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When are they old enough to drink? Outcomes of an Australian social marketing intervention targeting alcohol initiation

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ABSTRACT

Introduction and Aims: This paper reports on the evaluation of an Australian whole-of-community social marketing intervention targeting social norms, which aimed to reduce inflated perceptions of the prevalence of underage drinking and increase the age at which alcohol initiation is considered acceptable.
Design and Methods: A community-wide intervention was delivered in a single community over a period of two years, targeting adolescents, parents and community members. Pre-and post-intervention computer-assisted telephone interview surveys were conducted in the intervention and a matched comparison (control) community. A total of 417 respondents completed both surveys (215 in the intervention community and 202 in the control community.).
Results: The intervention community saw an increase of six months in the average age at which it is perceived to be acceptable for young people to have a sip/taste of alcohol and five months in the average age at which it is perceived to be acceptable to have weak/watered down alcohol. Furthermore, there was a reduction in the perception of the prevalence of alcohol consumption by young people to a level consistent with actual underage drinking rates. In comparison, the control community saw no change in any of these variables.
Discussion and Conclusions: This study provides preliminary evidence that a whole-of-community social marketing intervention can change perceptions of the prevalence, and acceptability, of underage drinking. Given the central role of social norms in decisions regarding alcohol consumption, these changes have the potential to reduce parental supply and thus underage drinking.

Keywords: Alcohol, underage drinking, parental supply, social norms, social marketing.

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Introduction

In Australia, as in other countries, adolescents frequently report receiving alcohol from their parents [1]. This includes allowing children to 'sip' or 'taste' alcohol, providing full serves of alcohol for them to consume at home, and providing alcohol for them to take to parties or other activities [2, 3]. Parental provision of alcohol to teenagers appears to be high in Australia compared to other countries. For example 38% of 12-17-year-old recent drinkers in Australia reported getting their last drink from a parent [2], compared to 11% of 12-17-year-old recent drinkers in the US [4].

There is an increasing body of evidence that parents' decisions to supply are influenced by social norms [3]; particularly that parents, like adolescents, overestimate the prevalence and social acceptability of youth drinking and parental supply [5]. Further, there is a commonly-held belief that supervised alcohol consumption is an effective harm-minimisation strategy [6-9]. Consistent with this, studies in Australia [10], New Zealand [11] and the UK [12] have found that the age at which it is perceived acceptable for children to have a full drink of alcohol is around 17 years – a year earlier than the legal purchase age (but often perceived to be a legal drinking age) of 18 – and a weak or watered down drink one to two years earlier than this. Strategies to correct misperceptions of social norms have been effective in reducing alcohol consumption among young drinkers [13], and it is possible that similar strategies could be effective in reducing parents' intentions to supply.

However, research findings in relation to the effects of supervised initiation are inconsistent; some studies have found providing alcohol to children in the home under parental supervision appears to serve a protective effect against future consumption and, in particular, heavy episodic drinking [4, 14], while others have found early initiation (including with parental consent and/or oversight) is associated with increased adolescent drinking [15, 16]. Studies in Sweden [17], Australia [18, 19] and the US [19] have shown no evidence that parental supply leads to more 'responsible' drinking patterns

There is increasing evidence of contextual or situational differences that contribute to these apparently contradictory findings. For example, a cross-sectional telephone survey of 6245 US adolescents found adolescents who were with their parents last time they drank alcohol reported less frequent and more moderate drinking, whereas those whose parents or friends' parents had provided them with alcohol at a party reported more frequent and more hazardous drinking [20]. An Australian survey of 530 secondary students found those who were provided alcohol by their parents for consumption without (their own) parental supervision were more likely to be risky drinkers [7].

While the debate is likely to continue – and there are clearly nuances related to factors such as the situation of consumption and the nature of the parent-child relationship – there is sufficient evidence that alcohol consumption among children and adolescents is harmful [21, 22] and that early drinking initiation is associated with future alcohol-related problems [23]. This is reflected in both medical guidelines and legal constraints around the consumption and supply of alcohol.

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In Australia, the national health guidelines recommend that abstinence is the safest option for those aged 15-17 years, and the initiation of alcohol consumption should be delayed for as long as possible [24]. However, it appears many Australian adults are unaware of or unconvinced by, the recommendation to delay alcohol initiation [5, 7, 11]. It is also illegal in five of the eight jurisdictions to provide alcohol to a minor without their parent's consent [25] but data shows that the majority of those young people who do not obtain their alcohol from a parent do so from a known adult [2].

Interventions to address underage alcohol consumption

The traditional approaches to delaying or reducing alcohol consumption among adolescents have been school-based education and fear-based media campaigns. Evidence reviews of the effectiveness of alcohol harm reduction interventions consistently conclude that school-based education does not reduce drinking levels or drinking-related harms [26, 27] and 'public education campaigns' are ineffective [28]. Increasingly, however, the potential of community-based interventions have been documented (e.g. [29], with a recent Dutch example succeeding in reducing the prevalence of underage drinking in both the short term (one year) and longer term (five year) compared with a control community [30].

In recognition of the important role of parents in discouraging (or facilitating) alcohol consumption, several recent interventions have included components targeting both teenagers and their parents, individually and concurrently. For example, a study in the Netherlands found that an intervention targeting parents (encouraging parental rule-setting concerning their children's alcohol consumption) and students (lessons based on the Theory of Planned Behaviour and Social Cognitive Theory, aimed at increasing self-control and healthy attitudes toward alcohol) resulted in statistically significant and sustained reductions in drinking [31, 32]. Similarly, an intervention targeting African American adolescents and their parents showed sustained changes in alcohol consumption [33]. Interestingly, many of these interventions have been predicated on the assumption that parents are opposed to their teenagers drinking, which the evidence suggests is not universally the case in Australia; have not addressed the influence of adults other than parents (on the young people or on the parents); and none have been conducted in the Australian context. The most commonly cited 'community based' intervention is Project Northland in the US (which included classroom curricula, peer leadership, youth-driven/led extra-curricular activities, parent involvement programs, and community activism). Evaluations of Project Northland have been mixed [34-36], with questions arising about its ability to be generalised to other populations [37]. This would include the Australian context with our lower drinking age and greater acceptance of teen alcohol consumption.

Changing the perceived prevalence of underage drinking is important as there is clear evidence that descriptive norms (perceptions that most teenagers drink) are a key driver of underage drinking [38, 39] and increasing evidence that they are also a driver of parental provision of alcohol [1, 5, 40]. Increasing the age at which adults believe it is acceptable for young people to initiate alcohol use is important as known adults (including parents) are the

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primary providers of alcohol to children and adolescents. Thus, the aims of the current study were to evaluate whether a whole-of-community social marketing intervention targeting social norms could reduce inflated perceptions of the prevalence of underage drinking and increase the age at which alcohol initiation is considered to be acceptable by Australian adults.

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Method

A detailed description of the social marketing intervention, including the rationale for a social norms approach and process evaluation insights has been published elsewhere [41]. In summary, however, the intervention was preceded by an extensive nine month formative research and community consultation phase followed by a two-year social marketing campaign (Oct 2013 -Sep 2015) and subsequent post-evaluation. The protocol for the study was approved by the Human Research Ethics Committees of the University of Wollongong and Australian Catholic University.

The premise of a whole-of-community approach acknowledges a whole-of-community problem, and thus, the project had three distinct target groups: (i) young people aged 12-17; (ii) parents of young people aged 12-17; and (iii) adults in the broader community. This is an important distinction from other community approaches, as the intervention included targeted messages, events and activities specific to each group and key community project partners included local youth workers, teachers, community and sporting organisations, and local police. Details of insights relating to parent perceptions of adolescent drinking, including appropriate ages and places, have been published elsewhere [42-45] and were critical to the development and implementation of messages and strategies in a multi-phased process. The baseline [5] and process evaluation [41] findings have also been previously reported.

Phase 1 (ran for six weeks) was designed to introduce the issue of underage drinking as a matter of concern, and responsibility, for all members of the community ("Bad things happen to good kids too"). Phase 2 provided the community with a call to action, "Can a community stop underage drinking?" in a six week 'teaser' campaign, followed by the addition of affirmative messages on all communication materials ("[community name] Can") which also ran for six weeks. Phase 3 saw the strong social norms campaign implemented, which ran for six months. Local newspapers provided vehicles for both paid and earned media. We installed 3000 posters, 5 banners and 140 outdoor signs in community venues, such as shopping centres, clubs, small businesses, sporting and entertainment venues. Campaign staff, including local role models as 'project champions', attended over 100 local events, such as farmers' markets and community festivals, providing information and handing out branded merchandise, totalling 30,000 pieces of collateral. Adolescents were engaged through tailored curriculum in the (only) local secondary school, as well as competitions and presentations. The campaign website attracted 10,915 visits from 8903 unique visitors and the Facebook page reached 880 likes; both provided vehicles for people to obtain more information and share their support for campaign messages.

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Data were collected in two coastal communities in New South Wales (NSW), Australia; the intervention community and a matched control community. The matched community was carefully selected after analysis of 10 possible sites throughout Australia. While the control community has a larger population (40,000 compared to 20,000) and is further from a major city (200km compared to 120km) the two locations were the best match based on the key indicators of the proportion of 12-17 year olds in the population, weekly household income, socio-economic factors and geographic remoteness. In both communities the main source of employment is retail, accommodation and food services, followed by health care. The population of 12-17 year olds is approximately 8% for both communities; and both have the same Accessibility/Remoteness Index of Australia classification [46] and comparable socio-economic index scores [47].

The community-wide intervention meant we were unable to undertake a randomised controlled trial, therefore a pre-post with comparison group quasi-experimental design was used. Quasi-experimental study designs, often described as non-randomised, pre-post intervention studies, are common in the medical informatics literature, and often are used to evaluate the benefits of specific interventions. These designs are frequently used when it is not logistically feasible or ethical to conduct a randomised controlled trial [48].

Survey data were collected by two contracted commercial computer-assisted telephone interview providers, pre- and post-intervention in the two communities.

The selection criteria were residents who had lived there for 6 months or longer and were aged 18 years or older. Quotas were established to ensure an approximately even number of male and female respondents, and approximately 50% with dependent children.

Participants

At baseline, 610 interviews were completed in the intervention community (53% completion rate from eligible contacts, 18% of numbers called). In the control community 550 interviews were completed (22% completion rate from eligible contacts, 12% of numbers called). A total of 417 respondents completed both the pre- and post-intervention survey; 215 in the intervention community and 202 in the control community (See Figure 1); data reported in this paper is from those 417 repeat respondents.

There were some differences in the demographics of the samples, with those in the control community more likely to be aged over 55 years (48% vs 25%); be couples without children (21% vs15%); to not be in the labour force (31% vs 3%); and to have a University education (41% vs 13%). There were no significant differences between the groups in respondent gender, country of birth, or having children in the family.

<Insert Table 1>

Survey Instrument

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The survey instrument was designed to explore perceptions of underage drinking and parental supply of alcohol to minors. It included items regarding the perceived acceptable age for children to have a sip of alcohol, a weak or watered down drink of alcohol, and a full drink of alcohol (free response of age in years); and three items measuring the perceived percentage of young people (14/16/18 year olds) in their community who consume alcohol (free response of percentage). Intervention awareness was assessed by asking whether they had seen or heard any messages about underage drinking and (unprompted) where they had seen/heard activity.

The survey also included demographic information on the respondents; age, gender, country of birth, religion, marital status, parental status (being the parent of any children 0-11 years, 12-17 years and/or 18 years or older; multiple responses allowed), employment, education and household structure.

Analysis

The analysis utilised matched pairs data; that is, only those participants who participated in both pre- and post-intervention surveys (215 in the intervention community and 202 in control community). To compare the baseline and post-intervention measures, generalised linear model (glm) with Gaussian link were performed for continuous response variables. Beta regression, which is a generalisation of logit models to situations where the response is continuous on the interval (0,1) [49], was used for percentage response variables. The analyses were adjusted for key demographic characteristics of gender, age, employment status, country of birth, education and being a parent of a 12 to 17 year-old. The results for the beta regression are expressed as marginal effects with 95% confidence intervals. All analyses were performed in statistical software R [50] version 3.3.1.

Results

Views about acceptable age for drinking initiation

At baseline, respondents on average, indicated that they perceived it was acceptable for a young person to have a sip or taste of alcohol at less than 16 years, a weak or watered down drink at around 16.5 years, and a full drink only at (or just short of) 18 years.

Following the intervention in the intervention community, there was an increase of 0.54 years (approximately six months) in the average age at which it was perceived to be acceptable for young people to have a sip or taste of alcohol (95% confidence interval: 0.06,1.03; P=0.03). There was a non-significant increase of 0.44 years (approximately six months) in the average age at which it was perceived to be acceptable to have weak or watered down alcohol (95% confidence interval: -0.02, 0.90; P=0.06), and no meaningful difference in the average age at which it was perceived to be acceptable for young people to have a full drink of alcohol (Table 2). There were no significant differences in responses by any of the demographic factors measured.

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There were no significant changes on these items in the control community between the two time-points.

<Insert Table 2>

Perceptions of the prevalence of underage drinking and parental supply

A comparison of baseline and post-intervention knowledge indicates that there was a significant decrease in misperceptions regarding the prevalence of underage drinking in the intervention group (Table 3). The average perceived proportion of 18-year-olds who drink alcohol decreased by 8% (P <0.01); of 16-year-olds who drink decreased by 11% (P <0.01); and of 14-year-olds who drink decreased by 9% (P <0.01). For example, the perceived proportion of 16-year-old drinkers declined 53% to 43%, which is very close to the actual prevalence in the most recent national survey of 43%. Education level, employment and country of birth were not significant in the analyses; but older respondents, males and parents of 12 to 17 year-olds had a more realistic perception of the prevalence of underage drinking.

There were no significant changes on these items in perceptions of the prevalence of drinking in the control community between the two time-points.

<Insert table 3>

Intervention awareness

In the evaluation survey, 81% of respondents reported that they had seen or heard messages about underage drinking in the community. Open-ended responses to the question of what/where they had seen/heard information indicated that the most noticed intervention components were "signs on fences around town" (49%); "posters in shops, library, cafés etc." (47%) and "ads in the local paper" (23%). Regular environmental scans by intervention staff, combined with consultations with local council staff and the local newspaper confirm that no other advertisements on underage drinking were present in the community during this period. Thus we can be confident that these were references to our intervention. We also examined the effect of interaction between group (intervention and control community) and indicator variable (pre- and post-intervention). The interaction results indicates that, intervention has significant impact in Kiama community, i.e. the average perceived proportion of 18-year-olds who drink alcohol decreased by 9% (P <0.01); of 16-year-olds who drink decreased by 9% (P=0.02); and of 14-year-olds who drink decreased by 11% (P <0.01). Whereas there is no such significant interaction impact in the control community.

Supplemental analysis of parents of youth 12 to 17 years

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In the intervention community, there was an increase of 1.23 years (approximately 15 months) in the average age at which it was perceived to be acceptable for young people to have a sip or taste of alcohol (P=0.03). However there was no significant difference in the average age at which it was perceived to be acceptable for young people to have weak or watered down alcohol or full drink of alcohol. Regarding perception of the prevalence, the average perceived proportion of 18-year-olds who drink alcohol decrease by 8% (P=0.02); of 16-year-olds who drink also decreased by 8% (P=0.06, though not significant at 5%); and no change for 14-year-olds.

Discussion

Exposure and awareness of the campaign was high in the intervention community. At the conclusion of the intervention, those in the intervention community had more accurate (i.e. less inflated) perceptions of the proportion of young people in the community who consume alcohol. The most recent national school survey data reported that 43% of 16-year-olds and 17% of 14-year-olds had consumed alcohol in the last month [2]; and, at follow-up, community perceptions were within half a percentage point of these figures (at 43% and 17%). While some of this improvement in perceptions may have been due to secular changes, for example as a result of national media coverage of school survey findings, the far smaller magnitude of change in the control community supports the contention that the change was predominantly driven by the intervention; for example, in relation to 16-year-olds a drop of 10 percentage points in the intervention community compared to 3 percentage points in the control community. We also saw a statistically significant reduction in the perceived prevalence of drinking among 18-year-olds in the intervention community that was not evident in the control community. This change in the intervention community was specifically in reference to their own community, and misperceptions around underage drinking in the broader Australian community may still be present. However, this achievement in changing in the perceived prevalence of underage drinking is important – and was a primary goal of the intervention – as there is clear evidence that descriptive norms (perceptions that most teenagers drink) are a key driver of underage drinking [38, 39] and increasing evidence that they are also a driver of parental provision of alcohol [1, 5, 40].

The six-month increase in the perceived acceptable age for young people to have a sip or taste of alcohol, and the trend towards a similar increase in the perceived acceptable age to have weak or watered down alcohol, is equally promising. Injunctive norms (perceptions that others believe that one should, or should not, engage in a behaviour) are also powerful predictors of underage alcohol consumption and parental supply [18, 51, 52]. The absence of change in perceived acceptable age for a sip or taste, and for a weak or watered down drink, in the control community again supports the contention that these changes were as a result of the intervention rather than broad social changes.

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The absence of change in the average age at which it is perceived to be acceptable for young people to have a full drink of alcohol in both communities is to be expected, given that both the national medical guidelines and the law support alcohol consumption from the age of 18. This also increases our confidence that the responses do not reflect social desirability bias or represent a subset of the community who were opposed to the consumption of alcohol.

A key strength of this intervention was its embeddedness within the local community, consistent with the principles of social marketing. This was not a national media campaign (the standard approach to addressing underage drinking) which can be readily dismissed by parents and other adults as not relevant to their family and their community [43]. Members of the community were involved in the development and dissemination of the intervention, creating a sense of ownership among local groups (such as the school, neighbourhood centre etc.). The engagement of local project champions also enabled this to be seen as a community approach to a community problem; supporting and empowering adolescents, parents and the broader community – rather than blaming them or imposing a solution upon them.

This engagement of local resources assisted in keeping the project costs relatively low. The total budget for the project was AU$100,000 for resources and materials and approximately AU$800,000 for staff. However, a substantial component of the staffing cost was related to this intervention being a research project, with approximately 50% of this staffing time being spent on data collection, analysis and reporting. A further AU$170,000 was allocated for evaluative data collection (computer-assisted telephone interview).

The learnings from this project, and many of the materials, could be used to inform future interventions in other communities. Any replication of the project would need to commence with formative research (to ensure that the messages and strategies resonate with the target community) and materials would need to be adapted to reflect the local area. The scalability of the project to larger communities/regions would depend on the extent to which there is a sufficiently shared sense of identity to ensure relevance and ownership. For example, if this intervention were to be implemented at a state or national level it would need to be done in such a way that the messages disseminated in individual communities could be tailored (such as editable materials that enable the use of local statistics, images, references and spokespeople).

Limitations

This study was conducted in one regional area in Australia, and thus the results may not be generalisable to other locations such as larger cities, inner city, urban fringe, rural, and remote. Participants were generally Australian-born, which is consistent with regional NSW, census data, however, the views of those from diverse cultural backgrounds may be different. Future research in other locations could explore similarities and differences in perspectives. We do not have long-term data on the impact of the intervention on drinking (and alcohol provision) behaviours, thus it is not possible to determine the cost-effectiveness of the intervention. Underage drinking

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is a moralised issue and we cannot exclude the possibility of some degree of social desirability bias in the responses.

Conclusion

This study provides preliminary evidence that a whole-of-community social marketing intervention can change perceptions of the prevalence, and acceptability, of underage drinking.

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Conflict of Interest

No conflict declared.

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Table 1 Respondent demographics

	Control Repeated (N=202)	Intervention Repeated (N=215)	*P* value
Gender			
Female	56%	59%	0.95
Children in family			
Aged 0-11	27%	25%	0.45
Aged 12-17	28%	34%	
Aged18+	52%	49%	
Age, years			
<40	14%	20%	<0.01
40-54	38%	55%	
55+	48%	25%	
Country of birth			
Australia	88%	86%	0.64
Other	12%	14%	
Household structure			
Married/de facto no kids	21%	15%	0.03
Married/de facto with kids	54%	68%	
One parent	9%	7%	
Employment status			
Full-time	36%	49%	<0.01
Part-time	19%	25%	
Unemployed, student, other	14%	23%	
Not in labour force	31%	3%	
Education level			
Yr 10 or less	19%	21%	<0.01
Yr 11-12	10%	30%	
Cert/dip/trade	29%	36%	
University	41%	13%	

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Table 2 Mean perceived acceptable age for alcohol consumption

	Pre	Post	Difference	Coefficient	P value
What is an acceptable age for children to have a sip or taste of alcohol?					
Intervention	15.90	16.4	0.50	0.54	0.03
Control	15.38	15.44	0.06	0.10	0.75
What is an acceptable age for children to have a weak or watered down drink of alcohol?					
Intervention	16.5	16.9	0.40	0.44	0.06
Control	16.6	16.2	-0.4	-0.31	0.18
What is an acceptable age for children to have a full drink of alcohol?					
Intervention	17.95	17.96	0.01	0.03	0.86
Control	17.73	17.65	-0.08	-0.08	0.35

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Table 3 Perceived percentages of young people drinking, and parental supply of, alcohol

Intervention community	Pre	Post	Difference	ME (95% CI)	*P* value
What percentage of … year olds do you think drink alcohol					
18 year old	81	73	-8	-0.08 (-0.11, -0.05)	<0.01
16 year old	53	43	-10	-0.11 (-0.15, -0.07)	<0.01
14 year old	25	17	-8	-0.09 (-0.12, -0.05)	<0.01
Control community					
What percentage of … year olds do you think drink alcohol					
18 year old	78	76	-2	-0.02 (-0.05, 0.02)	0.30
16 year old	54	50	-4	-0.03 (-0.07, 0.02)	0.21
14 year old	27	24	-3	-0.03 (-0.06, 0.01)	0.15

ME, marginal effects.

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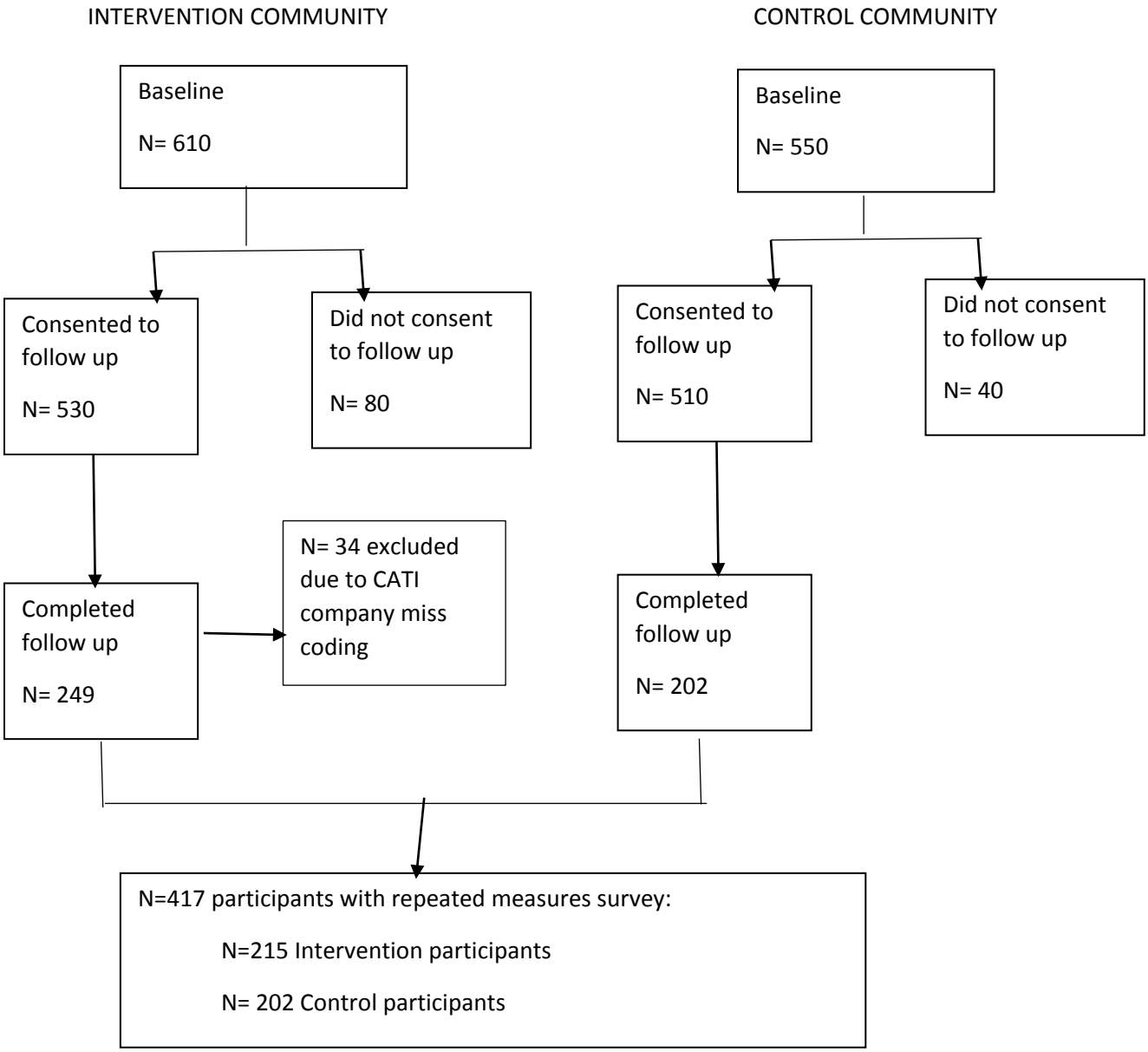

Figure 1: Computer-assisted telephone interview (CATI) participants in baseline and follow up from the two communities.

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