

# BMJ Open Investigation of alcohol-related social norms among youth aged 14–17 years in Perth, Western Australia: protocol for a respondent-driven sampling study

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## ABSTRACT

**Introduction:** Alcohol use among young people is a major public health concern in Australia and internationally. Research elucidating social norms influencing alcohol use supports the desire to conform to peers. However, there is a lack of evidence on how social norms are transmitted from the community to young people and between family members and peers, as previous studies are limited to mainly school and university environments. This article describes the proposed process to investigate common alcohol-related norms held by 14-year-olds to 17-year-olds in Perth, Western Australia, and to clarify the process and pathways through which proalcohol norms are transmitted to adolescents.

**Methods and analysis:** This cross-sectional quantitative study will use respondent-driven sampling (RDS) to recruit a sample of 672 adolescents from sporting groups, youth programmes and the community in Perth. Data will be collected with a previously developed and validated multidimensional online survey instrument. A variety of strategies will be explored to aid participation including face-to-face recruitment and survey administration, web-based RDS and a ‘mature minor’ consent assessment protocol. Data analysis will include descriptive statistics of demographic characteristics, as well as social network and dyadic analyses, to explore the connections between shared understanding of norms and behaviours among individuals and how these translate into reported practices.

**Ethics and dissemination:** This research is expected to extend our understanding of normative development pathways to inform future interventions, and will be widely disseminated through conference presentations, peer-reviewed papers, media channels and community seminars. A study reference group of key health industry stakeholders will be established to encourage integration of study findings into policy and practice, and results will guide the development of community interventions. The Curtin University Human Research Ethics Committee has granted approval for this research.

## ARTICLE SUMMARY

### Strengths and limitations of this study

- Respondent-driven sampling enables examination of the influence of social connections on drinking behaviour at a group level.
- Methodology allows randomisation during sampling, resulting in a representative sample of populations through contacts between individuals, and the potential to access hard-to-recruit groups.
- Inherent challenges in the recruitment of adolescents and logistics of continuation of the referral chain to the desired number of recruitment waves.

## INTRODUCTION

Alcohol consumption among young people and adults in Australia<sup>1–2</sup> and other countries<sup>3–4</sup> is a leading cause of morbidity and mortality. While many people consume alcohol at low-risk levels, short-term occasional consumption of alcohol at harmful levels is common in the Australian and other cultures, especially for young people.<sup>2–5</sup> The rate of drinking at harmful levels by young Australians has doubled over the last two decades, with evidence that social expectations and associations may influence risky drinking.<sup>6–9</sup> This group currently experiences the highest occurrence of negative impacts from harmful drinking including road trauma, violence, sexual coercion, falls, drowning and suicide.<sup>10–11</sup> Comparable data have been published on young people’s drinking behaviour in Europe and the USA.<sup>3–4</sup>

Drinking culture is influenced by a complex range of social influences including norms, habits, customs and images.<sup>2–5</sup> Alcohol plays a central role on many social occasions, particularly celebrations symbolising for some a ‘rite of passage’.<sup>12</sup> As such, there are considerable challenges when attempting to clarify the relative influence of these determinants on adolescent drinking behaviours. A large body of research highlights the role of peers in

shaping the normative beliefs and behaviours associated with drinking.<sup>7,9,13</sup> A social norm is an expectation about acceptable behaviour that is shared by a group of people.<sup>14</sup> Research investigating alcohol-related norms and interventions using a social norms approach has been school-based, college-based or university-based and typically has only addressed myths associated with descriptive (perceived alcohol consumption prevalence) and injunctive norms (perceived approval),<sup>15–19</sup> leaving gaps in the understanding of how social norms are transmitted from the community to individuals and between friends. Further limitations of the literature reviewed<sup>7,15–29</sup> include a lack of understanding of when these norms first manifest in the beliefs and attitudes of individuals, the social contexts or networks which contribute most significantly, and the potential for some networks to be protective against risky alcohol use. In addition, the processes by which youth act on contradictory norms perceived in their environment and the social consequences of non-compliance remain to be understood. Finally, it is not clear how youth with different patterns of attachment to significant referents perceive alcohol-related norms, how connectedness to different elements of a young person's community affects behavioural norms, and how norms transpire within and across different social groups. This study of youth alcohol social norms in Australia will use respondent-driven sampling (RDS) as this methodology allows us to examine the interconnections and interactions between individuals and their social networks.<sup>30,31</sup> The study's four key hypotheses are

1. Risky drinking behaviours of individual adolescents are influenced by the behaviours, attitudes and norms of parents, peers and significant others with whom they interact; thus, the nature of connections and type of interactions between individuals will have an effect on the overall levels of risky drinking behaviours.
2. Individuals will perceive that the drinking attitudes and behaviour of their peers were closely related to their own drinking attitudes and behaviour. Thus, those who are identified as having high levels of alcohol consumption will report higher levels of alcohol consumption among their peers compared to individuals who report low levels of alcohol consumption.
3. Adolescents with lower degrees of attachment to community will report conflicting injunctive norms (those of the reference group compared to the generalised population) and higher levels of alcohol use.
4. Adolescents with strong associations to others who are drinking at risky levels will report conflicting injunctive norms (those of the reference group compared to the generalised population).

## METHODS AND ANALYSIS

### Study objectives

The objectives of this research are to (1) identify common alcohol-related norms held by adolescents aged 14–17 years; (2) test hypotheses 1–4; (3) clarify the

process and pathways through which proalcohol norms are transmitted to adolescents aged 14–17 years; (4) identify the influence of exposure to environmental factors (eg, proalcohol messages in the media) on adolescent norm development and (5) describe the characteristics of social networks that contribute to the transmission of alcohol norms.

### Conceptual framework

The international literature highlights the central role of social processes in alcohol consumption practices.<sup>9,32–35</sup> To address the limitations of the research literature as identified previously, a more comprehensive view of the adolescent social context is required which encompasses a range of reciprocal influences between an individual and their environment on subsequent behaviour. Understanding of the development of drinking behaviours and identification of potential for behavioural change is facilitated by a consideration of social theories. Social Cognitive Theory<sup>36</sup> guided the design of a data collection instrument developed and validated for this study (discussed elsewhere<sup>37</sup>). It will guide the RDS study by providing an underpinning conceptual framework, generating the research hypotheses and identifying the social cognitive interactive elements to be examined.

### Methodology

Using an instrument developed by the research team,<sup>37</sup> this study will examine the social interaction on drinking behaviour at the group level, taking into account the influence of varying social connections and associated norms and sanctions. This study will utilise RDS, a peer referral method, to recruit a cross-sectional cohort of adolescents. In RDS, recruitment is initiated with a small number of primary participants ('seeds') while continued recruitment relies on a coupon referral system, whereby each participant refers a limited number of members of their social networks to the study, creating 'referral chains' or 'waves'.<sup>31</sup> These 'waves' allow an analysis of the characteristics of connections between participants and how they influence the formation of knowledge, beliefs, attitudes and behaviours.<sup>30,31,38</sup> The initial sampling frame is often constructed by identifying existing community groups or organisations which have access to the target populations and selecting the primary participants in a non-random manner.<sup>31,39</sup> The strengths of RDS include the ability to capture representative samples of populations through contacts between individuals, including the potential to access hard-to-access/recruit groups.<sup>40</sup> A mathematical model is used to compensate for non-random recruitment, to assist in eliminating bias that purposeful selection of seeds could introduce.<sup>38,41</sup> RDS allows sampling randomisation, validity and reliability of results,<sup>40</sup> and compared to other recruitment methods, better performance when the activity being studied can be associated with stigma.<sup>38</sup> This methodology has been

increasingly and successfully used to investigate young people's risk-taking behaviour including sexual behaviour,<sup>42</sup> drug use,<sup>43</sup> driving behaviour<sup>44</sup> and exploitation<sup>45</sup> in a number of countries<sup>40 42 43 46</sup> and settings.<sup>44–46</sup> Limitations of RDS include the potentially high rate of data collection requiring substantial resources in terms of costs and personnel as well as difficulty in engaging young people in the research.<sup>47</sup>

### Research setting

The research will be within the Perth metropolitan region, Western Australia. The study area accounts for approximately 78% of the Western Australian population and 11% of Australia's overall population.<sup>48</sup> We will recruit participants in the general community (eg, public locations, shopping centres, skate parks, sports/leisure centres, public events) and through local community-based youth programmes and sports clubs. The selection of out-of-school settings for this study creates an opportunity to capture data in a range of locations with the potential for greater diversity of referrals and allowing access points to young people clustering in their friendship groups beyond school. In addition, there are conflicting results published on the nature of connection to sports groups in terms of their protective or risk-enhancing potential.<sup>49–51</sup> Recruiting participants from these sites will allow further clarification of the role of community youth sports clubs and programmes in promoting or preventing involvement in risky drinking.

### Research team

A reference group convened for this project will consist of researchers and key health industry stakeholders, the latter representing alcohol-related and youth-related governmental and non-governmental services, including senior officials from the health, education and police departments as well as the sports federation. Group members will provide expertise in the form of research direction, ensuring rigour, management of ethical considerations and assistance in identifying sources of potential seeds and the dissemination of results. At the conclusion of the study, the reference group will be instrumental in integrating the study findings into policy, practice and education. Final year undergraduate and graduate students with public health-related degrees who will receive training as data collection officers will recruit the participants and administer the survey.

### Sample selection

Those eligible to participate in this study are adolescents aged between 14 and 17 years, who reside in Perth, Western Australia, are in possession of a valid referral coupon, have not previously participated in the study, and are able to provide informed consent to participate as determined by an assessment of the maturity screening protocol further described in the Recruitment section.

### Sample size

Previous data indicate that the minimum prevalence of underage drinking at risky levels is approximately 30%.<sup>52</sup> Participant recruitment will continue until at least 672 participants are recruited from the target group. This sample size will allow for 95% CI in estimating the prevalence of risky drinking, with an accuracy of  $\pm 5\%$  and a recommended design effect of two.<sup>53 54</sup> Beginning with 32 seeds, if each study participant successfully recruits on average two respondents, the desired sample size of 672 will be reached in about five consecutive waves, which is expected to be achieved within 12 months.<sup>31</sup>

### Recruitment

*Sample frame.* Evidence from population and household surveys by the Australian Bureau of Statistics will be used to estimate the total population of youth. A review of these data will include age, distribution across different suburbs and participation in sports and out-of-school activities. In addition, a list of existing youth sports groups and community programmes, locations and events where youth can be accessed in the community will be compiled for seed recruitment. Details of each youth programme and sports group, such as a contact person, location, point of access and the number of possible seeds, will be compiled and followed up. Further to this, prioritisation based on potential to provide the required quota of characteristics and number of seeds, while representing a wide spread of sociodemographic and programme types will take place.

*Seed selection and referral recruitment.* Initial recruitment will be through 32 seeds recruited by the study staff. Selected seeds will be well-connected members of a sporting group, youth programme or the community, ensuring their capacity to make initial referrals of their peers to the study as part of their own participation. Seed selection will occur purposively, and interested youth will be recruited as primary participants if they fill a vacant spot in the seed distribution matrix (see [table 1](#)) by meeting the specific gender, age and classification criteria (eg, involvement in a community sports club or a youth programme). Multiple strategies will be used to recruit seeds including presentations at youth programmes and sports clubs to introduce the study and encourage participation; newsletter advertising; word-of-mouth and intercept surveys at shopping centres and local youth-focused community events. A new seed will be engaged to relaunch recruitment when a recruitment chain ceases before the desired five waves are reached.

Each person recruited and enrolled in the study will meet with a staff member at a time and public place convenient to the participant, at which they will complete an online survey on a tablet device. Following survey completion, they will receive three referral coupons with unique identifying numbers to recruit their peers into the study. Referral coupons are an essential part of the study design as each uniquely number-coded coupon

**Table 1** Distribution of initial seed selection

Organisation	Characteristics and number of seeds							
	14 years		15 years		16 years		17 years	
	Male	Female	Male	Female	Male	Female	Male	Female
Sports clubs	1	1	1	1	1	1	1	1
Youth programmes	1	1	1	1	1	1	1	1
Community	2	2	2	2	2	2	2	2

will be the only means to link participants within referral networks. Participants will use the coupons to recruit up to three of their peers, defined as friends or relatives aged 14–17 years and living in the Perth metropolitan area, into the study. Referred participants will then contact the study team and be enrolled if eligible. Distribution of coupons will occur within 2 weeks, with a follow-up contact over the telephone to monitor this process and enquire about reasons for not distributing coupons or coupon refusals.

RDS depends on a referral process; hence, an immediacy of response is desirable for this method to be successful and removing barriers to participation is critical. One major barrier envisioned in this study is the requirement for parental consent for minors. Thus, to ensure wider participation and to achieve a broader and more representative sample, this study has received a waiver for parental consent for ‘mature minors’. In accordance with the National Statement on Ethical Conduct in Human Research guidelines,<sup>55</sup> only adolescents aged 14–17 years who exhibit cognitive maturity and capacity to give informed voluntary consent will be interviewed for this study. Similar techniques of cognitive pretesting have been reported in the health literature.<sup>56–58</sup>

Initial face-to-face survey administration will serve the purpose of trialing the RDS process and resources. Depending on the rate of data collection and feasibility of the mature minor screening assessment, other data collection strategies will also be explored to increase reach and interactions with youth. This may include web-based RDS whereby participants will be able to make referrals online through email, text messaging and their social networking sites (eg, Facebook and Twitter).<sup>47</sup>

According to previous research, incentives are an essential and ethically supportable way of maximising referrals for data collection efficiency.<sup>30</sup> A system of double incentives will be employed: participation reimbursement in the form of a \$15 electronic store gift voucher awarded after completion of the interview, as well as referral incentives of a \$10 electronic store gift voucher awarded to the participant after a referral’s survey completion. The incentives provided are modest and lower than what have been provided in other RDS studies with youth.<sup>30 47</sup>

### Data analysis

Data will be collected for each participant on sociodemographics, drinking behaviours, experience of alcohol-

related harms, drinking intentions and attitudes, alcohol expectancies and access, descriptive and injunctive norms, perceived social sanctions, alcohol promotion through media, social connectedness and group identity. Analyses will explore the connections between individuals, their shared understanding of norms and behaviours, and how these shared understandings are translated into reported practices. Data analysis will include descriptive statistics of demographic characteristics, social network analysis and dyadic analyses. The analyses will be carried out in two directions, the first of which is individual-level indicators of alcohol use. RDS data analysis allows the estimation of population indicators that describe a broader population. Analysis of the social network will access male and female adolescents from the two different age groups (14–15 and 16–17 years) to determine if and when changes in attitudes, beliefs and social norms occur. Second, dyadic analyses will be conducted, whereby each dyad (participant and their referral) will provide information about both adolescents’ perceptions of behavioural norms. The extent of concordance in perceived behavioural norms will be further analysed with respect to the type of dyadic connections. In the case of similar characteristic dyads, for example sporting focused adolescents, we will also measure the relationship between the concordance of behavioural norms and reported alcohol practices beliefs and values. As a measure of diffusion of norms through the referral chains, the agreement in perceived behavioural norms will also be explored according to the degree of distance (direct connection, separated by one, two or more persons between participants within the chain of referral).

### ETHICS AND DISSEMINATION

This research has received approval from the Curtin University Human Research Ethics Committee, including a waiver of the requirement for parental consent by ensuring that only participants who are assessed as ‘mature minors’ will be included in the study (reference HR-25/2012). Core principles of national research ethics<sup>55</sup> have been addressed, whereby the safety, welfare and confidentiality of participants will be ensured. The RDS method employs stringent confidentiality and ethical safeguards, such as no undue influence by researchers, peer initiated recruitment, informed consent, coded identification of participants and modest incentives.<sup>30 31</sup> Confidentiality procedures will include

delinked data collection; direct entry of deidentified data into the computer system; interview locations selected with particular care for participants' privacy and safety; and encrypted data storage on secure computers. Project personnel will be trained by the Research Manager to administer the questionnaire through a standardised protocol that will include participant eligibility, confidentiality, ethical consent, interview administration, referral process, administering incentives and reporting practices. Training will be delivered face-to-face in groups prior to the data collection as well as on an ongoing basis.

Each participant will be informed of the voluntary nature of the study, as well as their right to withdraw at any time and maintenance of anonymity of the data. A letter explaining the nature of the study and the associated ethical considerations and rights will be sent to the recruits' parents through the subject on request. All dealings with participants will be undertaken at an age-appropriate level of communication, ensured through piloting of the questionnaire instrument and training of interviewers. In addition, an adverse response protocol will be developed to manage mental health concerns in the form of distress or anxiety during an interview.

To our knowledge, this will be the first study to investigate the development and transmission of alcohol-related norms among adolescents in the community as opposed to an isolated school or university context. As such, evidence gained clarifying the characteristics of social networks that contribute to alcohol use is expected to facilitate development of effective intervention strategies to reduce risky drinking behaviours among youth in out-of-school settings. Further, it is anticipated that awareness raised and key points of interest revealed through the explorations that this study undertakes will result in continued and enhanced health outcomes for young people.

The dissemination of results will involve several stages and strategies: (1) dissemination of study findings to health professionals, academics, reference group and other stakeholders through local, national and international conference presentations, and peer-reviewed papers; (2) integration of the findings through the reference group and other stakeholders, for example, through agency workshops and community seminars to encourage integration of study findings into policy, practice and education; (3) dissemination of the survey instrument developed as part of this study for use by other researchers and (4) utilisation of the instrument to evaluate community and organisation assessments of youth alcohol norms and to assist with the development of tailored interventions.

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**Competing interests** None.

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**Data sharing statement** No data are available for sharing at this time. Once all data have been collected and the results published, data arising from this study shall be made available for public use by other researchers.

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