The ubiquitous experience of alcohol industry involvement in science: findings from a qualitative interview study. *Journal of Studies on Alcohol and Drugs*, 83(2), 260–266.

Mitchell, G. & McCambridge, J. (2023) Interactions between the U.S. National Institute on Alcohol Abuse and Alcoholism and the alcohol industry: evidence from email correspondence 2013–2020. *Journal of Studies on Alcohol and Drugs*, 84(1), 11–26.

O'Doherty, D., Houghton, F., McInerney, D., Duncan, B. & Houghton, D. (2019) EU anti-smoking graphic warnings on cigarette packets: semiotics and the issue of gender under-representation. *Irish Journal of Medical Science*, 188(3), 1075–1077.

O'Doherty, D., Houghton, F., McInerney, D., Houghton, S. & Duncan, B. (2019) Ethnic and racial blindness in EU anti-smoking campaigns, slogans and images. *Irish Journal of Medical Science*, 188(2), 727–729. Available from: https://doi.org/10.1007/s11845-018-1906-y

Plevkova, J., Brozmanova, M., Harsanyiova, J., Sterusky, M., Honetschlager, J. & Buday, T. (2020) Various aspects of sex and gender bias in biomedical research. *Physiological Research*, 69(Suppl. 3), S367–S378. Available from: https://doi.org/10.33549/physiolres.934593

Room, R. & Cisneros Örnberg, J. (2021) A framework convention on alcohol control: getting concrete about its contents. *European Journal of Risk Regulation*, 12(2), 433–443. Available from: https://doi.org/10.1017/err.2020.73

Severi, K. & Hawkins, B. (2024) Policy Actors' perceptions of conflicts of Interest and alcohol industry engagement in UK policy processes. *International Journal of Health Policy and Management*, 13, 8068. Available from: https://doi.org/10.34172/ijhpm.2024.8068

The Lancet Gastroenterology Hepatology. (2023) Distilling the message: Irish plans for alcohol warning labels. *The Lancet. Gastroenterology & Hepatology*, 8(3), 199. Available from: https://doi.org/10.1016/S2468-1253(23)00014-6

Vallance, K., Vincent, A., Schoueri-Mychasiw, N., Stockwell, T., Hammond, D., Greenfield, T.K. et al. (2020) News media and the influence of the alcohol industry: an analysis of media coverage of alcohol warning labels with a cancer message in Canada and Ireland. *Journal of Studies on Alcohol and Drugs*, 81(2), 273–283. Available from: https://doi.org/10.15288/jsad.2020.81.273

World Health Organization. (2018) Global status report on alcohol and health 2018. Available from: https://www.who.int/publications/i/item/9789241565639 [Accessed 21st June 2024].

World Health Organization. Regional Office for Europe. (2024) *Commercial determinants of noncommunicable diseases in the WHO European region*. Geneva: World Health Organization. Regional Office for Europe. https://iris.who.int/handle/10665/376957

World Health Organization. (2022) Alcohol. Key facts. Available from: www.who.int/news-room/fact-sheets/detail/alcohol [Accessed 21st June 2024].

Younossi, Z.M., Wong, G., Anstee, Q.M. & Henry, L. (2023) The global burden of liver disease. *Clinical Gastroenterology and Hepatology*, 21(8), 1978–1991. Available from: https://doi.org/10.1016/j.cgh.2023.04.015

Zuckermann, A.M.E., Morissette, K., Boland, L., Garcia, A.J., Domingo, F.R., Stockwell, T. et al. (2024) The effects of alcohol container labels on consumption behaviour, knowledge, and support for labelling: a systematic review. *The Lancet. Public Health*, 9(7), e481–e494. Available from: https://doi.org/10.1016/S2468-2667(24)00097-5

How to cite this article: Houghton, F. (2024) The need for further alcohol control research: A response to a functional magnetic resonance imaging study on alcohol warnings by Gallopel-Morvan et al. *Alcohol: Clinical and Experimental Research*, 00, 1–3. Available from: https://doi.org/10.1111/acer.15453