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### ADVANCING CANCER PREVENTION PRICING INTERVENTIONS ACROSS THE UK AND US: OPTIMISING MESSAGE FRAMING – A QUALITATIVE FORMATIVE STUDY

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**Background** One-third of the burden of cancer is associated with four health harming behaviours – tobacco use, alcohol consumption, poor diet and physical inactivity. These individual behaviours are influenced by a complex array of socio-political factors, including industry interests. The growing evidence base supporting the use of price-related policies to curb over consumption of unhealthy products is of interest to governments around the world. However, the implementation of such policies requires public and policy-maker support. The aim of this study is to enhance our understanding of the features of message framing that influence public support in relation to four price-related policies (1-tax, 2-mitigation fee, 3-discounting ban and 4-minimum pricing); across three products (tobacco, alcohol and sugar); and two countries (USA and UK).

**Methods** We conducted 18 semi-structured interviews exploring knowledge, attitudes, and beliefs of the four pricing policies in relation to tobacco, alcohol and sugar products in 2018. Nine in the USA and nine in the UK. Interviewees included cancer policy advocates, cancer survivors and members of the general public. NVivo 12 was used to organise the data for inductive and deductive thematic analysis.

**Results** Common supportive features across all four policies included (i) highlighting the health benefit (including reduced cancer risk), particularly for young people and those on low income, arising from impact on purchasing behaviour and (ii) making the cost of consumption in terms of health harm clear. Common unsupportive features across policies included (i) that effectiveness will depend on size of the financial penalty and consumer response and (ii) such policies are unfair on sensible consumers and potentially regressive. Interviewees' were more supportive of price-related policies for tobacco containing products where they perceived a strong association between tobacco use and cancer risk. Some differences in views arose between products, particularly around the addictive nature of alcohol and tobacco that did not apply to sugar consumption.

**Conclusion** This study reveals important differences in levels of persuasiveness arising from the framing of messages designed to promote price-related policies as a health promotion strategy. The results have informed the identification of four frames to be tested in a multi-factorial quantitative study, currently under way. These frames can be characterised as: F1 - To reduce the financial strain on the health care system; F2 - For the protection of children and young people; F3 - To reduce cancer risk; and F4 - To reduce the risk of other non-communicable diseases.

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### ARE CHANGES IN THE QUALITY AND QUANTITY OF SOCIAL SUPPORT ACROSS THE LIFE COURSE ASSOCIATED WITH CHANGES IN ALCOHOL CONSUMPTION? FINDINGS FROM THE WHITEHALL II STUDY

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**Background** Social support has been linked to positive health outcomes and one suggested mechanism for this effect is via health behaviours. Alcohol consumption is associated both with negative health and social outcomes and with positive social benefits, such as forming and maintaining friendships, relaxing and having fun.

A better understanding of which aspects of social support are associated with harmful alcohol consumption could help to improve public health messages and treatments for alcohol consumption; however, the existing evidence in this field is often contradictory and looks at the relationship at one time-point.

This study aimed to explore 1) the relationship between the quantity and quality of social support and harmful alcohol consumption, and 2) whether a change in the quantity and/or quality of social support over time is associated with a change in alcohol consumption.

**Methods** Data were from 6401 men/women aged 35–55 at Phase 1 (1985) and 3704 men/women aged 47–67 at Phase 5 (1997) from a prospective cohort study of UK civil servants (Whitehall II). Measures of quantity and quality of social support from the Close Persons Questionnaire and last week alcohol consumption regrouped into non-drinkers; lower-risk ( $\leq 14$  units/week); increasing-risk ( $> 14$  to  $\leq 35$  units/week-women,  $> 14$  to  $\leq 50$  units/week-men) and higher-risk drinkers ( $> 35$  units/week-women,  $> 50$  units/week-men) were used to conduct multinomial logistic regression analyses.

#### Results

1) Amongst men, high levels of worsening support (RRR=1.95, 95%CI=1.13–3.37), seeing friends more often (RRR=2.20, 95%CI=1.10–4.42), seeing more friends/month and seeing relatives less frequently (RRR=1.89, 95%CI=1.12–3.19) increased the likelihood of being a higher-risk drinker.

Amongst women, seeing more friends/month (RRR=4.21, 95%CI=1.09–16.27) increased the likelihood, and being in the highest (RRR=0.25, 95%CI=0.06–0.95) and middle (RRR=0.21, 95%CI=0.06–0.79) tertiles for practical support reduced the likelihood of being a higher-risk drinker.

2) Amongst men, a reduction in confiding/emotional support (RRR=1.38, 95%CI=1.03–1.86) and an increase in practical support (RRR=1.54, 95%CI=1.01–2.37) were associated with a reduction in alcohol risk category. An increase in friends/month (RRR=1.29, 95%CI=1.03–1.63) and a reduction in practical support (RRR=1.23, 95%CI=1.00–1.52) were associated with an increase in alcohol risk.

Amongst women, only a reduction in the number of close persons was associated with a reduction in alcohol risk group (RRR=1.74, 95%CI=1.05–2.87).

**Conclusion** Good levels of practical support appear particularly protective of harmful alcohol consumption, whereas seeing more of friends is associated with harmful alcohol use. Interventions which target friendship groups may be more effective

in addressing harmful consumption, whilst enabling the maintenance of social support.

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### RANDOMISED CONTROLLED TRIALS OF COMMUNITY-BASED PHYSICAL ACTIVITY INTERVENTIONS IN ADULTS WITH LONG-TERM FOLLOW-UP AND OBJECTIVE PHYSICAL ACTIVITY MEASUREMENTS: A SYSTEMATIC REVIEW AND META-ANALYSIS

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**Background** Physical inactivity is a global public health concern. Systematic review evidence indicates interventions can increase short-term physical activity (PA) levels. However, long-term health benefits require sustained increases in PA levels, and evidence from interventions with objective PA measures beyond 12-months is lacking. This review aims to:

1. Identify and describe randomised controlled trials (RCTs) in adults with objective PA measures and long-term follow-up (beyond 12-months)
2. Evaluate the extent to which intervention effects are sustained beyond 12-months

**Methods** We systematically searched seven databases using MeSH headings and keywords to identify RCTs published after 01/01/2000. We included trials reporting long-term effects ( $\geq 12$ -months) on objective PA levels with community-based participants, aged  $\geq 18$  years, with no specific medical conditions. We conducted quality assessments and meta-analyses at different follow-up points.

**Results** Of 17233 unique records identified, 9 studies were included in the review, 5 in the meta-analyses. Long-term follow-up ranged from 12-months to 4-years. We observed increases in PA at 12-months for steps/day (mean difference (md)=554, 95% CI=383 to 724) and weekly minutes of moderate-to-vigorous PA (MVPA) (md=34.9, 95% CI=26.9 to 42.8). This increase was sustained up to 4 years for both steps/day (md=494, 95% CI 251 to 738) and weekly minutes of MVPA (md=25.2, 95% CI=13.3 to 37.1).

**Conclusion** There are few PA interventions with objective follow up beyond 12-months. This review provided evidence of sustained PA intervention effects beyond 12-months and up to 4-years for both steps/day and MVPA.

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### COMMUNICATION IS THE ROOT ISSUE: INFORMING THE DEVELOPMENT OF CYBERBULLYING INTERVENTIONS

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**Background** Cyberbullying is an international public health concern. The potential cost to the physical and mental health of young people calls for action to address this issue. Guided by the UK Medical Research Council guidance on complex interventions and the Behaviour Change Wheel, an approach for applying behavioural theory to intervention development,

the aim of this study was to conceptualise cyberbullying from the perspective of post-primary school students to inform the development of an intervention to address the issue.

**Methods** A systematic review and meta-ethnographic synthesis of qualitative studies related to young people's perceptions of cyberbullying was conducted. A young person's advisory group (aged 16) was established to collaborate with researchers in the design and conduct of a qualitative study across four post-primary schools. 11 focus groups (n=64) were conducted with young people aged 14–17. Data was analysed thematically and the findings were interpreted by the advisory group.

**Results** The advisory group identified key areas requiring intervention: parental knowledge of the cyber world; parental reaction when approached for help; bodily autonomy (with regard to the sharing of nude images); mental health. They identified 'communication' as the 'root issue' in tackling these issues: communication between young people and parents; communication among peers; and communication in the delivery of prevention and intervention programmes for young people.

**Conclusion** This study provides a thorough understanding of cyberbullying from the perspective of young people. The findings will be used to design, implement, and evaluate interventions that are grounded in young people's experience.

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### THE ASSOCIATION OF ALCOHOL PRS ON MENTAL HEALTH PHENOTYPES: A PHEWAS IN THE AVON LONGITUDINAL STUDY OF PARENTS AND CHILDREN (ALSPAC)

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**Background** An emerging technique is a Phenome Wide Association Study (PheWAS), which reverses the phenotype to genotype methods used within a GWAS, instead taking a pre-determined set of genetic variants, and testing which of a wide range of phenotypes these genetic variants may be associated with. We can further investigate the genetic architecture of multiple traits and disease outcomes through linking a chosen genetic variant to multiple phenotypes, in varying populations.

In this study we constructed polygenic risk scores (PRS) from single nucleotide polymorphisms (SNPs) shown to be robustly related to alcohol use, to test:

1. These genetic signals within two sub populations of adolescents, and for pregnant women.
2. If there are any associations (other than with alcohol use) of these PRS with many mental health phenotypes.
3. Intrauterine effects of Maternal PRS for alcohol use for associations with offspring phenotypes.

**Methods** Participants were mothers and offspring from the Avon Longitudinal Study of Parents and Children (ALSPAC). Participants were genotyped and PRS were constructed based on genome-wide significant SNPs for alcohol consumption. Targeted phenotypes were selected from substance use (n=22) and mental health/behavioural variables (n=91) within ALSPAC. Linear and logistic regression analyses were used to investigate if PRS for alcohol use were associated with alcohol use (mothers in pregnancy; children) and health phenotypes