

# Determinants and patterns of soft drink consumption in young adults: a qualitative analysis

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## Abstract

*Objective:* To explore knowledge, attitudes and behaviours regarding caloric soft drinks in a group of young adults attending university and to identify opportunities for a health promotion intervention aimed at reducing consumption.

*Design:* In-depth, semi-structured focus groups segmented by gender.

*Setting:* Sydney, Australia.

*Subjects:* Undergraduate University of Sydney students aged 18–30 years ( $n$  35).

*Results:* Social and environmental cues, intrinsic qualities of beverages and personal health beliefs were identified as important influences on consumption. Social cues included settings in which alcohol is usually consumed, socialising with friends, and family influences. Environmental cues included purchasing of fast foods, and ready availability, preferential pricing and promotion of caloric beverages. Reinforcing intrinsic qualities of caloric soft drinks included taste, sugar and caffeine content, and their association with treats and rewards. Major gender differences as well as variations in individual readiness for behaviour change were observed. Raising awareness of the sugar content of various beverages and the potential health impacts associated with their consumption was considered important.

*Conclusions:* The findings provide new insights with important implications for policy and practice, and suggest that there is considerable scope for promoting awareness in this group. Carefully designed social marketing campaigns highlighting the health issues and addressing social and environmental cues relating to caloric soft drink consumption are required. There is a need for gender-differentiated intervention programmes which are both informational and appealing to young adults. Further research is warranted, particularly to investigate beverage consumption relating to fast-food meal deals and young adults' consumption patterns in more depth.

**Keywords**  
Soft drinks  
Young adults  
Qualitative research

Australia has one of the highest rates of overweight and obesity in the world. All age groups in the Australian population gain weight as they age in the current obesogenic environment; however, younger generations are gaining weight more quickly than previous generations<sup>(1)</sup>. While there are a number of factors influencing weight gain, the WHO has recognised the specific contribution of a subset of factors, including soft drinks, as being independently associated with increased risk of obesity<sup>(2)</sup>. Consumption of soft drinks is associated with increased total energy intake, weight gain<sup>(3)</sup> and an overall less healthy diet<sup>(4)</sup>.

Beverages are significant contributors to dietary sugar and energy intakes in Australia<sup>(5,6)</sup>. A recent analysis of national sales data supplied by the Australian Beverage Council reported that total sales of water-based, non-alcoholic

beverages (caloric and low-calorie) have been steadily increasing since 1997<sup>(7)</sup>. While low-calorie carbonated soft drinks have been important drivers of this growth since 2002, sugar-sweetened sports drinks and energy drinks have also been major growth areas and are particularly popular among young Australian males<sup>(7)</sup>. Sales of sugar-sweetened iced teas and flavoured waters have also been rising<sup>(7)</sup>. Limited recent data are available on the sale or consumption of fruit-based juices and drinks in Australia; however, these beverages are high in free sugars<sup>†</sup> and have the potential to contribute significantly to individual energy intakes.

<sup>†</sup> The joint WHO/FAO expert consultation on Diet, Nutrition and the Prevention of Chronic Diseases defined 'free sugars' as all mono-saccharides and disaccharides added to foods and beverages, as well as sugars naturally present in honey, syrups and fruit juices.

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The most recent Australian National Nutrition Survey (1995) indicated that young adults (19–24 years) are the nation's highest consumers of caloric soft drinks (including flavoured mineral waters and electrolyte drinks), with a mean weekly intake equivalent to 2.3 litres<sup>(6)</sup>. This survey indicated that 58% of males and 36% of females aged 19–24 years had consumed caloric soft drinks in the previous 24h<sup>(6)</sup>. More recent commercial sales data indicate that 71% of 18–24-year-old Australians consumed sugar-sweetened soft drinks in 2006<sup>(7)</sup>.

While it is apparent that young Australian adults are heavy consumers of caloric beverages and are an important target population group for public health programmes aimed at addressing energy imbalance, there has been little research conducted on this behaviour in this age group.

A number of studies have investigated soft drink consumption in adolescents and have identified, with relative consistency, a mix of individual and environmental influences associated with soft drink consumption in this younger age group. These include gender, taste preferences, attitude, subjective norm, availability and accessibility, peer intake, parenting practices and style, and parental modelling<sup>(8–11)</sup>. These findings should be considered with care in relation to young adults as the environmental factors influencing beverage consumption in adolescence are likely to differ somewhat from those affecting 18–30-year-olds. As such, young adulthood is a life stage commonly considered to encompass a period of increasing self-reliance and autonomy, with many young people moving out of their childhood home during this time and acquiring independent agency for food and beverage purchasing. In addition, evidence for the tracking of sugar-sweetened soft drink intake from adolescence into adulthood is limited and inconclusive<sup>(12,13)</sup>.

There is a clear gap in the evidence base relating to patterns and determinants of beverage consumption among young adults. Hence, the purpose of the present study was to explore knowledge, attitudes and behaviours regarding caloric, non-alcoholic beverages, and to investigate potential approaches to addressing their consumption, within a specific subpopulation of this age group. The term 'caloric soft drinks' was used in the study to refer to all caloric non-alcoholic beverages, including carbonated soft drinks, cordials, energy drinks, sports drinks, milk-based drinks, specialty teas and coffees, fruit-based drinks and 100% fruit juice. The term excludes plain milk and, unless explicitly stated in the text, non-caloric ('diet') soft drinks and alcohol-containing beverages.

## Methods

As little information is available about young adults' knowledge, attitudes and behaviours relating to caloric soft drinks, a qualitative approach was selected as the

most appropriate research method. It was considered that a group setting with peers as fellow participants would reassure students and facilitate open discussion. Therefore semi-structured focus groups were selected in preference to individual interviews. It was also considered that the group interactions and discussion generated using this data collection method would provide valuable information that could not otherwise have been gathered from individual interviews<sup>(14)</sup>. The focus groups were segmented by gender in order to facilitate open discussions and capture differences between male and female participants' responses.

## Sample

The higher education setting was identified as a cost-effective and representative location for recruiting young adults. The majority of Australians who start a course of study at a higher education institution are aged between 15 and 34 years, and in 2007 more than 800 000 young adults were enrolled in a course of study leading to a degree or diploma qualification<sup>(15)</sup>.

University of Sydney students were selected as the specific target group because they represented a concentrated pool of young adults with a diverse demographic profile, which was highly accessible to the study team. All undergraduate students aged 18–30 years enrolled part-time or full-time at the University of Sydney were eligible to participate.

Recruitment was conducted on campus via fliers and verbal notices given in lectures and tutorials. Interested students were asked to register with the study team by phone or email.

## Data collection

All focus groups were conducted on campus. Each focus group lasted 45–60 min and was attended by two members of the study team: a facilitator and an observer. The facilitator guided the focus group discussions using a series of pre-determined broad topics with accompanying prompts in order to allow for open discussion within each group, while ensuring all key research questions were answered. The key topics covered in each focus group were: (i) beverage consumption patterns; (ii) beverage knowledge, awareness and attitudes; (iii) scope for change; and (iv) self-efficacy, barriers and facilitators of change.

All participants received written information explaining the study and signed individual consent forms. Ethics approval for the focus groups was granted by the Human Research Ethics Committee of the University of Sydney.

## Analysis

The focus groups were audio recorded (with permission) and transcribed verbatim. In addition, detailed notes were taken by the observer. Following transcript verification by the lead facilitator, overarching themes spanning the groups were identified independently by two researchers.

These major themes were confirmed and refined in a panel discussion involving the larger research team, and were subsequently used to code and analyse the data in full. Male and female focus group transcripts were coded separately in order to preserve any possible gender differences.

## Results

Eight focus groups were conducted between August and September 2007 with a total sample of thirty-five participants (twelve males, twenty-three females). Each group comprised two to eight participants. Scheduling of focus groups around the participants' class timetables proved challenging; therefore, in order to optimise participation, all planned focus groups were held provided that a minimum of two participants were available. Of the thirty-five participants who initially expressed interest in participating in the study, all attended a focus group. While there were relatively small numbers in some groups, the moderator did not find that the information gathered from the smaller discussions was compromised. Focus groups were scheduled until the project team determined that data saturation had been reached<sup>(14)</sup>. The sample was sufficient to meet our purpose and guide potential approaches and health promotion messages.

## Themes

The focus group discussions provided insight into the cues for, and patterns of, beverage consumption among this subpopulation of young adults, as well as participants' knowledge and attitudes relating to beverages and health. Major themes which arose consistently across the focus group discussions were: (i) social cues for the consumption of beverages; (ii) environmental settings; (iii) intrinsic qualities of beverages; (iv) health-related beliefs; and (v) scope for change. The key findings identified within each of these themes are discussed in the following text. Considerable gender differences were identified within several themes, and these are discussed where applicable.

### *Social cues for consumption*

It appears that the settings and contexts in which young adults socialise, such as at restaurants, bars, movie theatres and shopping centres, act as strong social 'triggers' for the purchase and consumption of caloric soft drinks. In particular, it appears that within social settings in which alcohol is usually consumed, such as at bars and parties, young adults are consuming large volumes of caloric soft drinks. As such, participants described how they frequently consume caloric carbonated soft drinks, energy drinks and fruit-based drinks as mixers with alcoholic beverages. A number of participants also spoke about consuming carbonated soft drinks, both caloric and diet, in these situations as a means of keeping up the

appearance of drinking alcohol. In these situations, water was considered either a socially unacceptable alternative or less appealing than soft drinks.

Yeah, 'cause, I don't know, you feel a little bit less left out if you're [not] drinking [alcohol]. I don't know, if you're drinking something fun as a treat, rather than just water ... then people can think, if they want to, that there's something extra in the drink, it's not just water.

(Female)

Even in situations where alcohol is not usually consumed, such as at the movies and at cafes, the consumption of caloric soft drinks was seen as an important part of socialising with friends.

You can sit in a café near a Boost [juice] shop at work, and it's like it's an accessory.

(Female)

Family influence and household rules during childhood were also perceived to have a strong ongoing association with attitudes and behaviours relating to beverages, particularly the consumption of carbonated soft drinks and water in the home and at meal times.

I think the reason I don't drink [soft drinks] is I was brought up that way. Like I look at my brothers and they wouldn't really drink much soft drink except, like I say, when they go out. Occasionally they'd have it at home, but mum would rarely buy it.

(Female)

When I was in high school my mum cut down all the soft drinks that she'd buy, so if there wasn't anything in the house, you know, you'd drink something else like water. That was then and it's still kind of continued on.

(Female)

### *Environmental cues*

Overall, caloric soft drink consumption appears to be regarded as a norm among this group and is heavily influenced by the ready availability, advertising and promotion of these drinks in the settings frequented by young adults. As such, the availability of caloric soft drinks at home, in the workplace and in the social settings in which young people frequent was perceived by participants to be a significant cue for their consumption.

But it's like everything around us in society, it's like promoting this sugary drink thing.

(Male)

Further, exposure to environments in which caloric soft drinks are heavily marketed and preferentially priced appears to have a powerful influence on consumption. Male participants in particular appear to be strongly influenced by heavy marketing of carbonated soft drinks,

while females appear to be influenced more strongly by the promotion of 'healthier options', such as fruit juice. Most notably, consumption of caloric carbonated soft drinks appears to be closely linked to purchasing fast-food and take-away meals, among both male and female participants.

[Coke], if you're having it with something, like if you're having it with say Macca's [McDonalds], like it just goes hand in hand.

(Female)

The relative price of bottled water at these and other retail outlets was discussed by a number of participants, who indicated that they did not perceive water to be good 'value for money'.

I reckon if we buy water [it] is expensive, like it's more expensive than petrol! ... I don't think it's worth it.

(Male)

Interestingly, while exam time was perceived as a trigger for the consumption of caloric soft drinks, particularly caffeinated energy drinks, among some participants, this was not uniformly the case. Similarly, the season or weather was not perceived as influencing consumption by most participants.

#### *Intrinsic qualities of beverages*

Intrinsic qualities of various beverages, including taste, energy and caffeine content, were identified as important and reinforcing influences on consumption in this group. A number of participants described consuming soft drinks as a treat or to reward themselves. This was most commonly discussed among female participants.

It is interesting to note that carbonated soft drink, and more specifically 'Coke', was overwhelmingly the most frequently discussed beverage throughout all of the focus groups and appeared to be perceived by participants as synonymous with the term 'soft drink'.

I don't know, a big part of the culture I guess.... I mean every time you go out you just say Coke.

(Male)

Coke seems like a comfort food for me.

(Male)

#### *Health-related beliefs*

Participants generally indicated that they were aware of many of the potential health consequences of high consumption of caloric drinks, and health-related beliefs appear to have some influence on this group's beverage choices to varying degrees. Major gender differences were observed within this theme, with female participants generally appearing to be more 'health-conscious' than males in relation to beverages. As such, females frequently indicated that they think about the amount of

sugar in their diet and that they perceive fruit juices to be a healthier option than other caloric drinks.

We always kind of need something flavoured to wash things down, so juice I consider to be the more healthy option out of all the other drinks that are in the fridges in the canteen and stuff.

(Female)

The majority of male participants, on the other hand, indicated that they rarely give much thought to the sugar or energy content of beverages; or indicated that they did not perceive negative health outcomes to be personally relevant to them. In addition, a number of male participants indicated that they perceive sports drinks to be primarily a source of 'energy' and a performance aid during or after exercise.

After you've been drinking [alcohol] or after exercise, sports drinks are needed to replace the electrolytes.

(Male)

These observed gender differences were not unanimous, however, with a number of female participants indicating that either they or their female friends do not think about the sugar content of beverages, or have the perception that calories from beverages do not contribute to energy intake.

Yeah, when I do [drink] I don't really think about it, that's the truth ... 'cause when I do I'm sort of making a conscious decision to just enjoy the taste and not think about it.

(Female)

A lot of my friends and girlfriends have the rationale that if it's a liquid it doesn't really count, so the calories don't count.

(Female)

When discussing links between beverages and health, participants associated high levels of caloric soft drink consumption with weight gain, insulin resistance, diabetes, tooth decay, stomach ulcers and hyperactivity. Diabetes was the health outcome most frequently cited by participants, and in most cases this was due to the participant or a family member having personal experience with the condition. A surprising number of participants reported having concerns relating to artificially sweetened drinks and health risks. Participants themselves suggested that awareness of the sugar content and potential health impacts associated with consumption of the various categories of caloric soft drinks needed to be raised among their peers.

#### *Scope for change*

While many participants indicated that thinking about their health and knowing that caloric soft drinks were linked to negative health outcomes may motivate them to reduce their intake, others felt that the delayed health

consequences associated with sugar intake and the 'infallibility of youth' reduced the motivation to reduce their consumption.

We don't care about our health as much ... yet ... maybe when we reach 30 we might start caring more.

(Male)

Social situations and gender expectations were identified as the major factors restricting participant's ability to reduce their intake.

I think the more you go out socially with your friends, then the greater possibility for you to drink.

(Male)

Well my guy friends basically live on Coke or whatever. They're getting quite big.... It's a bit gay to drink diet drinks.... It's not socially acceptable to buy a bottle of water.... There's a stigma.

(Female)

However, many participants felt that they could reduce their intake of caloric soft drinks if they wanted to, and a number indicated that they had already elected to replace caloric carbonated soft drinks with low-calorie varieties or fruit juices in their diet. In addition, the focus groups themselves appeared to have acted as a prompt for some participants to consider their consumption patterns by the end of the discussions. Reasons given for attempting or intending to reduce caloric soft drink intake included a desire to improve general health, to maintain a healthy weight, and concerns relating to artificial ingredients and perceived cancer risk.

#### *Water as an alternative*

While the majority of participants reported regularly consuming water, there appeared to be wide variations in the volumes consumed as well as significant gender differences. In particular, males appear less likely than females to carry water with them throughout the day, which is likely to be a potential barrier to increasing consumption.

Many participants, both male and female, indicated that they would not consider substituting plain water for caloric soft drinks in all situations. As already noted, the relative price point of bottled water compared with caloric soft drinks was a major topic of discussion. Replacing carbonated soft drinks with water when making purchases at fast-food outlets was perceived as being more difficult, not an available option, or not as good value as soft drink.

## **Discussion**

The focus group discussions provided rich information on participants' knowledge, attitudes and patterns of consumption relating to beverages. The findings from the

present exploratory study are particularly valuable in light of the lack of information in the literature specifically regarding young adults. There appear to be powerful social and environmental cues associated with the consumption of caloric soft drinks in this population group, and understanding these factors will be critical in developing effective health promotion strategies aimed at reducing their consumption.

Food and beverages form an important part of the Australian social context, and this is certainly the case for young adults attending university. Importantly, any intervention to address caloric soft drink consumption within this age group would need to be planned and approached with caution, so as not to compromise alcohol moderation messages. With careful coordination and planning, health promotion strategies could be developed that synergistically address both obesity prevention and alcohol harm reduction aims.

The finding that negative health outcomes are not perceived to be personally relevant to many participants, particularly males, is consistent with previous research indicating that most young adults do not perceive themselves as vulnerable to weight gain<sup>(16)</sup>; and the findings on lack of perceived risk are consistent across university students in twenty-two countries<sup>(17)</sup>. Addressing the misperception in this group that liquid calories do not 'count' (i.e. do not contribute to energy intake), and increasing the social acceptability of healthier alternatives, particularly plain water, may have the potential to impact significantly on energy intake. Dispelling apparent misconceptions about the safety of artificial non-caloric sweeteners may be useful as part of a wider awareness-raising campaign.

In addition, there is a need to address the perception among young adults that caloric soft drinks are appropriate as regular treats, rewards or sources of energy and/or caffeine. A health promotion campaign that specifically targets this age group by highlighting the sugar content of various beverages, encourages moderation, and promotes alternative and healthy treats and rewards would be valuable.

The perception held by many participants that soft drinks are priced and promoted preferentially with meal deals at fast-food outlets should also be investigated. If this perception is confirmed, initiatives that manipulate the relative price point of bottled water, and/or make tap water more readily and freely available, would warrant investigation. There is also potential for health promotion and social marketing strategies to encourage consumption of water with meal deals and take-away meals. While environmental concerns around beverage packaging did not arise from the focus group discussions themselves, it is important to note here the need for public health strategies around water consumption to engage more effectively with the current environmental agenda around bottled water consumption<sup>(18)</sup>. Greater discussion in this area is needed.

The finding that family influence and household rules during childhood were perceived to have had an important influence on attitudes and behaviours relating to soft drinks and water in this particular group of young adults is consistent with findings from previous research with adolescents<sup>(10,11)</sup>. This finding suggests that home-based strategies could be important ways to target school-aged children and their families; however, whether any resultant behavioural changes would track into young adulthood is unknown.

Overall, there is a need for health promotion messages which offer clear information on the sugar content and potential health impacts of various beverages, delivered in modes that are acceptable to young people. There appears to be particular scope for social marketing initiatives which are informational, appealing and persuasive, and differentiated for males and females. Social marketing does not necessarily need to use television, and it is likely that other forms of media, including new communication and electronic media, have the potential to reach young adults. The power of peer influences suggests that any social marketing approach should seek to harness informal social networks. In addition, the design of health programmes which engage young adults, and use messages that are positive, of personal relevance, offer immediate reinforcement and have associations with leisure activities and fun, has been previously identified as important<sup>(19,20)</sup>.

While the present study provides new insights into a previously under-researched population group, it has several limitations. First, the sample of University of Sydney students which participated in the focus groups may have differed in a number of ways from other subgroups of young adults, such as those employed in the workforce or studying at technical or other tertiary institutions. As an example, it is plausible that young adults enrolled full-time at university may be more budget-conscious with regard to incidental expenses and place a greater emphasis on 'value for money' than young people employed full-time in the workforce. In addition, it is possible that the consumption of soft drinks by university students may differ from that of young adults with lower educational levels or educational aspirations, as suggested in research with Norwegian adolescents<sup>(11)</sup>; however, this remains unproven for this age group. None the less, young adults enrolled in tertiary education comprise a large proportion of the young Australian population<sup>(15)</sup> and can be reached relatively cost-effectively by specifically targeted health promotion programmes.

Second, it is possible that the recruitment of volunteers for the study may have introduced self-selection bias, despite efforts to attract a wide mix of students with recruitment promotions through different courses, locations and times. As such, the study may have attracted particularly nutrition- or health-conscious participants; a well-known problem in studies in which participation is voluntary<sup>(12)</sup> and an unavoidable corollary of the ethics

requirements associated with a targeted study that necessitated the topic of discussion to be disclosed for the informed consent procedure.

A third limitation was the relative under-representation of males in the sample. While this may mean that the views of males are under-represented in the current report, it should be noted that there was a high degree of consistency in themes and responses across groups and the researchers were satisfied that they had achieved data saturation. Research to investigate gender differences relating to beverage consumption in this age group in more depth is warranted.

Finally, the focus groups provided a rich account of patterns of caloric soft drink consumption; however, the data do not provide precise indications of consumption levels and beverage types. A quantitative evaluation of young adults' beverage consumption patterns would be important to give more precise information on issues identified in the present study, and is currently in progress.

## Conclusion

The focus groups provided a rich context in which to explore and gain insight into young adults' attitudes, perceptions and behaviours relating to beverages. Social and environmental cues, intrinsic qualities of drinks and personal health beliefs were identified as the major themes influencing beverage consumption patterns. The study investigated a previously under-researched population group and the findings have a number of implications for research and practice. In particular, social marketing techniques addressing the social and environmental cues relating to caloric soft drink consumption, and an awareness-raising campaign to highlight health issues relating to caloric soft drinks, will be useful. Caution will be required when targeting settings in which alcohol is usually consumed; however, with careful consideration there is the potential for common messages to be developed that address both alcohol and soft drink harm reduction aims. Further research to investigate soft drink consumption relating to fast-food meal deals, and to explore young adults' beverage consumption patterns in more depth, is particularly warranted.

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