Abstract

Background: Risky single occasion drinking (RSOD; ≥ 4 drinks in < 6 hours) more than doubles the risk of injury in young people (15 to 25 years). The potential role of smartphone apps in reducing RSOD in young people is yet to be explored. *Objective:* To describe the initial prototype testing of 'Ray's Night Out', a new iPhone app targeting RSOD in young people. *Method:* Quantitative and qualitative methods were used to evaluate the quality, perceived utility, and acceptability of the app among nine young people (19-23 years). *Results:* Participants reported Ray's Night Out had good to excellent levels of functionality and visual appeal, acceptable to good levels of entertainment, interest and information, and acceptable levels of customisation and interactivity. Young people thought the app had high levels of youth appeal, would prompt users to think about their alcohol use limits, but was unlikely to motivate a change in alcohol use in its current form. Qualitative data provided several suggestions for improving the app. *Conclusion:* Following revision, Ray's Night Out could provide an effective intervention for RSOD in non help-seeking young people. A randomized controlled trial is currently underway to test the final prototype of the app.

Keywords: Risky single occasion drinking; alcohol; binge drinking; mobile; application; young people

1. Introduction

Heavy alcohol use is an intrinsic part of youth culture (15 to 25 year olds) in many parts of the developed world (Australian Institute of Health and Welfare (AIHW), 2011; 2014; Hibell et al., 2012; Johnston, O'Malley, Bachman, Schulenberg & Miech, 2014). In Australia, 47% of 18 to 24 year olds drank at hazardous levels at least monthly in the past 12 months, with 23% reporting *risky single occasion drinking* (RSOD; ≥4 standard drinks on a single occasion; also referred to as *binge drinking* and *heavy episodic drinking*) at least weekly (AIHW, 2014). Two recent Australian online surveys reported that 50- 63% of Gen Y (18 to 34 years old) drink to get drunk and 22% would not feel comfortable abstaining from alcohol in a pub, club or bar (Foundation for Alcohol Research & Education, 2013; 2014). This is problematic, as RSOD more than doubles the risk of injury in young people, and the rate of alcohol-related violence doubled in Australia between 2007 and 2010 (AIHW, 2011; 2014).

Current technology provides an unprecedented opportunity to provide real-time alcohol health information and interventions to young people in their natural environment (Hides, 2014). Smartphone use among young Australians is close to saturation. In the first quarter of 2013, 89% of young people owned a smartphone and 83% downloaded an app, at a rate 30% higher than older age groups (Australian Communications and Media Authority, 2013).

A growing number of smartphone apps have been designed to target alcohol consumption. A review by Cohn, Hunter-Reel, Hagman and Mitchell (2011) identified 767 iPhone apps related to alcohol use. Over 70% (n =545) were coded as facilitating alcohol use (e.g., drink recipes; buying, ordering and locating alcohol), and 29% (n = 222) claimed to provide an intervention for alcohol consumption. The apps provided interventions through various methods including monitoring and feedback on the quantity of alcohol consumed,

money saved by not drinking; and information about alcohol addiction (Cohn et al., 2011). Although 90% of these apps provided alcohol interventions, their efficacy has not been evaluated in randomized controlled trials (RCTs). Further, most of these apps emphasize abstinence for individuals with alcohol use disorders, which is unlikely to be appropriate for young people, as the majority do not view their alcohol use as problematic and have no desire to abstain from such use.

These findings highlight the need for smartphone apps utilizing an engaging youth-friendly harm minimization approach for increasing alcohol-related knowledge and reducing RSOD in young people. This paper describes the initial prototype of 'Ray's Night Out': a new iPhone app targeting RSOD in young people. It then reports the initial prototype testing of the quality, usability and acceptability of the app with young alcohol users.

2. App description

Ray's Night Out was developed as part of the Young and Well Cooperative Research Centre (Young and Well CRC; www.youngandwellcrc.org.au) in consultation with five university students: Two males and three females aged between 18 and 25 years, (mean 19.75 years, SD=1.50) who had engaged in RSOD in the last month. Participants had a mean Alcohol Use Disorder Identification Test – Consumption (AUDIT-C) score of 7.25 (SD=2.87) indicating hazardous drinking (Dawson, Grant, Stinson & Zhou, 2005). Two participatory design workshops employing a semi-structured format were conducted one week apart (Zelenko, 2012; Zelenko & Hamilton, 2008). Participants were asked to operationalise their understanding of why young people consume alcohol on a night out, to describe a good versus bad night out drinking, and how technology could be used to reduce RSOD. Four existing alcohol iPhone apps including drink trackers and BAC calculators (iDrink Smarter, iDrinkulator, Drink Buddy, and Funtoxication) were trialled. Young people

were asked to comment on their level of engagement, navigation, aesthetics, as well as their overall level of satisfaction with the apps.

The second workshop primarily focused on identifying the desired features of an app for addressing RSOD in young people. Feedback suggested the app should utilize a harm minimization approach to increase young people's awareness of their drinking limits and promote safer drinking practices. Young people also expressed a preference to engage with an app-character, resulting in the development of the Ray avatar. Based on these ideas, 'Rays Night Out' was developed by a multidisciplinary team consisting of designers, psychologists, and app developers.

The app invites users to take Ray on a 'relaxed' 'fun' or 'crazy' night out. They are asked to customize their experience by setting their own time and drink limits (Figure 1). The overall aim of the app is to teach young people (aged from mid to late adolescence) how to identify their alcohol use limits termed their '*stupid line'* for drinking, the point where a good night out turns bad and starts to result in negative consequences.

Fig. 1. Screenshots of Ray choosing a type of night out, setting drink limits and the final feedback screen.

The app allows users to buy Ray alcoholic and non-alcoholic beverages and food, and engage in other non-drink related activities such as dancing, relaxing, or flirting. Visual feedback is provided on Ray's level of alcohol consumption (bottles on the right side of the screen), the physical effects of alcohol on Ray's demeanor (e.g.: hiccups, swaying) and appearance, as well as age-appropriate, verbal prompts (e.g.: "I think I'm pretty drunk"). If the user keeps buying Ray drinks and he goes over his stupid line (indicated by the bottles turning from yellow to red), he will vomit and then pass out if given more alcohol.

Conversely, if users keep Ray below the stupid line by giving him non-alcoholic beverages, food, and engaging him in non-drinking related activities they are rewarded with '*good vibe'* points. Good vibes unlock photo booth rewards where users can take photos with Ray and share them with friends through social media. Users receive additional good vibes for taking Ray home in a taxi. These aspects of the app relate to a harm minimization framework upon which the app is based, by encouraging actions that reduce potential risk associated with RSOD.

The final screen (see Figure 1) provides the user with feedback on the beverages and food consumed, and activities engaged in over the course of the night. Users are then asked to indicate where they think Ray's stupid line for drinking was and to identify their own stupid line.

3. Method

3.1. Participants and Recruitment

A focus group was conducted to test the initial app prototype with 9 young people who owned an iPhone (version 4+) and had engaged in at least one RSOD session in the previous month. Participants were the first 10 respondents to a recruitment email sent to 86 young people in a research database. Of those, nine participated: Eight females and one male with a mean age of 20.67 years (*SD* = 1.58).

3.2. Procedures

Ethical approval to conduct the study was obtained from the QUT Human Research Ethics Committee (Approval number 1300000249). Participants who provided informed consent were asked to complete a brief online survey. Information on demographic and technology use variables was first collected. The 10-item Alcohol Use Disorder Identification Test (AUDIT; Babor, Higgins-Biddle, Saunders & Monteiro, 2001) was used to provide a measure of problematic alcohol use. A cut-off score of eight is indicative of harmful alcohol

use (Babor et al., 2001). The negative consequences of alcohol consumption in the past 6 months were assessed using the 23-item Rutger's Alcohol Problem Index (RAPI; White & Labouvie, 1989).

Two focus groups were conducted: The first focus group contained six females and the second, two females and one male. The focus group followed a semi-structured format. Participants were provided with a brief overview of 'Ray's Night Out' and then directed to trial the app on an iPhone for a total of 30 minutes. Participants then completed an early version of the Mobile Application Rating Scale (MARS; Stoyanov et al., 2015), a 23-item measure of app quality, with engagement, functionality, aesthetics, and information quality subscales rated on a five point (inadequate, poor, acceptable, good, excellent) scale. User satisfaction ratings were also collected. The measure has both excellent internal consistency ($\alpha = .92$) and inter-rater reliability (ICC = .85) (Stoyanov et al., 2015). The perceived utility of the app was assessed with nine questions measured on a 5-point strongly disagree to strongly agree Likert scale. Participants were asked to rate the degree to which the app motivated them to reflect on, address or change their drinking behaviors (See Table 3 for the items).

A 30-minute focus group was then conducted to obtain qualitative feedback on the app. Participants were asked: What do you think the app was trying to achieve? What did you take away from the app? Was there anything in the app that didn't make sense? Participants were reimbursed $50 for participating in the focus group.

3.3. *Data analysis*

Descriptive statistics were used to describe the quantitative results. Bootstrapping was utilized to account for the small sample size and any potential skew. The focus group data was analyzed using the Consensual Qualitative Research (CQR) method adapted for use with focus groups (Hendrickson, McCarthy Veach & LeRoy, 2002; Hill et al. 2005; Hill,

Thompson & Williams, 1997). CQR champions the collaboration of multiple researchers during analysis, in order to maintain the true meaning of the data. The method also emphasizes the importance of examining the representativeness of ideas within the data, across the sample (Hays & Wood, 2011). Two members of the research team independently read through the transcripts of the two workshops and developed domains (topic areas used to cluster similar information together). Once each member independently assigned domains to the data, the coders converged, and discussed the domains until consensus was reached. The researchers then separately summarized the data within each domain into core ideas. Subsequently, the two researchers came together and discussed the core ideas until consensus was reached. Categories (finer distinctions within domains) were then developed; first independently, then refined through discussion and consensus. The domains, core ideas and categories were then sent to an independent auditor trained in CQR, who reviewed the data and provided comments and suggestions for consideration. Finally, one member of the primary research team re-visited the audio-recordings and determined the representativeness of categories. A category was classified as general if it applied to all participants, typical if it applied to three or four participants, and variant if it applied to two participants.

4. Results

4.1. Participant Characteristics

All participants had consumed an average of five to six standard drinks on a typical drinking session in the past three months. The mean AUDIT score was 10.67 (*SD*=6.36). Six scored in the risky/ hazardous category (*M* = 13.33, *SD* = 6.25) for problematic alcohol use on the AUDIT. Female participants (*M* = 7.38, *SD* = 7.67) scored in the average range on the RAPI compared to a normative non-clinical sample of 17 to 18 year olds (White & Labouvie, 1989). The male participant scored in the high-risk category on the AUDIT (Total score = 25)

and had double the mean score of the clinical normative sample of 17 to 18 year old males on the RAPI (total score = 43; Babor et al., 2001; White & Labouvie, 1989).

On average, participants had 20 to 30 downloaded apps on their smartphones, and reported spending an average of 30 to 60 minutes a day using apps. Three participants indicated that they had used an alcohol app previously, including: drink trackers, a blood alcohol concentration (BAC) calculator, and an alcohol information app.

4.2. Quantitative Results

The results of the evaluation of the first Ray prototype on each of the MARS subscales are presented in Table 1. Overall, the app received good to excellent scores on the functionality and aesthetics subscales, indicating that it was easy to learn and understand, had a logical flow, functioned well, and had high quality, clear and visually appealing graphics. The app had acceptable to good levels of entertainment and interest, and acceptable levels of customisation and interactivity on the engagement subscale. The information in the app was scored in the acceptable to good range, indicating that the information was relevant, appropriate and not overwhelming. All but one participant considered the app to be appropriate for young people in the target demographic and all thought it was likely to appeal to young people and result in wellbeing benefits. Participants indicated they would use this prototype version of the app between 1-2 and 3-10 times and gave it a three out of five star rating. They were unlikely to recommend the app to other young people in its current version.

Table 1
Mean Subscale Scores and Overall Score on the MARS-Youth Version

			95% CI[a]	
Subscale	*N*	*M (SD)*	*LL*	*UL*
Engagement				
Entertainment	9	3.78 (0.83)	3.22	4.33
Interest	9	3.67 (0.71)	3.22	4.11
Customisation	7	3.00 (0.58)	2.57	3.43
Interactivity	8	2.63 (0.74)	2.25	3.13
Functionality				
Performance	9	4.78 (0.44)	4.44	5.00

Ease of use	9	4.44 (0.73)	4.00	4.89
Flow & logic	9	4.33 (0.50)	4.00	4.67
Aesthetics				
Layout	9	4.33 (0.50)	4.00	4.67
Graphics	9	4.56 (0.73)	4.11	5.00
Information[b]	8	3.71 (0.58)	3.33	4.04
Satisfaction				
Recommend app[c]	9	2.78 (1.09)	2.11	3.56
Overall star rating[d]	9	3.11 (0.60)	2.78	3.44

Note. CI = Confidence Intervals; *LL* = lower limit, *UL* = upper limit; Variables scored on a 1 to 5 scale: inadequate, poor, acceptable, good, excellent

[a]CI = Bootstrapped Confidence Interval.

[b]Missing data on this sub-scale is due to a participant selecting 'N/A' for every item.

[c]Scored on a 1 to 5 scale from no one to everyone.

[d]Scored on a scale of 1 to 5 stars.

Participants' responses to the perceived app utility questions are provided in Table 2. While most did not think the app would influence their drinking Behavior such that they would drink more or less than usual, two-thirds agreed that the app made them think about their alcohol use. Additionally, six of the nine participants were uncertain if the app helped them to identify their stupid line for drinking; but six participants agreed it gave them some helpful hints for staying below their stupid line. The majority (N=6) agreed that it made them think about how they may vary their drinking goal according to the type of night out.

Table 2

Perceived Utility of Ray's Night Out

		95% CI[a]	
Item	*M* (*SD*)	*LL*	*UL*
May influence my drinking behavior such that I would drink MORE than usual	1.89 (0.78)	1.44	2.33
May influence my drinking behavior such that I drink LESS than usual	1.89 (0.92)	1.44	2.56
Made me think about my alcohol use	3.67 (0.71)	3.22	4.00
Motivated me to identify my drinking goals for a night out	3.22 (0.97)	2.56	3.78
Helped me to identify my stupid line for drinking	3.00 (1.23)	2.22	3.78
Motivated me to try and stay below my stupid line for drinking	3.11 (0.93)	2.56	3.67
Motivated me to make a change in my alcohol behavior (do something differently)	2.44 (0.73)	2.00	2.89
Gave me some helpful hints for staying below my stupid line	3.33 (1.00)	2.67	3.99
Made me think about how my drinking goal may vary	3.78 (0.97)	3.22	4.33

according to the type of night out I am planning	

Note. CI = confidence interval; *LL* = lower limit, *UL* = upper limit.
Variables scored on a 1 to 5 scale from strongly disagree to strongly agree.
[a]Confidence Intervals are Bootstrapped to account for potential skew in small sample size.

4.3. Qualitative Results

Seven domains and 44 categories were identified through CQR analysis of the focus groups, presented in Table 3.

4.3.1. Outcomes of app use

The app facilitated reflection on alcohol consumed on a night out and brought to some participants' attention that they could not recall how much alcohol they consume during a night out. Participants described an increased awareness of personal drinking limits and different levels of intoxication after using the app, "I think it's introducing the fact that like there is a point where you go over". The belief that the app was "making you aware of how much is too much I guess and how fast you do it or if you mix it with things" was also expressed. Finally, the belief that the app would not change drinking behaviors was demonstrated through statements including: "I think it's like something you learn by experience. Like the app helps you like think about it but it's not like gonna be like 'OK so this panda passed out after that many drinks, I shouldn't have that many'".

4.3.2. Clear and/or appropriate content

The app was deemed to contain appropriate content and was easy to use and understand. This was demonstrated through participants' ability to discover the camera function, complete multiple actions at once and awareness of the meaning of the color of the bottles on the side of the screen. Additionally the appropriateness of content was highlighted, "Nothing is like bad on the app that you don't think should be there. Like everything felt in place".

4.3.3. Unclear and insufficient content

Participants universally indicated that they did not understand or overlooked the concept of "the lights" (good vibes) entirely. This was evident in both workshops through

statements including “I didn’t understand what the lights did”, “what was with the lights? Did they mean anything?” and “it’s not really that noticeable”. Additionally, all participants in the first workshop indicated that the terminology of the “stupid line” was unclear. Specifically, a participant stated, “yeah I didn’t know the terminology of the stupid line” which was endorsed by the rest of the participants. Another stated their interpretation of the stupid line as “Like you say things stupid things and like when did you start just saying stupid lines?” indicating that the concept of the stupid line was open to interpretation and not clearly understood by participants. Additionally, participants expressed that they did not discover subtle functions of the app: “You didn’t know that you can tickle him, like there was no way of telling that”.

4.3.4. Desired features of the app

The most desired features for the app, expressed by all participants were a multiplayer feature and more consequences for the avatar, particularly via strong visual messages. A desired competitive, multi-player aspect came across in both workshops: “You could link it to his phone and be like other Rays out there partying in the same club as you, and then see who could get the least drunk” and “If it had like a competition thing where you could like play with your friends sort of thing and see who can get Ray the most drunk without passing out or something”. Consequences for spending all the money, physiological consequences of consuming too much alcohol and the effects of mixing drinks were especially desired. Specifically, visual images of the consequences of excessive alcohol consumption were favored “Yeah like car crashes”.

4.3.5. Use of the app

Participants stated that the current version of the app would be used briefly or infrequently, primarily to simulate own drinking behaviors or track drinks: “It was one of

those apps that you'd really only play with once and then never use again" and "Maybe [use] initially but not ongoing".

Less predominant domains including perceptions of a night out and representations of reality in the app were also highlighted in the focus groups.

Table 3

Domains, Categories and Frequency of Occurrence for Qualitative Data in Study 2

Domain	Category	Frequency
Outcomes of app use	Would not change drinking behaviors	Typical
	Encourages/ promotes drinking	Typical
	Would change drinking behaviors	Variant
	Facilitated reflection on amount of alcohol consumed	Typical
	Facilitated reflection on intoxication levels	Typical
	Raises awareness of limits	Typical
	Increased insight into nights out	Variant
Clear and/or appropriate content	Acceptable, interesting and entertaining	Variant
	Use of "stupid line" and overall language is appropriate	Variant
	Easy to use and understand	Typical
	Ray is male	General
Unclear and insufficient content	Terminology and function of "stupid line" is unclear	Typical
	"Good vibes" concept unclear	General
	Functional aspects not fully explored	Typical
	Summary information easily overlooked/ unclear	Typical
	Information on intoxication and consequences too minimal	Typical
Desired features of the app	Multiplayer feature	General
	Female avatar	Typical
	More social/ interactive	Typical
	Ray needs a girlfriend	Typical
	Time should be represented differently	Typical
	More consequences via strong visual messages	General
	More user control	Variant
	More drink and venue options	Typical
	More helpful hints and tips	Typical
	More emphasis on the role of food and more food options	Variant
	Information on stupid line and drunkenness levels needs to be clearer	Typical
	More game-like with clear objective, levels and prizes	Typical
Use of app	Brief or infrequent use	General
	Use for entertainment	Variant
	Simulate own drinking behaviors/ drinks tracker	General
	Drink with and test Ray's limits	Variant
	Incentives needed to use and share the app	Typical
Perceptions of a night out	Type of night out reflected in venue and drinks	Typical
	Drinking is OK, but not excessively	Typical
	Food is good when drinking	Variant
Representations of reality in the app	Unrealistic money representations	General
	Number and range of drinks unrealistic	Typical
	Food available and quantity consumed unrealistic	Variant
	Unrealistic drinking behavior and consequences	Variant
	Drunkenness changing behaviors and appearances realistic	Variant
	Realistic representation of time	Variant
	Unrealistic representation of time	Variant
	Realistic representation of food options	Variant

Note. G*eneral* - core ideas applied to all participants, *typical* - core ideas for the category applied to five to eight participants, and *variant* - core ideas for the category applied to two to four participants.

5. Discussion

The study evaluated the initial prototype of an iPhone app designed by young people to address youth RSOD. Young people who participated in the study engaged in RSOD weekly and ranged from low to high-risk drinkers on the AUDIT. While the app did not motivate participants to change their alcohol use, it did prompt them to think about their alcohol use and limits. The app had high levels of functionality and visual aesthetics as indicated on the MARS. The engagement subscale revealed that young people found the app entertaining and interesting, but gave lower scores on customization and interactivity. This feedback was also echoed in the qualitative data. Several suggestions for how to improve the app were made including the need to highlight the potential negative consequences of RSOD. This was partially addressed through the incorporation of an animation of Ray leaving the bar in an ambulance rather than a taxi, when he goes over his stupid line.

While most participants thought the app would appeal to young people, they were willing to recommend the app to only a few people. This may reflect the older age (mean = 21 years) of the participants in the current study. However, they were supportive of the idea of using the app to target RSOD in a younger age group, evidenced by statements such as "they could take that to schools like before schoolies" (a graduation festival celebrated by Australian school leavers). Using Ray to target a younger audience is consistent with calls for innovative preventative and early intervention approaches to reduce the rates of RSOD in adolescents as young as 15 (Kisely et al., 2011; Livingston, 2008). Given the high level of youth consultation during the development of the app, the Ray app is likely to appeal to adolescent RSOD drinkers; however this needs to be confirmed in a larger sample. Consequently, the quality, acceptability, and perceived utility of the revised version of Ray's Night Out is currently being tested in 180 young people. This trial will also determine the

efficacy of the app in a randomized controlled trial, to examine its impact on young people's alcohol knowledge, use of harm minimization strategies, and RSOD.

The Technology Acceptance Model argues that it is the usefulness and ease of use of apps which make them acceptable among users (Prieto, Migueláñez, García-Peñalvo, 2014; Salo, Kajalo, Mäntymäki, Sihvonen, Leminen, 2013; Yen, Wu, Cheng, Huang, 2010). Young people found the app easy to use and reported they would use the current version of the Ray app between 1-2 and 3-10 times. This is satisfactory, given the app was developed for educational purposes to increase young people's awareness of their drinking limits and promote safer drinking practices. Research indicates the majority of downloaded mobile health apps are not used at all. Of those used, 26% are used only once and a further 74% are discontinued prior to the tenth use (Consumer Health Information Corporation, 2011). The level of uptake or usage of existing alcohol intervention apps which promote self-monitoring of alcohol use is unknown. Future research is required to compare young people's level of uptake, engagement and use of Ray's Night Out compared to existing alcohol apps.

A need for the clarification of concepts including 'stupid line', 'good vibes', and the feedback page were noted as the biggest issues within the app. The first focus group misinterpreted the stupid line concept entirely, and all participants in both groups reported either overlooking the good vibes lights, or not understanding their purpose. In response, an overlay providing an explanation of these app features, including a definition of the stupid line and how to score good vibes now appears when a user first accesses the app. This overlay can also be re-accessed via the settings page.

The propensity for users to overlook the summary screen and skip guessing the stupid line was also highlighted. This is problematic as this screen encourages reflection on some of the most important harm minimization messages contained in the app. To address this, the

summary information was revised, and the layout was changed to make the information (which was deemed helpful) more clear and intuitive (Figure 2).

Fig. 2. Updated feedback screen.

Focus group feedback also indicated that the harm minimization strategies and feedback embedded in the app were easily overlooked. To rectify this issue, alcohol use trivia was incorporated into the app (Figure 3). This new feature enables users to test their knowledge of harm minimization strategies and correct any misinformation or myths. Other youth friendly trivia questions were added to the app to maintain engagement.

Fig. 3. Example of alcohol-related trivia questions.

This study has several limitations. First, although acceptable within a participatory design framework (Zelenko, 2012; Zelenko & Hamilton, 2008) and for CQR analysis (Hill et al. 1997; 2005), the small sample size ($N = 9$) limits the conclusions that can be drawn from this study. While the participants were avid technology users and consisted of both low and high-risk drinkers, only one male participated in the study. This indicates that further youth consultation may be required to ensure the app is appropriately targeted at both genders.

Strengths of the study include the use of a participatory design framework, which champions the involvement of end users in all stages of app design and evaluation. The positive feedback provided by young people, supports the utility of participatory design methods for creating youth friendly behavior modification apps.

6. Conclusion

Although the number of apps targeting alcohol use is increasing, research on the quality, acceptability, and impact of apps on alcohol use is lacking. This paper reports the initial prototype testing of the quality, usability and acceptability of Ray's Night Out. Overall,

young people were supportive of the idea of using the app to target RSOD in young people. This was evident through statements including “It’s pretty relevant. That’s what people do”. Ray’s Night Out was found to have a high level of functionality and visual appeal, good levels of entertainment, interest and information, and acceptable levels of customization and interactivity. Qualitative feedback from young people provided a number of suggestions for improving the app to enhance young people’s knowledge of the consequences of RSOD and harm minimization strategies. A randomized control trial is currently being conducted to test the efficacy of the revised version of the app among 180 young alcohol users. Ray’s Night Out has the potential to be a novel and engaging intervention for RSOD in young people.

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