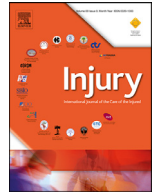




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The Prevent Alcohol and Risk-Related Trauma in Youth (P.A.R.T.Y) program: An interactive injury prevention initiative in South-Western Sydney

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ABSTRACT

Background: The Prevent Alcohol and Risk Related Trauma in Youth (P.A.R.T.Y) program is an interactive injury prevention intervention, specifically designed for “at risk” youths aged 15 to 19 years. Emerging evidence has highlighted its positive impact on altering student attitudes towards risk-taking behaviours across several Australian and international settings. This study aims to describe the risk-taking behaviours of youths in South-Western and Greater Western Sydney, and assess the effectiveness of the Liverpool P.A.R.T.Y program to alter attitudes towards risk-taking.

Methods: From 2015 to 2020, schools and youth organisations across South-Western and Greater Western Sydney were invited to participate in the Liverpool Hospital P.A.R.T.Y program. Youths aged 15 to 19 years were selected to attend by their respective teachers based on eligibility criteria. Knowledge and attitudes towards risk-taking behaviours were measured using surveys across three time points (pre-program, immediately post-program, 3-to-6 months post-program).

Results: A total of 2544 participants from 50 schools and youth organisations attended the Liverpool Hospital P.A.R.T.Y program. There were 130 participants who did not record a response to a single question across all three time points and were omitted from analysis. Of the remaining 2414 participants, 49% were male, and 41% had access to a provisional driver's license or learner's permit. There were significant changes in knowledge and attitudes to risk-taking behaviours from pre-to immediately-post-program. A separate analysis across all three time points was conducted in response to a poor 3-to-6-month follow-up rate (25%). There was decay in improvements across all six questions, with the largest change seen in perceived likelihood of injury when engaging in physically risk-taking activities (52.2% to 36.9%, OR 0.44, 95% CI 0.33 – 0.60, $p < 0.001$).

Conclusion: This study demonstrated significant changes in participant attitudes towards risk-taking behaviours and their consequences, immediately after participating in the Liverpool Hospital P.A.R.T.Y program. However, the poor response rates at later follow-up highlight the need for ongoing engagement of the South-Western and Greater Western Sydney youths, to ensure these improvements are sustained.

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Background

Globally, road injuries continue to be the leading cause of disability-adjusted life-years for people aged between 10 and 49 years [1]. It is the second-leading cause of mortality for young Australians aged 15 to 24 years, accounting for 26% of all deaths

in 2018 [2,3]. Nearly half of all severe injury admissions to Australian hospitals are transport related [4]. During 2019–2020, serious injury as a direct result of road or transport related trauma accounted for 37% of admissions to Liverpool Hospital [5]. Young drivers – in particular males – have the highest age-specific rate for fatalities and hospital admissions, are more inclined to speed or consume alcohol, and are more vulnerable to social pressures [6,7].

Secondary to the number of lives lost, is the psychological toll that major trauma has on both young survivors and their family members. The journey to recovery following severe injury can often leave young patients feeling embarrassed and powerless, particularly amongst males [8]. Recovery can be especially challenging for those left disfigured, as physical appearance can be a major influencing factor in defining a young person's identity [9]. The emotional burden is also shared by family members. They are often required to become a model of strength for the young individual, whilst also maintaining responsibilities outside of the hospital [10].

The transition from adolescence to adulthood is fraught with opportunities for young Australians to engage in risky behaviour. They are expected to navigate their newfound independence and responsibilities at a time when they are still susceptible to social pressures, making them a population vulnerable to injury [6]. In 2019, the National Drug Strategy Household Survey (NDSHS) found that Australians aged 18 to 24 (14.6%) were more likely to engage in high-risk alcohol consumption and use illicit substances than other age groups [11]. Of those risky drinkers aged 14 to 19, 83% reported injury as a result of overconsumption in the past 12 months. Young people are also more likely to become victims of alcohol-harm than any other age groups [11].

Health promotion has been instrumental in improving the health of our community in a variety of areas such as cancer and heart disease, and is currently endorsed for use in injury prevention and road safety [12,13]. The Prevent Alcohol and Risk Related Trauma in Youth (P.A.R.T.Y) program is an interactive injury prevention intervention, specifically designed for “at risk” youths aged 15 to 19 years. Originating from Canada in 1986, the program has had a positive impact on altering student attitudes towards risk-taking behaviour across several international settings [14,16]. This study aims to describe the risk-taking behaviours of young people in South-Western and Greater Western Sydney and assess the effectiveness of the Liverpool P.A.R.T.Y program to alter attitudes and perceptions towards risk-taking behaviour and their consequences.

Methods

Subjects and setting

From 2015 to 2020, schools and youth organisations across the South-West and Greater Western Sydney were invited to participate in the Liverpool Hospital P.A.R.T.Y program. They were then consecutively enrolled, with approximately 22 programs conducted per year. Students aged 15 to 19 years were selected by their respective teachers based on an eligibility criteria. Students who were at risk of distress as a result of exposure to the P.A.R.T.Y program content (i.e., experienced personal trauma or trauma within their family and social groups within the last 2 years; or had a history of acute mental illness; or exhibited disruptive behavioural problems), or who were at risk of lost-to-follow up (i.e. Year 12 students in their second semester of studies), were not recommended for participation in the study.

Intervention

The P.A.R.T.Y program is a 1-day in-hospital intervention that provides education to youths about trauma, by detailing

the different phases of injury: trauma related-risk taking behaviours; mechanisms of injury; treatment; rehabilitation; and community reintegration. The program is delivered by a multi-disciplinary team, with input from healthcare professionals (doctors, nurses, paramedics, physiotherapists, occupational therapists, speech pathologists, social workers), police, and injury survivors. Each program component is explored in-depth by a facilitator who is a specialist in their field, and who has been trained in the delivery of health education to youths, either through preceptorship or by occupation (Table 1).

Data collection

Of the youths who attended, we investigated their baseline risk taking behaviours and their risk perceptions across three time points – pre-program, immediately post-program, and three-to-six-months post-program. The data was collected via paper-based questionnaires which were provided on the day of the program and mailed out to schools and youth organisations for the three-to-six-month follow-up. The questionnaires were modelled off previous iterations of P.A.R.T.Y programs implemented in Brisbane, Australia, and Toronto, Canada. Outcomes of interest included likelihood of driving whilst over the legal blood alcohol limit, likelihood of designating a safe driver after drinking with friends, perceived likelihood of injury when not wearing a seatbelt, perceived likelihood of injury resulting from risk-taking behaviour, perceived likelihood of central nervous system (CNS) related injury resulting from risk-taking behaviour, and the likelihood of the P.A.R.T.Y program making a difference in the way participants perceived their future actions.

Statistical analysis

All baseline characteristics were reported as proportions, stratified by sex. Differences in sub-groups were analysed using χ^2 (p-values under 0.05 were considered statistically significant). Pre- and immediately post-program response categories were dichotomised into **desirable** and **undesirable** responses and analysed using conditional logistic regression and presented as odds ratios and 95% confidence intervals (95%CI), in a similar manner to previous reports of the PARTY program [17]. Specifically, the original response categories and our **desired response** for the six pre and post questions being: (1) Would **definitely not** risk driving if you were over the legal limit (yes, maybe and **definitely not**); (2) Would **designate safe driver** if you or your friend had too much to drink at a party (let him/her drive home, drive yourself home, call **parents/taxi/sleep over**); (3) Would **definitely** get injured if you were not wearing a seatbelt in a car crash (not at all, not really, probably, **definitely**); (4) Would **definitely** get injured if you took part in a physically risk-taking activity (not at all, not really, probably, **definitely**); (5) Would **definitely** get a central nervous system-related injury if you took part in certain risk-taking activities (not at all, not really, probably, **definitely**); and, (6) The PARTY program would **definitely** make a difference to the way you think about future actions (not at all, not really, probably, **definitely**).

Results were reported by sex and the Breslow-Day test for homogeneity in odds ratios was used to assess whether sex was an effect modifier (p-values under 0.05 were considered statistically significant). All analysis was conducted using the R statistical program [18].

Ethical considerations

Informed consent from the participants and their parents/guardians was obtained prior to attendance in the program and participants were able to withdraw from the program at any

Table 1
Description of P.A.R.T.Y program content.

Program Content	Description
Injury Overview	Presentation led by a program coordinator, providing an introduction to injury and decision making towards better choices.
Trauma Education	Presentation led by a trauma surgeon detailing the physiological effects of injury.
Police	Presentation led by a youth liaison police officer, providing access to up-to-date and accurate legal information regarding licensing and legal interventions.
Intensive Care Unit (ICU)	Intensive care staff provides students with an overview of ICU and what is involved in the care of an ICU patient.
Emergency Department (ED)	Emergency staff provides students with an overview of ED. Students participate in a simulation of a trauma resuscitation.
Trauma Ward	Staff from the trauma ward provide students with an overview of the ward. They are guided through the day-to-day care and rehabilitation process of a trauma in-patient.
Social Work	An interactive session using emojis to explore students' feelings after their rotation through the clinical scenarios. Students are provided with support resources and strategies for maintaining their mental wellbeing.
Physiotherapy	A practical session where students are able to simulate the recovery journey of a patient, and the difficulties of mobilising.
Occupational Therapy	A practical session where students are able to simulate the difficulties of attending day-to-day activities as an injury patient i.e., getting out of bed, dressing, and managing a neck brace.
Speech Pathology	A practical session where students learn about the difficulties of communicating post-injury i.e., head-injury, as well as having the opportunity to experience the different modes of food delivery.
Injury survivor	An injury survivor shares their first-hand recount of what it was like to be in hospital, and how they felt during rehabilitation. The injury survivor shares how injury has impacted their life, how they are moving forward, and what obstacles and hurdles they have encountered. This session also serves as a summation of the day's scenarios from a patient's perspective.

time. Ethics approval to conduct the study was obtained from the South-Western Sydney Local Health District Human Research Ethics Committee (2020/STE05080).

Results

The characteristics of youths attending the P.A.R.T.Y program between 2015 and 2020 are presented in [Table 2](#). A total of 2544 participants from 50 schools and youth organisations attended the Liverpool Hospital P.A.R.T.Y program during this period. There were 130 participants who did not record a response to any question across all three time points and were thus omitted from analysis. Of the remaining 2414 participants, 49% were male, and 41% had access to a provisional license or learner's permit. When asked about their frequency of alcohol consumption, 62% of females reported to have 'never' consumed alcohol compared to 67% of males. Conversely, there were more females (83%) reporting to have 'never' raced in a car, motorbike, or boat, compared to males (71%).

The proportion of desirable responses pre-program and immediately post-program, and the odds of participants changing from an undesirable to desirable response are presented in [Table 3](#). The proportion of participants pre-program reporting they would 'definitely not' risk driving whilst over the legal limit was 87.8%, and of the 269 participants who recorded other responses, 71.0% changed their response to 'definitely not' immediately post-program (OR 4.06, 95% CI 2.95 – 5.59, $p < 0.001$). Similar proportions were observed pre-program when 97.6% of participants reported they would 'designate a safe driver' if they had drunk too much with a friend at a party, and of the 53 participants who recorded other responses, 73.6% changed to 'designate safe driver' (OR 3.55, 95% CI 1.82 – 6.92, $p < 0.001$). The proportion of participants pre-program who thought they would 'definitely' get injured if they did not wear a seatbelt in a car crash was 72.5%, and of the 597 participants who recorded other responses, 52.6% changed their responses to 'definite' (OR 2.47, 95% CI 2.01 – 3.04, $p < 0.001$). There were only 16.4% of participants pre-program who 'definitely' thought they would get injured when engaging in physically risk-taking activities, and of the 1686 participants who recorded other responses,

43.1% change to 'definite' (OR 14.5, 95% CI 10.90 – 19.33, $p < 0.001$). The proportion of participants pre-program who 'definitely' thought they would sustain a central nervous system (CNS)-related injury when partaking in risk-taking activities was 43.7%, and of the 1134 participants who reported other responses, 47.5% changed to 'definite' (OR 4.31, 95% CI 3.55 – 5.24, $p < 0.001$). The proportion of participants pre-program who perceived that the P.A.R.T.Y intervention would 'definitely' affect future decision making was 36.2%, and of the 1284 participants who recorded other responses, 69.6% changed to 'definite' (OR 26.30, 95% CI 18.67 – 37.03, $p < 0.001$). Sex was not found to be an effect modifier across all six questions.

There were 610 participants (25%) who recorded a response in the 3-to-6-month follow-up surveys. The characteristics of responders and non-responders are presented in [Appendix 1](#). A separate analysis across all three time points was conducted in response to the poor follow-up rate and is presented in [Appendix 2](#). There was decay in improvements across all six questions, with the biggest change seen in perceived likelihood of injury when engaging in physically risk-taking activities (52.2% to 36.9%, OR 0.44, 95% CI 0.33 – 0.60, $p < 0.001$). The potential effect modification of sex on pre and post intervention results are presented in [Appendix 3](#), all p-values for interaction were > 0.10 . [Appendix 4](#) presents the detailed frequencies and associated percentages, including the calculation of the odds ratio for change based on the discordant cells for [Table 3](#).

Discussion

There were significant changes in students' attitudes towards risk-related behaviours and their consequences, following participation in the Liverpool P.A.R.T.Y program. The perceived likelihood of students drink driving or allowing friends to drink drive was remarkably low at baseline. Given the average age of our cohort (15.9 years) and 64% of participants reported to have never consumed alcohol, it stands to reason that their inclination to drink and drive may have been influenced by their inability to obtain a learners or provisional license, and access or consume alcohol. In contrast, perceived risk of injury when engaging in risky behaviour was low, with 16% of participants reporting they thought they would 'defi-

Table 2
Baseline characteristics of P.A.R.T.Y program participants from 2015 to 2020.

	Male	Females	Total	P-value
Number (%)	1181 (48.9)	1233 (51.1)	2414 (100)	
Age, mean (SD)	15.86 (\pm 0.94)	15.76 (\pm 0.82)	15.81 (\pm 0.88)	0.025
School type, n (%)				0.022
Other	110 (9)	38 (3)	148 (6)	
Private	430 (36)	330 (27)	760 (31)	
Public	641 (54)	865 (70)	1506 (62)	
Learners permit or provisional license, n (%)				< 0.001
No response	128 (11)	59 (5)	187 (8)	
Yes	470 (40)	516 (42)	986 (41)	
No	583 (49)	658 (53)	1241 (51)	
How often do you drink alcohol? n (%)				0.02
No response	8 (1)	13 (1)	21 (1)	
Never	789 (67)	762 (62)	1551 (64)	
2–3 times per year	68 (6)	79 (6)	147 (6)	
Less than once per month	143 (12)	163 (13)	306 (13)	
Once or twice a month	101 (9)	157 (13)	258 (11)	
Once a week	38 (3)	36 (3)	74 (3)	
2–3 times a week	22 (2)	18 (1)	40 (2)	
4–6 times a week	9 (1)	4 (<1)	13 (1)	
Everyday	3 (<1)	1 (<1)	4 (<1)	
Have you raced in a car, on a motorbike or boat? n (%)				< 0.001
No response	5 (<1)	13 (1)	18 (1)	
Never	836 (71)	1018 (83)	1854 (77)	
Sometimes	278 (24)	182 (15)	460 (19)	
A lot	62 (5)	20 (2)	82 (3)	
Ever done something on a dare? n (%)				< 0.001
No response	6 (1)	11 (1)	17 (1)	
Never	276 (23)	391 (32)	667 (28)	
Sometimes	701 (59)	711 (58)	1412 (58)	
A lot	198 (17)	120 (10)	318 (13)	
Broken a parent's rule? n (%)				0.52
No response	6 (1)	10 (1)	16 (1)	
Never	181 (15)	207 (17)	388 (16)	
Sometimes	764 (65)	769 (62)	1533 (64)	
A lot	230 (19)	247 (20)	477 (20)	
Willingly rode with a dangerous driver? n (%)				< 0.001
No response	7 (1)	12 (1)	19 (1)	
Never	704 (60)	835 (68)	1539 (64)	
Sometimes	378 (32)	326 (26)	704 (29)	
A lot	92 (8)	60 (5)	152 (6)	

Table 3
Pre and Immediately-Post P.A.R.T.Y program responses.

Perception/Attitude	Pre-program (%)	Immediately post-program (%)	Odds of changing from other responses to desirable response (95% CI)	p-value ¹
Would definitely not risk driving if you were over the legal limit	87.8	94.3	4.06 (2.95–5.59)	< 0.001
Would designate safe driver if you or your friend had too much to drink at a party	97.6	98.9	3.55 (1.82–6.92)	< 0.001
Would definitely get injured if you were not wearing a seatbelt in a car crash	72.5	81.1	2.47 (2.01–3.04)	< 0.001
Would definitely get injured if you took part in a physically risk-taking activity	16.4	49.9	14.5 (10.90–19.33)	< 0.001
Would definitely get a central nervous system-related injury if you took part in certain risk-taking activities	43.7	64.2	4.31 (3.55–5.24)	< 0.001
The PARTY program would definitely make a difference to the way you think about future actions	36.2	78.9	26.30 (18.67–37.03)	< 0.001

¹ p value based on McNemar's chi-squared test.

nitely' get injured when engaging in physically risk-taking activities, and 44% reporting a 'definite' likelihood of CNS injury from certain risk-taking activities pre-program. Though this improved post-program to 50% and 64% respectively, there remains a disconnect between the perceived consequence of injury and general risk-taking behaviour.

These findings were consistent with other P.A.R.T.Y programs conducted in Australia, particularly the high proportion of participants who report they would not drink and drive at baseline [15,17,19]. This is unsurprising, given the recent trends in adolescent alcohol-related measures. Since 2002, there has been a sharp decrease in alcohol consumption amongst Australian adolescents,

though this decline has plateaued since 2011 [20]. This is reflected in the rising age of initial alcohol consumption from 14.7 years in 2001 to 16.2 in 2019, and the increasing proportion of youths abstaining from alcohol [11]. Other explanations for the decline in alcohol use suggested by Vashishtha et al. [20] include: (1) policy changes increasing the pricing and reducing the accessibility of alcohol; (2) previous public health initiatives that have driven changes in parenting norms and attitudes towards risky drinking behaviours, and stigmatisation of drink driving through media campaigns; and (3) the influence non-drinking cultures, particularly considering the culturally and linguistically diverse population of South-Western Sydney. Regardless, young people remain overrepresented in road crash statistics. In NSW, 19% of all hospitalisations due to road traffic crashes were aged 17 to 25 years, despite representing 12% of the state's population [21]. The P.A.R.T.Y program provides a unique insight for youths by detailing the consequences of risk-taking behaviour in an acute-care environment. Despite high figures at baseline, the significant change in perceptions on whether they would drive or let their friends drive after drinking is an indication that exposure to real-world repercussions may influence future decision-making with regards to drink driving.

The South-Western Sydney population presents unique challenges to health promotion and injury prevention, given its diverse and rapidly changing makeup. The region has a higher proportion of young people and people born overseas than the NSW average, and also receives the largest number of refugees and humanitarian entrants in the state [22]. Also, around 20,000 of the population identify as Aboriginal and Torres Strait Islander people, equating to 8% of the Aboriginal and Torres Strait Islander population in NSW [22]. Whilst the majority of South-West Sydney inhabitants live in local government areas (LGAs) with higher-than-average levels of socioeconomic disadvantage compared to the state, there are stark disparities between LGAs [22]. While our findings highlight the fit-for-purpose nature of the P.A.R.T.Y program within South-Western Sydney, the region's complex cultural and social determinants of health need to be addressed to ensure its suitability and longevity as an injury prevention initiative.

Limitations

A weakness of the study is the reliance on self-reported measures, investigating planned risk-taking behaviours and their perceived consequences. The study was not able to assess whether the P.A.R.T.Y program could effectively reduce the incidence of alcohol and risk-related injuries or cause a change in behaviour. However, previous research has shown that the program was successful in reducing the number of traumatic injuries. A Canadian case-control

study assessed the incidence of traumatic injuries between matching pairs of those who attended the P.A.R.T.Y program and those who did not. The study found that not only were there fewer injuries in the intervention group, but they remained injury free for longer, indicating behaviour change had taken place [16]. Though a study of this nature has yet to be replicated, there have been other P.A.R.T.Y programs using a pre-post-test design that have yielded similar results to ours. However, there were difficulties generalising and comparing results due to the lack of survey uniformity. Future studies may benefit from using tools validated in measuring risk perception amongst youths, or measuring actual behaviour change via a longitudinal study design, using tools such as the Behaviour of Young Novice Drivers Scale that have been validated for use amongst the contemporary inexperienced and young driver population [23,24].

Another limitation of this study was the potential bias present during participant recruitment. Given limited staffing and resources, the program only allowed for a select number of students per school. The selection of students was determined by school teachers, and therefore may not be a true representation of the South-Western and Greater Western Sydney adolescent population. Our study also featured a poor response rate (25%) at 3-to-6-month follow-up, largely attributed to insufficient staffing and loss of contact with school-leavers. From 2015–2019, South-West Sydney possessed the lowest apparent retention rates (75%) of Year 10–12 students out of the Sydney-based regions [25]. Other studies have shown that despite the immediate effectiveness of the P.A.R.T.Y program, there were decay in improvements across all measures 3-to-6-month post-program [15,17,19].

Conclusion

This study demonstrated the significant changes in participant attitudes towards risk-taking behaviours and their consequences, immediately after participating in the Liverpool Hospital P.A.R.T.Y program. However, the poor response rates at later follow-up highlight the need for ongoing engagement of the South-Western Sydney adolescent population, to ensure these improvements are sustained.

Declaration of Competing Interest

The authors declare there is no conflict of interest.

Sources of funding

New South Wales Institute of Trauma and Injury Management (ITIM) provided a grant for assistance with data analysis.

Appendix

Appendix 1

3-to-6-month follow-up responder vs non-responder characteristics.

Variable	Responders	Non-responders	P-value
Number (%)	610 (25.3)	1804 (74.7)	
Age - mean (SD)	15.67 (\pm 0.80)	15.85 (\pm 0.90)	< 0.001
Sex			0.017
Male (%)	324 (53)	857 (48%)	
School type			0.022
Other (%)	1 (0)	147 (8)	
Private (%)	199 (33)	561 (31)	
Public (%)	410 (67)	1096 (61)	
Learners permit or provisional license			0.001
No response (%)	52 (9)	135 (7)	
Yes (%)	210 (34)	776 (43)	
No (%)	348 (57)	893 (50)	
How often do you drink alcohol?			0.001
No response (%)	9 (1)	12 (1)	
Never (%)	446 (73)	1105 (61)	
2-3 times per year (%)	33 (5)	114 (6)	
Less than once per month (%)	57 (9)	249 (14)	
Once or twice a month (%)	43 (7)	215 (12)	
Once a week (%)	11 (2)	63 (3)	
2-3 times a week (%)	9 (1)	31 (2)	
4-6 times a week (%)	1 (<1)	12 (1)	
Everyday (%)	1 (<1)	3 (<1)	
Have you raced in a car, on a motorbike or boat?			0.011
No response (%)	8 (1)	10 (1)	
Never (%)	488 (80)	1366 (76)	
Sometimes (%)	101 (17)	359 (20)	
A lot (%)	13 (2)	69 (4)	
Ever done something on a dare?			0.084
No response (%)	7 (1)	10 (1)	
Never (%)	152 (25)	515 (29)	
Sometimes (%)	377 (62)	1035 (57)	
A lot (%)	74 (12)	244 (14)	
Broken a parent's rule?			0.001
No response (%)	7 (1)	9 (<1)	
Never (%)	121 (20)	267 (15)	
Sometimes (%)	384 (63)	1149 (64)	
A lot (%)	98 (16)	379 (21)	
Willingly rode with a dangerous driver?			0.34
No response (%)	7 (1)	12 (1)	
Never (%)	393 (64)	1146 (64)	
Sometimes (%)	179 (29)	525 (29)	
A lot (%)	31 (5)	121 (7)	

Appendix 2

P.A.R.T.Y program responses from participants who responded across all three time points.

Perception/Attitude	Pre-program (%)	Immediately post-program (%)	3-to-6 months post-program (%)	Immediately post-program to 3-to-6 month follow up: Odds of changing from Other to desirable response (95% CI)	p-value ¹
Would definitely not risk driving if you were over the legal limit	87.6	94.2	93.9	0.93 (0.54–1.60)	0.89
Would designate safe driver if you or your friend had too much to drink at a party	97.3	98.7	97.3	0.43 (0.16–1.12)	0.12
Would definitely get injured if you were not wearing a seatbelt in a car crash	74.0	81.1	79.3	0.86 (0.61–1.21)	0.43
Would definitely get injured if you took part in a physically risk-taking activity	17.9	52.2	36.9	0.44 (0.33–0.60)	< 0.001
Would definitely get a central nervous system-related injury if you took part in certain risk-taking activities	47.3	65.4	62.5	0.86 (0.64–1.14)	0.31
The PARTY program would definitely make a difference to the way you think about future actions	38.3	80.2	79.4	0.94 (0.67–1.32)	0.80

¹ p value based on McNemar's chi-squared test.**Appendix 3**

Pre and immediately-post P.A.R.T.Y program responses by sex.

Perception/Attitude		Pre-program (%)	Post-program (%)	Odds of changing to desirable response (95% CI)	p-value ¹
Would definitely not risk driving if you were over the legal limit	Male	84.2	92.1	3.96 (2.60–6.04)	0.91
	Female	90.1	96.2	4.20 (2.58–6.84)	
	Combined	87.8	94.3	4.06 (2.95–5.59)	
Would designate safe driver if you or your friend had too much to drink at a party	Male	96.2	98.4	4.14 (1.81–9.46)	0.17
	Female	98.7	99.2	2.50 (0.78–7.97)	
	Combined	97.6	98.9	3.55 (1.82–6.92)	
Would definitely get injured if you were not wearing a seatbelt in a car crash	Male	69.0	77.6	2.36 (1.76–3.16)	0.68
	Female	75.5	84.2	2.59 (1.93–3.46)	
	Combined	72.5	81.1	2.47 (2.01–3.04)	
Would definitely get injured if you took part in a physically risk-taking activity	Male	12.3	39.7	13.4 (8.54–21.2)	0.21
	Female	19.8	58.3	15.2 (10.53–22.04)	
	Combined	16.4	49.9	14.5 (10.90–19.33)	
Would definitely get a central nervous system-related injury if you took part in certain risk-taking activities	Male	38.4	56.6	3.66 (2.76–4.85)	0.74
	Female	48.0	70.5	4.95 (3.78–6.49)	
	Combined	43.7	64.2	4.31 (3.55–5.24)	
The PARTY program would definitely make a difference to the way you think about future actions	Male	31.1	74.5	27.3 (16.29–45.65)	0.68
	Female	40.4	82.5	25.5 (16.14–40.37)	
	Combined	36.2	78.9	26.30 (18.67–37.03)	

¹ p value based on Breslow Day test for effect modification (df=1).

Appendix 4Pre and Immediately-Post P.A.R.T.Y program Discordant pairs and McNemar's χ^2 .

Question 1: Would you risk driving whilst over the legal limit?				
			<i>Post-test</i>	
			Other (%)	Definitely not (%)
<i>Pre-test</i>	Other		78 (29.0)	191 (71.0)
	Definitely Not		47 (2.4)	1876 (97.6)
			125	2067
				269
				1923
				2192
Odds ratio for change 191/47 = 4.06 (95% CI 2.95–5.59)				
Question 2: Would you risk yourself or your friend driving home after drinking at a party?				
			<i>Post-test</i>	
			Other (%)	Designate safe driver (%)
<i>Pre-test</i>	Other		14 (26.4)	39 (73.6)
	Designate safe driver		11 (0.5)	2116 (99.5)
			25	2155
				53
				2127
				2180
Odds ratio for change 39/11 = 3.55 (95% CI 1.82–6.92)				
Question 3: Do you think you would get injured if you did not wear a seatbelt in a car crash?				
			<i>Post-test</i>	
			Other	Definitely
<i>Pre-test</i>	Other		283 (47.4)	314 (52.6)
	Definitely		127 (8.1)	1447 (91.9)
			410	1761
				597
				1574
				2171
Odds ratio for change 314/127 = 2.47 (95% CI 2.01–3.04)				
Question 4: Do you think you would get injured if you engaged in physically risk-taking activities?				
			<i>Post-test</i>	
			Other	Definitely
<i>Pre-test</i>	Other		960 (56.9)	726 (43.1)
	Definitely		50 (15.1)	281 (84.9)
			1010	1007
				1686
				331
				2017
Odds ratio for change 726/50 = 4.5 (95% CI 10.90–19.33)				
Question 5: Do you think you would get a central nervous system-related injury if you engaged in certain risk-taking activities?				
			<i>Post-test</i>	
			Other	Definitely
<i>Pre-test</i>	Other		595 (52.5)	539 (47.5)
	Definitely		125 (14.2)	754 (85.8)
			720	1293
				1134
				879
				2013
Odds ratio for change 539/125 = 4.31 (95% CI 3.55–5.24)				
Question 6: Do you think the P.A.R.T.Y program will make a difference to the way you think about future actions?				
			<i>Post-test</i>	
			Other	Definitely
<i>Pre-test</i>	Other		390 (30.4)	894 (69.6)
	Definitely		34 (4.7)	694 (95.3)
			424	1588
				1284
				728
				2012
Odds ratio for change 894/34 = 26.30 (95% CI 18.67–37.03)				

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