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# Autonomy, special offers and routines: a Q methodological study of industry-driven marketing influences on young people's drinking behaviour

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## ABSTRACT

**Aim** To identify shared patterns of views in young people relating to the influence of industry-driven alcohol marketing (price, promotion, product and place of purchase/consumption) on their reported drinking behaviour. **Design** Q methodology harnessed qualitative and quantitative data to generate distinct clusters of opinions as follows: 39 opinion statements were derived from earlier in-depth qualitative interviews with 31 young people; by-person factor analysis was carried out on 28 participants' (six previous interviewees and 22 new recruits) rank orderings of these statements (most-to-least agreement); interpretation of the factor arrays was aided by 10–15-minute debriefing interviews held immediately following each Q-sort. **Setting** Northeast England. **Participants** Young people aged 14–17 years purposively recruited from high schools, higher education colleges, youth centres and youth offending teams. **Findings** Centroid factor extraction and varimax rotation of factors generated three distinct accounts: factor one ('autonomous, sophisticated consumers') illustrated a self-defined sense of individuality and autonomy in alcohol choices; factor two ('price-driven consumers') appeared price-led, choosing to drink what was most accessible or cheapest; and factor three ('context-focused consumers') described drinking practices where products were chosen to serve specific functions such as being easy to carry while dancing. **Conclusions** Considering young people's views on alcohol marketing, different perspectives can be identified. These include perceived imperviousness to marketing, responsiveness to price and affordability and responsiveness to marketing focusing on youth lifestyles.

**Keywords** Alcohol, drinking, England, marketing, Q methodology, price, young people.

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## INTRODUCTION

Alcohol use is the leading risk to health and wellbeing in young people, accounting for 7% of disability adjusted life years in 10–24-year-olds globally [1]. Moreover, UK adolescents are among the heaviest drinkers in Europe [2]. Early onset of alcohol use has been reported to be a strong predictor of alcohol use disorders and dependence in adulthood [3–5], although a recent systematic review has challenged this finding [6]. Nevertheless, frequent, often high-intensity drinking in early to mid-adolescence has been linked to a myriad of adverse effects. Short-term implications, which pose the greater immediate risk, include accidents; early and unprotected sex; exacerbation

of mental health problems; poor school attendance; and reduced educational attainment [7–11]. Acute problems may also have life-time consequences, such as early disfigurement or unintended pregnancies. Moreover, the longer and heavier an individual drinks, the greater the risk of developing chronic health problems such as liver disease or cancer later in life [12].

Guidance produced in England by the National Institute for Health and Care Excellence (NICE) in 2010 recommended the need for a combination of individual and population-level interventions to reduce alcohol-related risk and harm in adults and adolescents [13]. Coordinated government action on alcohol marketing was also recommended by independent experts in a recent

evidence-based alcohol strategy for the United Kingdom [14]. There has been particular focus on the use of price and affordability as mechanisms to reduce excessive drinking [15]. However, modelling of alcohol intervention impacts has found that price and affordability might not be as effective in young people as strategies such as point of sale or offer restrictions [16]. Moreover, recent work in Scotland has concluded that young adults were not a homogenous group in relation to price sensitivity, and considerations about the price of alcohol competed with non-financial considerations such as cultural norms regarding drinking activity [17].

The marketing of alcohol is a complex process comprising four well-established and interconnected elements defined as 'the 4 Ps' [18] of the marketing mix [19]: price, product (characteristics, image and branding), promotion (including advertising) and placement (point of sale and outlet density or distribution). These elements are recognized in business theory as a successful means of maximizing sales via market segmentation [20]. Alcohol advertising and other promotional activity has been associated consistently with initiation and progression of alcohol use among young people, as well as the development of pro-drinking attitudes and social norms [21–23]. Previous research indicates that alcohol brand recognition occurs in 10–11-year-olds [24]. Identification with desirable images in alcohol advertising has been seen in 8–9-year-olds and brand-specific consumption in 13–20-year-olds [25,26]. However, establishing causality between promotional activity, product recognition and alcohol use is methodologically and ethically problematic, especially where subjects are under the legal age for purchasing alcohol. In addition, research often assumes a linear 'effect' where marketing activity acts like a 'hypodermic syringe', injecting passive viewers with information which creates attitudes and behaviours in response [27]. In reality, individuals have the capacity to accept, reconstruct or reject the information they receive [28], and may interpret marketing messages differently. Thus, marketing operates in the context of competing structural, interpersonal and psychosocial influences, and this interaction is little understood or investigated. This paper investigates the viewpoints that young people (aged 14–17 years) hold regarding the influence of industry-driven alcohol marketing on their reported drinking behaviour.

## METHODS

Q methodology [29] is a mixed-methods approach that harnesses quantitative and qualitative data to investigate complex social phenomena where multiple viewpoints coexist, but patterns of views may be shared. The process involves: generating a broad representation of statements

or opinions about the issue being studied (the 'Q-set') often derived from qualitative interview work; a card-sort technique ('Q-sort') with a purposive sample of individuals (who are expected to hold distinct, diverse opinions about the topic); exploratory factor analysis to help cluster views into distinct viewpoints; and follow-up interview work, to help interpret the derived viewpoints, often by illuminating the underpinning reasoning. Designed to generate rather than test hypotheses, the aim of Q methodology is to 'gain access to a range of viewpoints not make claims about the frequency of their occurrence' [30]. Thus, there is no recommended minimum or maximum number of respondents in a Q-study [31]. All that is required are enough subjects to firmly establish the existence of a factor for purposes of comparing one factor to another [32,33].

Statements were generated from 31 in-depth interviews with young people aged 14–17 carried out prior to the Q-study as part of a wider PhD thesis [34]. Interviews lasted between 45 and 90 minutes and explored the influence of marketing (as well as social and family contexts) on young people's drinking practices. From these transcripts, a Q-set of 39 statements was drawn up and sense-checked with four young people (aged 16–17) from a local school who did not participate further in the study. Statements attempted to cover the full range of perspectives about marketing offered by young people interviewed—items were selected for salience to marketing with opposites and duplicates discarded. Q-study participants were asked to rank-order statements by physically placing each item into a column on a triangular distribution grid (+4 to -4), from what was most to least like their own viewpoint. Although marketing was used to shape the focus of the Q-set, several statements focused on other potential influences (e.g. parents or peers) in recognition of the wider socio-cultural context in which alcohol marketing operates. Immediately after the Q-sort, each participant completed a 10–15-minute debriefing interview where they explained their reasoning behind their placement of statements.

## Subjects and setting

The study focused on current drinkers to ensure that responses reflected lived and not hypothetical experiences. Twenty-eight young people aged 14–17 (male = 11, female = 17) completed the Q-sort between September 2010 and January 2011. Six individuals had contributed to the previous qualitative work which generated the statements. However, the Q-study included a refreshed sample of 22 new individuals as many previous participants had reached 18 years, which was above the age-range of the study (and it was felt that being above the legal age to purchase alcohol altered the context of decision-making in mid-adolescence).

Participants were recruited purposively to represent different ages, sexes and backgrounds, reflected in the settings they came from (high schools, vocational/further education colleges, youth centres and youth offending teams in North East England). All participants were white British individuals, reflecting the demography of the study area. Further details on weekly spending money, educational/employment status and preferred alcoholic drink were collected during the debriefing interviews. An Index of Multiple Deprivation (IMD) quintile (where 1 is 'most deprived') was derived from postcode data [35] after data collection had ceased and used to help contextualize the findings.

Ethical approval for the study was provided by Newcastle University (the sponsor for the research). All participants provided informed consent before taking part; Q-sorts were researcher-administered and completed on a one-to-one basis at each recruitment site.

### Analysis

PQMethod, a dedicated software package for Q methodology, was used to manage and analyse data [36]. For all statistical analyses statistical significance was defined as a *P*-value of <0.05. By-person factor analysis through centroid factor extraction and varimax rotation of factors was used to identify similar Q-sorts (i.e. sorts correlating significantly with each other) to derive 'factors' grouping together participants who hold similar viewpoints [37]. Varimax rotation was used to minimize the number of Q-sorts loading significantly on more than one factor [38]. Each resultant factor can be represented by a 'composite' Q-sort, described as the 'factor array': an idealized Q-sort, calculated as a weighted average of the Q-sorts exemplifying that factor, thereby representing the views of an individual who typifies that particular perspective [39]. Exemplars are Q-sorts which load significantly and purely on only one factor. Interpretation of factors was guided by qualitative (post Q-sort interview data) and statistical (levels of explained variance, number of significantly loading Q-sorts, number of pure, mixed and null loaders) parameters. Of principal importance was the ability of the final factor solution to represent firm, shared viewpoints (a clear narrative) and be internally coherent and consistent with the accounts of factor loaders.

### Findings

A three-factor presentation of the data was judged most amenable to interpretation. These three factors accounted for 29% of the variance, and 21 participants (75%) mapped significantly onto one of the three factors. Two-, four- and five-factor solutions were all examined during analysis and were not amenable to interpretation. A two-factor solution concealed the subtleties in young

people's points of view drawn out by the three factors. A four- or five-factor solution was not consistent with the accounts of factor loaders, nor did they represent firm, shared accounts—significant loadings in both solutions were predominantly negative. Column positions on the Q-sort grid for each statement for each of the three factor arrays are displayed in the Supporting information, Table S1. Six individuals did not load significantly onto any of the three factors (participants 37, 40, 42, 46, 50 and 51), and are described as 'null loaders'; one (participant 28) loaded significantly onto more than one factor. Two (participants 32 and 39) loaded negatively onto factor 3, making it (weakly) 'bipolar', a positive correlation denotes sharing the viewpoint and negative correlation denotes a near reverse (or mirror image) of the viewpoint expressed depending upon the extent of the factor loading.

A description of each factor is illustrated below with reference to distinguishing statements, illuminating comments and details of participants who exemplify each factor (Tables 1–3). Figures 1–3 show statements which represent the positive and negative extremes of viewpoints expressed by each factor. Nine statements in the Q-sort were identified as consensus items, denoting that they were placed in similar ways across the three factors (consensus statements are shaded in Figs 1–3). The interpretation of factor three focuses predominantly on the dominant shared view; but a briefer examination of the account characterized by two negative exemplars is also presented.

#### *Factor one: autonomous and sophisticated consumers*

Seven Q-sorts exemplified factor one, which accounted for 12% of the variance. Factor one was dominated by the idea of personal autonomy: the belief of those represented by this account that they had the ability to make their own unmitigated choices about alcohol. This account rejected external influences, including the influence of other people (e.g. parents or peers) when making decisions about alcohol use. Three of the five statements ranked 'least like me' rejected the influence of others (see Fig. 1) and two were significantly distinguishing statements, indicating that they are not regarded in the same way by factors two and three. Ultimately, young people represented by factor one articulated a self-defined 'sophisticated' approach toward alcohol where the goal is not 'drinking to get drunk' or the consumption of strong, cheap or poor quality products. ('I think straight alcohol is just not great and would just send you wild straight away . . .'—female, aged 17, in response to statement 10).

A belief in personal autonomy extended to the dismissal of alcohol advertising as an influence on drinking (see statements 28, 30, 10 and 32 in Fig. 1). Indeed,

**Table 1** Summary information of participants who exemplify factor one.

Participant ID	Factor loading	Age	Gender	School/employment status	Recruitment site	Locality	IMD quintile (1 = most deprived)	Spending money (weekly average)
P003	0.57	16	Male	College	Youth group	Outlying suburb (North of Tyne)	3	£20
P006	0.73	17	Female	Sixth form	Youth group	Outlying suburb (North of Tyne)	3	£30–35
P019	0.57	17	Female	Sixth form	Further education college	Market town/rural area	4	£10
P029	0.56	17	Male	School	Further education college	Market town/rural area	4	£10
P038	0.45	15	Female	School	Youth centre	City (North of Tyne)	1	Not known
P043	0.51	16	Female	School	Youth group	Outlying suburb (North of Tyne)	3	£15
P047	0.52	15	Female	School	Youth centre	Outlying suburb (South of Tyne)	1	£15

IMD = Index of Multiple Deprivation.

**Table 2** Summary information of participants who exemplify factor two.

Participant ID	Factor loading	Age	Gender	School/employment status	Recruitment site	Locality	IMD quintile (1 = most deprived)	Spending money (weekly average)
P031	0.40	17	Female	School	Further education college	Market town/rural area	4	£10
P036	0.56	17	Female	College	Vocational college	City (North of Tyne)	5	Not known
P041	0.57	17	Male	College	Youth offending team	City (South of Tyne)	1	£30
P049	0.59	15	Female	School	Youth centre	City (South of Tyne)	1	£10
P052	0.41	15	Male	School	Youth centre	Outlying suburb (South of Tyne)	1	£45
P055	0.68	14	Male	School	Secondary school	City (South of Tyne)	1	£15

IMD = Index of Multiple Deprivation.

Table 3 Summary information of participants who exemplify factor three.

Participant ID	Factor loading	Age	Gender	School/employment status	Recruitment site	Locality	IMD quintile (1 = most deprived)	Spending money (weekly average)
P032*	-0.39	17	Male	Training	Vocational college	City (North of Tyne)	5	£12
P034	0.62	17	Female	Training	Vocational college	City (North of Tyne)	5	£80–90
P035	0.60	17	Female	College	Vocational college	City (North of Tyne)	5	Not known
P039*	-0.40	14	Female	School	Youth centre	City (North of Tyne)	1	£4
P044	0.43	16	Male	School	Youth centre	City (South of Tyne)	3	£6
P045	0.50	15	Male	School	Youth centre	Outlying suburb (South of Tyne)	3	£110
P048	0.52	15	Female	School	Youth centre	Outlying suburb (South of Tyne)	1	£20
P054	0.37	14	Male	School	Secondary school	City (South of Tyne)	1	£4–8

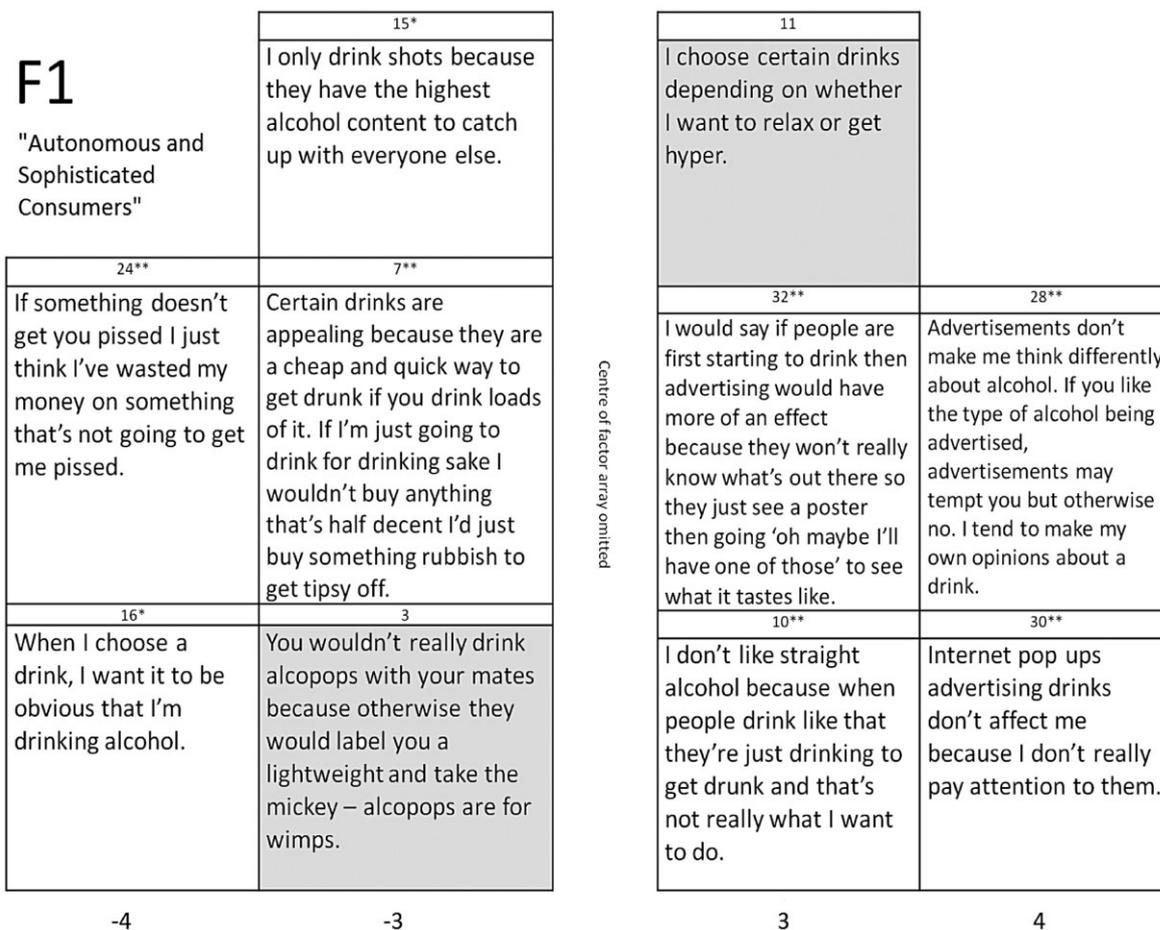
\* denotes Q-sorts which loaded negatively onto factor three. IMD = Index of Multiple Deprivation.

there was a sense of a critical consciousness of alcohol advertisements ('You see adverts for alcohol but you don't really think about them. You just dismiss them as another advert . . . you don't think "Oh I'll try that" . . . you know what you like and the stuff I choose it's something I choose regularly so it's like a habit as well . . .—female, aged 16, in response to statement 28). However, exemplars of this factor thought that 'others' could be influenced by alcohol marketing, one referring to herself as 'cynical' in comparison to other people who were susceptible to such influence ('I'm more critical of adverts . . . it depends more what influences you or how easily influenced you are . . .—female, aged 15, in response to statement 28). Nevertheless, while traditional alcohol marketing channels, such as television advertisements, were consciously recognized as marketing, this shared account appeared to overlook less overt techniques, such as sponsorship or brand appearances.

Price did not feature strongly in the account described by factor one, with statements 20, 12 and 33 placed towards neutral columns (0, 1 and -1) in the grid. Moreover, product and place did not appear to be strong drivers of choice and behaviour, yet this account acknowledged that aspects of both were of marginal importance to their drinking practices with statements 13, 1 and 18 covering individual taste or preference positioned at +2, +1 and +1 in the factor array. Thus, some understanding of the influence of product and place was intertwined in aspects of this shared account, with factor one exemplars acknowledging that the 'ease' of some product styles or packaging (shots, ready-mixed drinks or bottles which can be shut later) was useful, with statements 17, 9 and 22 positioned at +2, +1 and +1 of the factor array. Thus, there was a level of functionality linked to the use of certain types of drinks which overlapped with factor three (see below), but which was much less pronounced.

#### Factor two: price-driven consumers

Six Q-sorts loaded significantly onto factor two, which accounted for 8% of the variance. This shared account was dominated by items relating to the price and availability of alcohol (see Fig. 2). Respondents represented by factor two were interested in easily accessible and cheap alcohol, taking advantage of 'freebies', discounts or special offers (' . . . whatever's cheapest, it's all going to get you drunk at the end of the day . . .—female, aged 15, in response to statements 35 and 20). Statements 20, 33, 12 and 35, positioned at +4, +4, +3 and -4 in the factor array, all related to the importance of price and were significantly distinguishing statements; that is, not placed in the same way by factors one and three. Statements relating to marketing activity other than price were largely placed in quite neutral positions. Some participants represented by factor two appeared to be relatively



**Figure 1** Factor array for factor one. NB: Consensus statements are shaded; \* denotes those statements which distinguish this factor from the other two factors (at a significance level of  $P < 0.05$ ) and \*\* denotes those statements which distinguish this factor from the other two factors (at a significance level of  $P < 0.01$ )

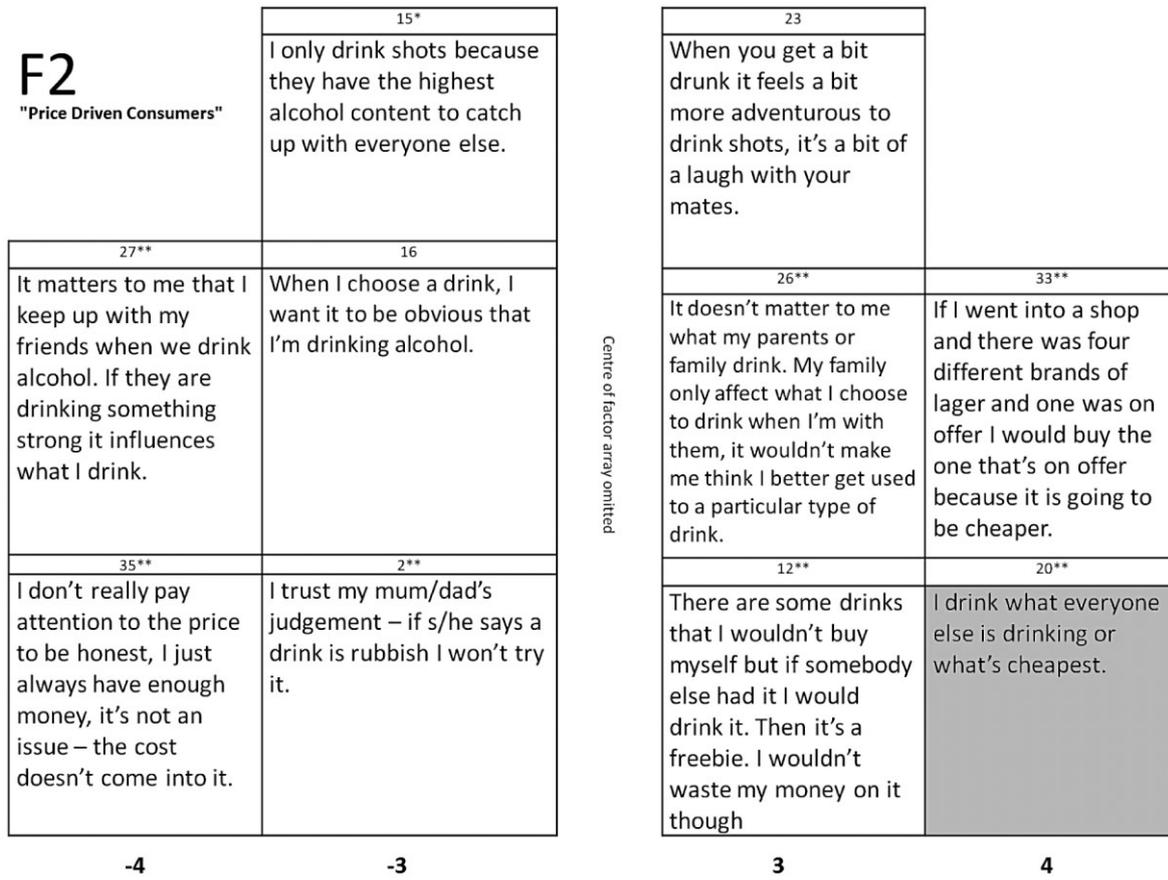
indiscriminate about the type of alcohol they consumed, especially if others were purchasing alcohol. Thus, unpreferred drinks or brands were regarded as acceptable if they were a free and convenient source of alcohol ('... whatever's there I just drink it... I like some drinks but if somebody's got something else I just drink it, I'm not bothered'—male, aged 14, in response to statements 20 and 12).

This account also conveyed a sense of adventure derived from drinking, and having fun with (but not 'keeping up with') friends (see statements 27 and 15 in Fig. 2) appeared to be central for young people who exemplified factor two ('I don't really care if someone sees me drinking it, I don't do it to be popular or anything, I just do it to be with my friends'—female, aged 17, in response to statement 16). In contrast with the perspective illustrated by factor one, young people represented by factor two felt that peers or family members could exert a general influence on drinking behaviour, as shown by strong identification with statement 20. Such strong agreement with this statement could represent opportu-

ism where other people represent a convenient means of accessing alcohol. In other words, young people who exemplified factor two may simply 'go along with the crowd' for reasons of cost and convenience ('... mostly I drink with family, I drink what they're drinking' cos they don't get strong things all of the time... it's normally cheap stuff... they normally buy things I like...')—male, aged 17 in response to statement 20).

*Factor three: context-focused consumers*

Eight Q-sorts loaded significantly onto factor three, which accounted for 9% of the variance. Six were positive loaders and this shared account was dominated by a sense that adventure, pleasure and hedonism were the primary motives for drinking (in particular see statement 23 in Fig. 3). In factor three there was also a strong emphasis on rules, routines or rituals associated with alcohol consumption, although these governed drinking in distinct ways. Some rules and rituals related to social conventions, such as drinking certain products in certain places at particular times such as 'bar hopping' for those



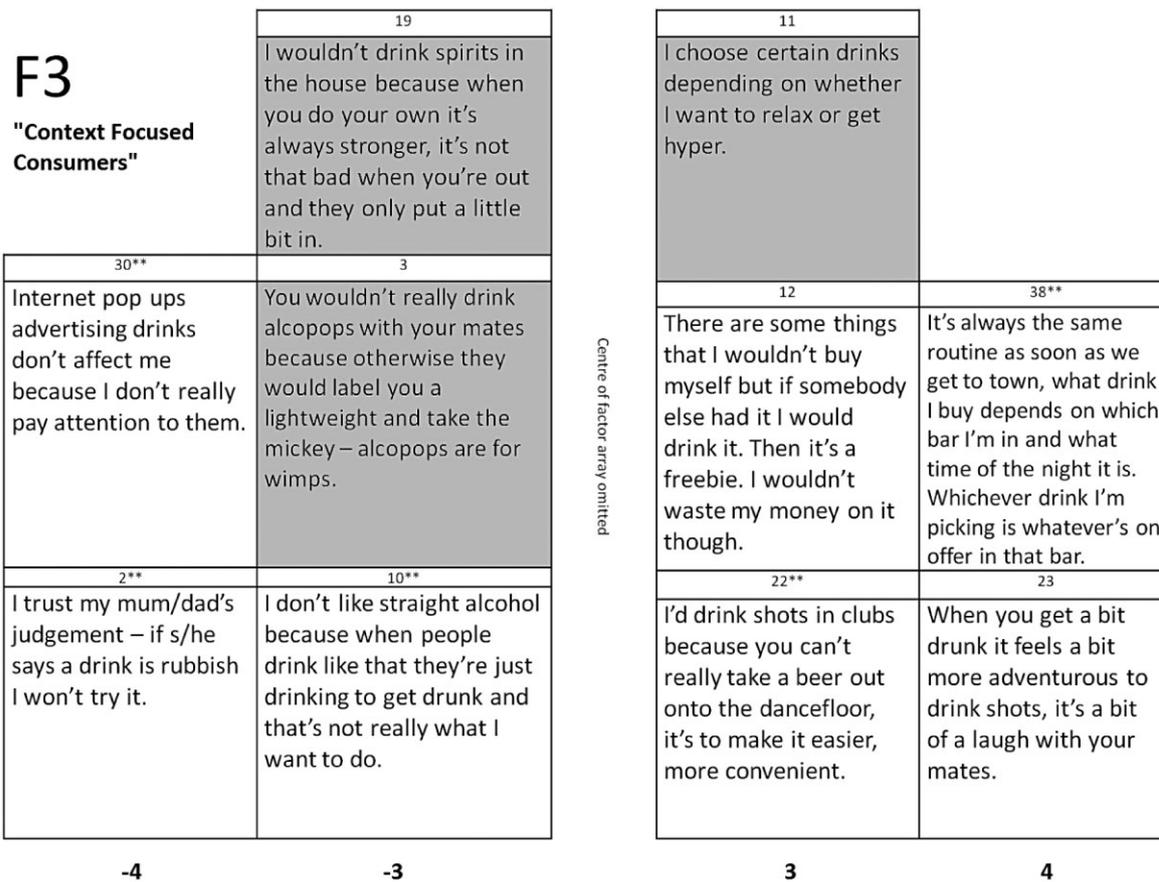
**Figure 2** Factor array for factor two. NB: Consensus statements are shaded; \* denotes those statements which distinguish this factor from the other two factors (at a significance level of  $P < 0.05$ ) and \*\* denotes those statements which distinguish this factor from the other two factors (at a significance level of  $P < 0.01$ )

consuming in licensed establishments ('... you want to stay in the first bar for a bit—long, but not too long...—female, aged 17, in response to statement 38). Others related to concerns about remaining safe and 'pacing' alcohol consumption. Thus, although young people who exemplified this factor reported drinking to achieve intoxication (see statement 10, a significantly distinguishing statement for factor three, placed at -3 in the factor array), they also appeared to set personal drinking limits to help ensure safety ('... I know when I'm drunk and gotta stop drinking and then I can get home safe...—female, aged 17).

Ultimately, for factor three, drinking practices were context-dependent, with certain types of alcohol used to serve a purpose or function rather than to fit in with the drinking practices of friends or family (see significantly distinguishing statements 2 and 3 in Fig. 3). Instead, drinks were seen as adventurous, relaxing or suitable for dancing and easily carried around ('when I choose certain drinks... I just wanna chill or depends what mood I'm in really...—male, aged 16, in response to statement 11). Strong identification with statements 38 and 22 indicates

that 'product' and 'place' appeared to be prioritized in this shared account. Exemplars recognized specific products, with established brands described as 'proper' alcohol compared to cheap, 'no label' products ('... I don't really drink different types of brands... say I have vodka I don't drink proper Sm... stuff...—female, aged 17, in response to statement 28). Finally, price did not appear as a dominant influence. Statement 12 was the only statement associated with price to feature in the poles of this factor array at position +3, unlike the account characterized by factor two, where numerous statements relating to price featured at the poles suggesting more focus on price.

Two Q-sorts (participants 32 and 39) loaded negatively onto factor three (-0.39 and -0.40). Thus, this was not judged to be a firm or different shared account, and was not interpreted as a separate factor. Instead the Q-sorts were examined individually. Unlike the dominant shared view, both participants represented themselves as unconcerned with drinking routines and rituals, appearing to take into account the judgement of their parents and being seemingly brand loyal, choosing drinks based upon taste or personal experience rather than because



**Figure 3** Factor array for factor three. NB: Consensus statements are shaded; \* denotes those statements which distinguish this factor from the other two factors (at a significance level of  $P < 0.05$ ) and \*\* denotes those statements which distinguish this factor from the other two factors (at a significance level of  $P < 0.01$ )

they were believed to serve a purpose or function ('I like to stick to the drink that I like'—male, aged 17, in response to statement 13).

**DISCUSSION**

The principal finding of this study was that young people aged 14–17 clustered into distinct groups of views about drinking practices which were shaped differentially by aspects of marketing. There were statements in the Q-sort which drew some participants together and others which served to illustrate divergence of opinions between the groups. These clusters seemed to accord with the concept of group segmentation employed in business marketing [20]. Our work does not, and cannot, ascribe intentionality on the part of the alcohol industry regarding this segmenting process. Nevertheless, the extensive and often subliminal nature of marketing can lead to it becoming a seemingly ordinary and often subconscious aspect of daily life [40], creating an 'intoxigenic' environment [41,42] where social, physical and regulatory influences shape youth drinking [41,42]. Marketers reinforce

aspects of the surrounding social ecology, by encouraging a link between alcohol and aspects of culture, identity and personal reward [43]. The drinks industry also works to develop an ongoing and multi-factorial relationship with consumers rather than aiming for a straightforward transaction [44]. Our work suggests that this relationship may begin earlier than previously assumed, being well under way in some young people by mid-adolescence.

Because our participants were below the age that alcohol can legally be bought in the United Kingdom (18 years), the articulate way in which views on alcohol use were expressed and rationalized was not entirely expected. Alcohol use was related to aspects of self-image, economic drivers, desired consequences and the social context surrounding drinking. Although we did not set out to verify or measure the frequency or extent of drinking, the development of specific routines to help ensure safety suggested that alcohol use may have been a relatively regular aspect of at least some of the participants' lives. Some issues overlapped between groups (e.g. use of alcohol to serve a specific purpose or function), albeit with differing degrees of opinion strength and sometimes

views worked in opposing directions (e.g. price sensitivity). Thus, we need to move away from the assumption that young people are a homogenous group and also that there are simplistic cause-effect relationships between price or advertising exposure and subsequent alcohol consumption [27].

The influence of peers was not a particularly dominant feature in any of the three groups of shared accounts. Peer pressure has been cited as a key influence on young people's drinking behaviour [45], yet many of our participants challenged this notion. Some participants in this study clearly rejected the concept of external influence by others, some drew on peers (and family members) as convenient sources of alcohol and some emphasized the social context of drinking together with friends rather than seeing them as a source of pressure. This accords well with recent work, which highlights complexities around the role of peers in adolescent drinking practices, i.e. that young people may choose friends because they provide the environment and opportunity to develop in ways that seem attractive, rather than groups applying pressure to conform [46], and work recommending a focus on the dynamics of social networks and friendship groups in health behaviours [47].

### Strengths and limitations

Although Q methodology has been used to study the attitudes of US college students towards advertising [48] and in child/adolescent health research [49,50], it has been little used to explore perceptions of alcohol consumption except as a secondary focus in work exploring other behaviour such as smoking [51]. To our knowledge, this is the first Q-study which examines the influence of industry-driven alcohol marketing on young people's drinking practices. Q methodology enabled the identification of groups of shared opinions about marketing as well as divergences about the extent to which promotional activity was recognized *per se* or regarded as influential in different groups of young people drawn from the same overall population. It also identified overlaps and similarities in viewpoints (i.e. the choice of products to serve a particular function).

Six participants did not fit easily into any of the three groups outlined in this study, and were described as null loaders. Thus, around a quarter of accounts could not be grouped in any meaningful way by the statistical approach used in by-person factor analysis. The existence of standalone accounts may suggest the potential for even greater heterogeneity in response to alcohol marketing or maverick points of view which are not necessarily shared by other young people. In addition, a parsimonious approach to identifying an overall factor solution which aids a clear narrative may oversimplify a much

more complex situation [52]. Our three-factor solution accounted for just 29% of the overall variance in the data. Nevertheless, four- and five-factor solutions did not add significantly to the explained variance, nor did they represent firm, shared accounts which were consistent with the accounts of factor loaders.

All participants in this study were current drinkers, as we wished to understand the influence of marketing on drinking behaviour rather than the decision to drink or not in the first place. Moreover, achieving ethical approval to discuss alcohol with 'under-age' drinkers without parental permission required assurance that we would not introduce this topic to uninitiated drinkers which could be construed as encouragement, or at least normalization, of a proscribed behaviour. Nevertheless, the absence of views from individuals who were not currently drinking alcohol is a limitation of this study. The inclusion of non-drinking young people in future work could help to explain why some individuals seem to be much less influenced by marketing when media exposure clearly influences other peers [23].

It is possible that some young people may have offered socially desirable responses in the Q-sort, disclosing accounts that they believed would 'impress' the researcher or which they felt the researcher was expecting to hear. This is a particular concern, as one group of opinion suggested a sense of 'sophistication' in the context of alcohol use. This issue was considered closely during earlier qualitative interview work, where in-depth transcripts enabled us to look for signs of hubris or exaggerated claims about drinking [53]. We are not able to discount this possibility either in the Q-sort or in *post-hoc* interviews. Nevertheless, we feel the potential for socially desirable accounts may have been constrained by the structure of Q methodology, which gave participants a pre-defined set of statements (derived from earlier interviews) and focused discussion on reasons underlying the placement of items in the Q-sort. Thus, the sense of sophistication in factor one is not articulated in factor two (where accessibility and price seemed to drive behaviour) or in factor three (where having fun while remaining safe seemed key).

### Implications for future research, policy and practice

The viewpoints identified in this study were not predictors of drinking behaviour and no inferences should be drawn beyond our sample [54]. Our work has generated hypotheses about often overlooked influences that may shape young people's drinking. Future research could help to verify these clusters and explore these potential influences in a wider population of young people by using the findings from this study to inform a Q-based survey [55].

The data in this study suggest that simple health education to counter the influence of alcohol marketing on

young people may not achieve a substantial impact. Only a relatively small number of programmes have reported positive outcomes in this area [56]. By this stage of adolescence, alcohol marketing may have already fulfilled its goals (product recognition, brand loyalty and positive outcome expectancy), helping to normalize alcohol use through abundant media exposure including new media (such as social networking sites) and use of the entire marketing mix to create appealing products that young people inevitably encounter. This points to the need for earlier and more targeted intervention to help reduce the risks of early drinking. One approach might be to 'turn the table' on business, and develop social marketing approaches which recognize the heterogeneity apparent in young people and develop input tailored to different groups [57]. However, a recent systematic review found just six trials in this field, and reported inconclusive findings [58]. Clearly, there is a need for more work in this area. Furthermore, recent NICE guidance on alcohol prevention reported the need for practitioner-level interventions to be supported by policy-level interventions to tackle the structural drivers of alcohol consumption—price, availability and wider marketing. Our finding that these activities may influence young people by mid-adolescence suggests that implementation of NICE guidance is clearly a priority.

#### Declaration of interests

None.

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### Supporting information

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**Table S1** Statements and factor scores.