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ORIGINAL ARTICLE

Assessing the impact of computerised and written advice in changing the habit and behaviour of alcohol use in patients who have suffered alcohol-related facial injuries—a pilot study

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Abstract

Purpose Alcohol screening and a brief intervention (SBI) can be effective in changing harmful drinking behaviour and reducing the chance of future alcohol-related traumas. However, there is no standardised method in its application. This study aims to deliver a novel method of SBI to patients with alcohol-related facial fractures and to assess changes in their alcohol intake and attitudes to drinking following this intervention.

Methods Twenty consecutive patients at two Victorian Hospitals were consented to undergo a novel SBI program. This study analysed the results of the initial survey and the follow-up survey completed at least 3 months later.

Results Of the 20 patients recruited for the initial survey, 18 returned for the follow-up (90% response rate). All patients were males, 50% were aged between 18 and 29 years, 61% involved in interpersonal violence, 56% sustained mandibular fractures and 89% underwent surgery. The alcohol risk score increased in the follow-up survey; however, the relationship is not statistically significant. A high proportion of the patients were still unaware of their risk. Patients showed greater awareness of their drinking and willingness to accept help and more readiness to accept written advice rather than computerised materials.

Conclusion This study found a high rate of acceptance among trauma patients to the intervention program. Although there was no significant change in the risk scores between the initial and follow-up surveys, certain subgroup was more amenable to the intervention given. There is generally an improvement in the attitudes towards and knowledge of harmful drinking.

Keywords Alcohol · Brief intervention · Screening

Introduction

Alcohol has a depressant effect on the central nervous system. Excessive alcohol consumption can cause a number of detrimental effects including impairment in decision making and an increased likelihood of risk-taking behaviour [1]. As a result, intoxicated individuals have a higher propensity to aggression, decreased ability to respond to aggression, as well as often exhibiting inappropriate emotional responses [2].

Alcohol-involved facial fractures are frequently associated with specific injury characteristics. Fractures secondary to interpersonal violence (IPV) may be more severe and are more likely to require surgery when compared with fractures from non-alcohol-related injuries [3]. A high proportion of the IPV-related cases has been reported to occur in bars pubs or clubs or nearby streets [4]. Other associated factors with this trauma sub-type include higher prevalence of injuries in the indigenous race in Australia [5] and in the lower socioeconomic groups [6].

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Managing trauma patients with chronic alcohol abuse in the peri-operative phase poses challenges to clinicians as these patients can suffer from alcohol withdrawal symptoms and have a higher chance of peri-operative complications, delay in the healing process and possible trauma recurrence [7, 8].

There are population-based interventions such as educational fora targeting specific groups in the younger population before development of harmful drinking habits, increase of taxes on alcohol purchase and limitation of accessibility to alcohol through such legislations as curfews in high-risk areas (for example, central business districts) [9]. However, an alcohol minimization program is difficult to implement as the values of community-based public health initiatives and their long-term benefits are not well known [10].

Alcohol screening and a brief intervention (SBI) involves assessment of hazardous, harmful and dependent use of alcohol via a validated questionnaire and the provision of personalised feedback and advice. SBI is a widely accepted method in offering support to alcohol-related trauma patients and can provide a benefit in lifestyle changes post-discharge [11]. Alcohol intervention performed in the primary care setting was not found to have a significant benefit compared with patients receiving standard care only [10]. On the other hand, opportunistic and timely intervention for patients who have experienced an alcohol-related traumatic episode may prove to be highly beneficial [10]. Assessment of alcohol harm goes beyond taking a history of acute alcohol intoxication at the time of the injuries to quantifying the evidence of harmful alcohol behaviour such as binge drinking. Appropriate alcohol screening can then provide a smooth transition to a brief alcohol intervention (BAI) [12].

BAI has been defined as "short and inexpensive interventions among individuals who are not complaining or seeking help for addictive disorders" [13] and definition has been refined to include "clinical interventions that include screening and assessment, and provide information and advice designed to achieve a reduction in risky alcohol consumption, and/or alcohol-related problems" [14]. BAI is a type of motivational interview [15, 16]. It is more beneficial to patients with binge drinking behaviour rather than patients with established alcohol dependency [17]. Patients with hazardous drinking habits require education and ongoing support. It has been reported that 20% of patients who suffer alcohol-related trauma can progress to higher-risk drinking with no intervention [18].

Although SBI has been reported to be an effective tool as part of post-trauma care, the methods in SBI delivery vary from study to study [15–17]. This study aims to trial a novel method of SBI to patients who have suffered alcohol-related facial fractures and to measure possible changes in their drinking habits over time. The results of this study aim to contribute to the development and implementation of an intervention strategy in a larger study and to produce a template for preventive service delivery which other centres in Australia could adopt. The ultimate goal of this project is to reduce alcohol-related facial fractures by routinely implementing SBI in the high-risk population groups.

Although there is not a standardised method in the delivery of SBI, the use of multiple and complementary modalities is likely to produce the most benefit for the patients. There is a lack of peer-reviewed studies to examine the potential benefit of such multi-modality alcohol intervention package as part of routine trauma care for patients with alcohol involvement. This is a pilot study to test one screening questionnaire as well as to trial a multi-modality SBI strategy. The results from this study will inform a future randomised controlled trial.

Methods

Twenty consecutive patients who sustained alcohol-related facial fractures through their admission to Barwon Health and Western Health in Victoria, Australia for management by the Oral and Maxillofacial Surgery (OMS) Units and consented to undertake the proposed screening and intervention were recruited from January, 2017 to January, 2018. They were then given computerised and written advice (SBI). Changes in their drinking habits and attitudes were assessed by comparing the initial questionnaire with a second questionnaire completed at least 3 months later.

The questionnaire had two components. Firstly, Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) screening tool (WHO 2006) was used to determine the 'at-risk' score of alcohol consumption. The ASSIST questionnaire was a brief screening questionnaire developed by the World Health Organisation (WHO) and an international team of researchers and was reported to be a simple and reliable method of screening for hazardous, harmful and dependent use of alcohol. This questionnaire is commonly used in the primary care setting to measure at risk drinking behaviour but has also been found to be an effective tool in screen alcohol use in trauma patients in the acute settings. Secondly, a series of questions were designed according to FRAMES model to assess patients' willingness to participate in SBI by determining (a) the patient's own thoughts, perceived risk and sense of responsibility about their drinking habits; (b) the willingness to discuss their drinking habits with a healthcare professional and to attend follow-up appointments; (c) the basic methods of intervention that might be preferred; (d) reasons why the patient may not be interested in intervention; (e) the patient's previous use of alcohol-cessation services and details of their support network; (f) whether the patient would be willing to receive feedback about their alcohol-related risk; (g) how the patient might set alcohol-cessation goals.

Computerised advice consists of a series of power-point slides designed to educate patients on the harmful effect of alcohol use, strategies to reduce at risk alcohol use and avenues to seek further help. Written advice was in the format of an information pamphlet that was given to the patients after completing their computerised education session.

In Australia, there is no legal or medical obligation for patients presented with alcohol-related injuries to undergo an alcohol blood test. Alcohol involvement at the time of trauma was ascertained from medical record or patient interview during initial consultation. Suitable patients were recruited during their emergency department admission, during their stay in hospital ward or review at the outpatient clinic depending on the appropriate time to obtain consent and request patients' participation in the study. The on-call registrars and residents were asked by the emergency department to review such patients and were responsible for explaining the study to the patients, obtaining their consent and facilitating the brief intervention. The screening questionnaire and computerised advice were conducted on iPads and computers when practical. Hardcopies of the questionnaire were also available for patients to complete if an electronic device or access to a computer were not available.

A follow-up letter from the primary investigator was posted or emailed 3 months following this brief intervention session which also requested patients to complete a follow-up questionnaire. This was sent via emailed link or given at outpatient clinic.

All patients with alcohol-related facial fractures who were referred to the OMS units for management of their injuries were eligible to participate in this study. However, underaged patients (age of 18 years and below and not legally capable to give consent), patients who do not understand English were not recruited. If patients required urgent treatment or were in distress or in great pain, or were still intoxicated at the time of consultation, they were approached to participate later whilst still in the hospital ward or at the outpatient clinic. Analyses will be undertaken using the IBM SPSS Software.

Results

Patient demographics

A total of 20 consecutive patients presenting with facial fractures to Barwon Health and Western Health for management by the OMS Unit were recruited for this study and completed SBI. Eighteen patients submitted the follow-up survey, and therefore, the analysis was conducted on these 18 patients (6 patients from Barwon Health and 12 patients from Western Health). Patient ages ranged from 19 to 78 years at the time of injury (mean = 34.6, SD = 15.7 years). Half ($n = 9$) were young people aged 18–29 years and 8 (44%) were workers related to the building industry (builder, carpenter, construction worker, landscaper and plumber) (Table 1).

The majority (61%, $n = 11$) were involved in IPV. All patients who presented with IPV belonged to the younger age groups (< 46 years) and all patients aged 65 years and older ($n = 2$) were fall victims. Over half of all patients (56%, $n = 10$) sustained mandibular fractures. The majority (88.9%, $n = 16$) underwent surgery.

For most of the patients (83%, $n = 15$), this was the first presentation to the ED with alcohol-related trauma. When questioned about the causal responsibility for this traumatic episode, 89% patients felt it was their own responsibility.

Changes in alcohol risk score

The total ASSIST score ranged from 0 to 30 before the intervention and 0 to 35 after the intervention. The average

Table 1 Description of the participants ($N = 18$)

	n (%)
Gender	
Male	18 (100)
Female	0 (0)
Age	
18–29 years	9 (50)
30–46 years	7 (39)
47–60	0 (0)
> 60 years	2 (21)
Fracture site	
Mandible	10 (56)
Zygomatic	4 (22)
Orbit	3 (16)
Maxilla	1 (6)
Occupation	
Building	8 (44)
Student	2 (11)
Retiree	2 (11)
Unemployed	2 (11)
Other professional	4 (22)
Aetiology	
IPV	11 (61)
Falls	6 (33)
Accident	1 (6)
Risk level at presentation	
Low	8 (44)
Moderate	9 (50)
High	1 (6)
Number of presentations to ED	
First	15 (83)
Second	2 (11)
≥ 3	1 (6)

ASSIST score increased from 12.94 (SD = 8.07) to 13.50 (SD = 8.71). A *t* test for paired data did not suggest any statistical significance ($t = -0.24$, $p = 0.81$).

As shown in Fig. 1, the number with increased scores was similar to the number with decreased scores. Four patients reported a reduction (green bars in Fig. 1), five patients had an increase (orange bars), while half (50%, $n = 9$) did not have a change in their risk levels.

The changes in the risk scores were also examined among the different subgroups. There were no significant changes for the workers related to the building industry ($n = 8$), injuries due to IPV ($n = 11$), fractures of the mandible ($n = 10$) and patients who underwent surgery ($n = 16$). However, the younger group (aged < 30, $n = 9$) had increased risk scores after SBI (average risk score 10.22 vs. 16.33) with borderline statistical significance ($t = -2.00$, $p = 0.08$). On the contrary, the older participants (aged 31–78 years, $n = 9$) reported reduced risks after the SBI (average risk score 15.67 vs. 10.67) with borderline statistical significance ($t = -2.24$, $p = 0.056$). The relationship between the effect of SBI with age is illustrated in Fig. 2.

Consistently, among the five patients with increased risk level (orange bars in Fig. 1), four were aged below 30 and one aged 37 years, while all the four participants with a reduced risk level (green bard in Fig. 1) were those aged 31 years and older.

Key findings from the second part of the questionnaire elucidated important aspects of the traumatic episodes in relation to patients' attitude towards and knowledge of their drinking, their support network and willingness to make changes in the future. The findings are summarised in Table 2. Given the small sample size, none of these changes reached statistical significance using McNemar's test (all *p* values > 0.05).

Self-awareness of harmful alcohol use

There was a small increase in the patient proportion who felt their drinking was excessive (22% vs 28%). Half of the patients recognised that alcohol led to their presentation to the hospital. In the follow-up survey, slightly less proportion claimed the initial traumatic episode made them think again about drinking. Majority of the patients were willing to take a blood alcohol level to facilitate their treatment.

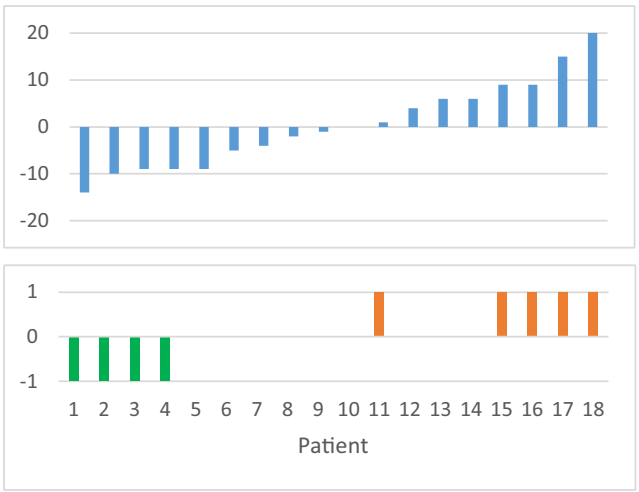

Fig. 1 Change of risk scores and risk level

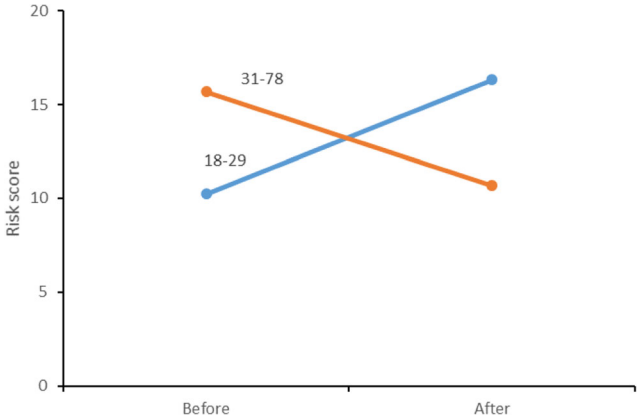

Fig. 2 Change of average risk scores by age group

Talking about your drinking

Despite an increase in the patient proportion who agreed talking about drinking is a waste of time (28% vs 39%), there is a greater increase in the proportion who would consider accepting help (17% vs 33%). Around 40% of the patients would consider returning for a follow-up (slight drop in the follow-up survey). Less than 20% of the patients would consider receiving Internet-based interventions but a higher proportion of the patients in the follow-up survey would consider accepting reading materials (28% vs 41%). A much higher proportion of the patients (14% vs 39%) would not discuss about their drinking if it was to last more than 30 min.

Support network

There was an increase (67% vs 72%) in the patient proportion who were aware of alcohol cessation programs available but only a small proportion had utilised such services in the past. More than 80% of the patients agreed they can draw on family and friends for support. A higher proportion of the patients in the follow-up survey (22% vs 39%) would consider being involved in a group discussion about their drinking.

My risk

Over 60% of patients would like to know their risk score (slight increase from 61 to 67%) and over half of the patients would like feedback about their risk. An increase in the patient proportion (from 61 to 78%) agreed they would be concerned if alcohol increase the risk of readmission and severity of the injury.

Table 2 Summary of patient attitudes towards drinking and alcohol-related injuries

	Initial	Follow-up
Self-awareness		
I drink too much alcohol	4/18 (22%)	5/18 (28%)
Alcohol has influenced why I am here today	8/18 (44%)	9/18 (50%)
This episode has made me think again about drinking	7/18 (39%)	6/18 (33%)
Willing to take blood alcohol level if help guide treatment	14/18 (78%)	12/18 (67%)
Talking about drinking		
Talking about drinking is a waste of time	5/18 (28%)	7/18 (39%)
Need to ask questions confidentially about drinking	2/18 (11%)	4/18 (22%)
Would consider accepting help	3/18 (167%)	6/18 (33%)
Talking to healthcare worker might help	5/18 (28%)	5/18 (28%)
Would not discuss drinking for more than 30mins	8/18 (44%)	7/18 (39%)
Would consider returning for follow-up	8/17 (47%)	7/18 (39%)
Reading material would help	5/18 (28%)	7/17 (41%)
Would consider internet based intervention	3/18 (17%)	3/18 (17%)
Support network		
Aware of alcohol cessation services	12/18 (67%)	13/18 (72%)
Alcohol cessation services not useful in past	2/16 (13%)	4/18 (22%)
Have supportive family and friends who can help	14/17 (83%)	15/18 (83%)
Would consider group discussion	4/18 (22%)	7/18 (39%)
My risk		
Would like to know weekly recommended alcohol limit	7/18 (39%)	10/18 (56%)
Would like to know own at risk score	11/18 (61%)	12/18 (67%)
Would like some feedback about risk	10/18 (56%)	9/18 (50%)
Would like to know about alcohol harm	6/18 (33%)	8/18 (44%)
Would be concerned if told drinking will increase risk of readmission and severity of injury	11/18 (61%)	14/18 (78%)
Setting goals		
Would be helpful if a healthcare worker helps to set goals	3/18 (14%)	6/18 (33%)
Could try to stop or reduce drinking with some help	3/18 (14%)	7/18 (78%)
Drinking is related to stress and no one can help	3/18 (14%)	4/18 (22%)

Setting goals

There was an increase in the number of patients acknowledging the need for some help and the role of healthcare workers in setting goals (14% vs 33%) and would try to reduce their drinking with some help (14% vs 78%). A small proportion of the patients attributed drinking to stress and felt that no one can help (increased from 14 to 22%).

Participants' feedback about SBI (questions 35–37)

The intervention received highly positive feedbacks. Most (11/16, 69%) participants agreed or strongly agreed with that they found the information given useful in thinking about their future drinking habits. Five participants disagreed or strongly disagreed with this statement. Four of them were young people aged under 30 and one was 65 years old. Similarly, majority (12/17, 71% and 14/17, 82%) agreed or strongly agreed that they had better understanding about the nature and management of facial injuries or had better understanding about where to seek further help when concerned about their drinking habits. The numbers of participants with a negative view about these two questions were very small ($n = 1–3$) and had no clear pattern in relation to the patient nor injury characteristics.

Discussion

The demographic sample of the study patients reflected the typical presentation of alcohol-related facial trauma including male predominance, predilection for the younger age group, IPV as a key trauma aetiology, and mandible as the common fracture site [1, 3, 9]. The total ASSIST score increased in the follow-up survey; however, there was no statistical significant correlation with the initial survey. An interesting finding was

that the younger group had increased score after the SBI while the older patients had reduced risk score; therefore, the intervention may have more benefit in certain patient subgroup and the intervention may require modification to be more effective in the younger groups. Most patients were receptive to the SBI with the majority acknowledging that the information given was helpful in potentially changing their drinking and in understanding harmful drinking behaviour. There is scope for a randomised controlled trial testing this method of SBI delivery in the future.

Some important considerations to effective implementation of SBI as a routine post-trauma care include

(1) Logistics of SBI implementation in the acute settings

Despite good evidence for the practice of SBI in reducing harmful alcohol use following traumatic episodes, it is often viewed as a task reserved for specialists [19]. It is essential to educate healthcare professionals who are not in addiction medicine to gain more insight into the practice of SBI for patients presenting with alcohol-related injuries.

However, there are significant difficulties in implementing SBI as part of routine acute surgical care due to practitioners' time, training, program acceptability to the patients [10, 11, 20, 21] and the fact that immediate surgical care of these patients takes priority over potential preventative treatment. There was not a single health professional group in acute care identified as being responsible for alcohol intervention but opinions ranged from medical physician to chief resident [22]. Surgeons were classified into the non-screening category in some studies [20, 21, 23, 24]. In these studies, the surgeons viewed positively towards further education but did not practise SBI.

The majority of surgeons cited a lack of time as the main barrier to intervention [20, 23, 24]. A significant proportion recognised there were knowledge gaps and were willing to participate in further education. Junior doctors were found to have a poor understanding of alcohol intervention and weekend medical staffing was limited at a time when this type of injury was more likely to present in ED [25, 26].

In general, doctors in acute care often believe that SBI is better implemented in the primary care setting once the patients have recovered from their acute injuries. The short turnover time in trauma patients where most patients are discharged in under 48 h is another significant barrier to conducting adequate SBI intervention [27]. Outside of hospital settings, a small proportion of the interventions are delivered by general medical practitioner, psychologist and other allied health professionals [22, 28].

The nursing staff have the most contact time with trauma patients in the acute settings. They are usually the first in assessing alcohol withdrawal symptoms in trauma patients and are ideally placed to provide the first step in alcohol intervention [23]. The role of nurses in providing SBI to the patients following trauma has been investigated. One study found that nurses who completed a two-day training course on delivery of BAI were capable of delivering intervention to the patients without intruding on their routine tasks and concluded that this service should be readily available in the clinical settings [17]. Another study found that nurses expressed inadequacy in their role to address alcohol problems and believed it was beyond their scope of practice [23]. This sentiment was echoed by the allied health staff such as social workers and occupational therapists.

Apart from a possible lack of interest from the acute care clinicians in providing SBI, there are also some logistical barriers such as patients with insufficient language proficiency, impaired consciousness, the physical discomfort associated with the injuries themselves and also insufficient staffing at the most appropriate times [29–31].

SBI and referral for treatment study conducted in ED revealed that 24% of all patients who screened positive for alcohol following their trauma were not enrolled in the trial due to an inability to give consent or were excluded due to certain clinical characteristics (cognitive impairment, level of sedation, urgency for medical treatment) [29]. Furthermore, there is reduced staffing at weekends and public holidays when traumatic injuries are more likely to occur [26, 32].

The belief is that the often busy, chaotic ED is not an ideal environment for formal assessment, nor patients may not be in the right frame of mind to receive and retain such information, and intervention may be better suited to the wards or delivered in an outpatient setting [33].

The literature on the efficiency and efficacy of different methods of delivering a brief intervention is scarce. Due to limited healthcare resources and clinicians' time, it is important to formulate time saving and low cost interventional strategies that are acceptable to both the busy clinicians and the patients. It has been argued that the person delivering the brief intervention may not be the essential element of an effective brief alcohol intervention but the person receiving it should be selected appropriately [11, 12]. This study found shows a high acceptance rate of this novel SBI strategy among the participants.

(2) Content of SBI—what is the most efficient and effective way to implement this strategy

There is no standardised methodology in evidence-based practice of SBI. The content, length and format of SBI are highly variables in different studies. SBI is most optimal when delivered as a package of therapy tailored to each patient and involve clinicians from several disciplines. Although SBI is routinely implemented in the USA and has been recommended by the Royal Australasian College of Surgeons as a standard management of trauma patients, it is not routinely practiced in Australia and New Zealand [28].

Brief alcohol intervention as recommended by the American college of surgeons consists of single or multiple 5–10-min sessions focussed on assessment, education and motivation [28]. Given the short sessions, intervention can occur at different settings during the patient's admission and was recommended to be undertaken by clinical staff of varying roles. Studies reporting on the different format of BAI have shown that shorter intervention including a brief interview on sensible drinking and limiting alcohol consumption can be as effective as a long counselling session [34].

Studies have shown that various SBI formats including written alcohol advice with or without individual feedback, formal consultation, information leaflet or handout, computerised feedback and mail or web-based correspondence cost effectively reduce hazardous drinking and the risk of re-injury [11, 12, 35, 36]. All these strategies fit into the domain of a brief alcohol intervention. Written self-help literature has been found to be beneficial in helping patients in reducing their harmful drinking behaviour after sustaining an alcohol-related injury without a face-to-face (motivational) interview with a therapist [37]. Personalised written advice for trauma patients and use of computerised screening prior to discharge from the emergency department can be an effective way to educate these patients [12].

This study found that most patients were accepting of SBI and found the content of this multi-modality SBI useful. Although a high proportion of the patients were still unaware of their alcohol risk level, a high proportion of the patients showed greater awareness of their drinking and willingness to accept help.

Western Health and Barwon Health service a diverse population; therefore, clinicians need to be aware of culturally appropriate questioning methods to obtain the best results from SBI and further research is required to develop an effective validated screening tool and formulate appropriate language in the computerised and written advice. The provision of alcohol support following trauma should also include advice on a referral pathway to ensure ongoing support in selected patients; therefore, an important part in SBI is to develop network to make such a process smooth. Screening, brief intervention and referral to treatment (SBIRT) have been investigated in studies to reduce risky substance use [38, 39].

(3) Current evidence supporting technology-based SBI

The concept of technology-based SBI is gaining acceptance both by the clinicians and the patients for routine use [40]. It has several advantages in the acute care settings where time, staff, resources and space can be limited. Electronic intervention requires little training to implement as the healthcare providers act more as facilitators of the information.

In this study, a third of the patients screened positive for hazardous or harmful drinking and 8% for possible alcohol dependence. Most patients found feedback on their drinking useful. Even though the average risk scores were higher in the follow-up surveys, a high proportion of the patients were willing to accept intervention as well as finding the intervention helpful. A high proportion of the patients were willing to accept the written intervention material rather than Internet-based intervention materials which emphasised the need to develop simple to follow and understand educational materials. The Internet-based education materials in this study were designed with input from a graphic designer and used a number of graphics to enable patients to follow the information slides with ease.

One study on the validity and effectiveness of electronic SBI (e-SBI) found this method to be infrequently used but it provides an efficient and time saving alternative to face to face interview required in a formal SBI session and that e-SBI was acceptable to those attending outpatient clinics without disrupting routine running of service [41].

e-SBI with the aid of a tablet can capture non-English speaking patients [42]. Self-reporting by the patients revealed they are more likely to be honest with a computer compared to a real person and 50% of patients who were above the drinking recommendations reported they were willing to change their behaviour. This was supported similarly by another study in which ED nurses felt more comfortable asking patients to perform an electronic screening and intervention [43]. Seventy-five percent of patients in this study felt that the electronic format did not impact on their workload. There is no longitudinal data to investigate whether the change in behaviour continues long after the initial injuries.

A systematic review on technology-based behavioural intervention in the ED found clinicians were supportive of the potential of e-SBI to overcome barriers of behavioural health screening, interventions and referrals to treatment in the ED. Current evidence suggests that technology-based tools can be feasible and acceptable to patients and healthcare providers [44]. A major barrier to overcome in this study was technical difficulties encountered in busy hospital settings when Internet becomes unavailable. In such cases, SBI can be implemented in written format as a back-up option. Also due to restricted time in the clinic, the alcohol screening questionnaire may be completed via an emailed link post discharge. The patients then had to either complete the survey on paper or be emailed a link to complete the survey at a later time.

Limitations

There are some limitations encountered in this study. One patient declined to participate in this study for unspecified reason. Two percent of patients did not submit the follow-up survey.

Timing of SBI in the acute settings can be difficult. Most patients received SBI in the outpatient clinics but, if possible, the patients were given SBI at the earliest opportunity once they have recovered from the acute injuries. Patients who were sedated, agitated or confused or needing urgent surgical management offered intervention later on. All patients who were suitable for this study had adequate understanding of the language English to complete the screening questionnaire and understand the intervention. Nevertheless, the information was designed with graphic contents so that patients with limited understanding of English can still receive alcohol intervention.

All self-reporting studies are associated with certain degree of inaccuracies. As this is a feasibility study with no control arm, the real value of the results can only be extrapolated. The main aim of this study is to test a new novel method of SBI delivery with view to then extend it to a randomised control trial to. There is the potential to also extend this SBI strategy to include all alcohol-related injuries.

Conclusion

Opportunistic education on the harmful effect of drinking at the time of traumatic episodes can be highly beneficial. This study trialled a novel method of administering SBI. There are difficulties in its application but patients generally found the process useful. This study found high rate of acceptance among trauma patients to the intervention program. Most patients were willing to accept some form of SBI, further advice from health clinicians and demonstrated readiness to make future changes to their drinking habits. Although there was no significant change in the risk scores between the initial and follow-up surveys, the study found that certain subgroup was more amenable to the intervention given. The development of a systematic link between hospital admission to provision of alcohol support and subsequently to discharge to community groups for problem drinkers is essential to allow for a streamlined pathway for patients and practitioners. Education should be provided to all medical and allied health staff from an undergraduate level. The misconception that BAI is a task reserved for medical specialist must be overcome in order to provide timely intervention to trauma patients who have short inpatient admission. Conducting a randomised controlled trial using this combined SBI method in multi-centres will be a future research focus.

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Compliance with ethical standards Ethics approval was granted by the respective Health Service Ethics Committee. Consent was obtained and appropriate patients undertook a 5–10-min guided questionnaire.

Conflict of interest The authors declare that they have no conflict of interest.

Compliance with ethical standards This study was granted ethics approval from the Barwon Health and Western Health Low Risk Human Research Ethics Panel, Office for Research. Informed consent was obtained from all participants in this study.

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