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Alcohol management practices in community football clubs: Association with risky drinking at the club and overall hazardous alcohol consumption

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Abstract

Introduction: Across the world, it has been estimated that approximately 270 million people participate in community football clubs. However, the community sports club setting is associated with high levels of risky alcohol consumption. **Aims:** The study examined if sporting club alcohol management practices are associated with risky consumption of alcohol by club members while at the club, and also whether such consumption is directly and indirectly associated with club member overall hazardous alcohol consumption. **Method:** Telephone surveys were conducted with a representative from 72 community football clubs in New South Wales, Australia and 1428 club members. A path and mediation analysis was undertaken to determine the association between 11 club alcohol management practices and member alcohol consumption, at the club and overall hazardous consumption. **Results:** Three alcohol management practices were associated with an increased probability of risky drinking while at the club: having alcohol promotions; serving intoxicated patrons; and having bar open longer than 4 hours. A mediation analyses identified that risky drinking at the club as a result of these three practices was also linked to increase risk in being an overall hazardous drinker. **Conclusion:** Modifying alcohol management practices in community football clubs has the potential to reduce both risky alcohol consumption by members in this setting and the prevalence of overall hazardous alcohol consumption. Coordinated, multi-strategic interventions are required to support community football clubs to modify their alcohol management practices and hence contribute to reducing the burden of alcohol-related harm in the community.

Keywords: alcohol; football; risky; hazardous; mediation

Introduction

Across the world, it has been estimated that approximately 270 million people participate in community football clubs [1]. Participation in community football clubs extends beyond individuals playing sport; it includes spectating, committee involvement, and general socialising. In Australia, 26% of the population are involved with community sports club [2, 3]. Community sports clubs make an important contribution to the community by providing opportunities for physical activity and social interaction [4].

However, throughout the world, some members of community sports clubs, particularly of football clubs, consume alcohol excessively, and at levels greater than the general community [5-8]. This predisposes such individuals to a greater risk of long- and short-term alcohol-related harms [9]. While alcohol consumption by sports club members may occur in a variety of settings, including the home [10, 11], licensed venues [12] and the workplace [13], research suggests that risky alcohol consumption also occurs at sporting clubs and venues [8, 14-16].

In most developed countries, government legislation requires licensed venues (e.g. bars, nightclubs) to adopt alcohol management practices to prevent the consumption of alcohol at risky levels. These practices typically focus on restricting the supply of alcohol and include strategies such as restricting where and when alcohol may be obtained and training bar-staff in the responsible service of alcohol (RSA). The adoption of such harm reduction practices by licensed venues has consistently been shown to reduce risky alcohol consumption and associated harms among venue patrons when enforced [17-19].

Given the positive role sports clubs play in the community, and the high levels of risky alcohol consumption by some club members, enhancing sports club alcohol management practices could contribute to reducing risky alcohol consumption by members both in the club and overall. To our knowledge, the relationship between alcohol management practices at sporting clubs and both alcohol consumption at the clubs and overall hazardous consumption has not been previously investigated.

To address this gap, a study was undertaken to determine: (1) if sporting club alcohol management practices were directly related to risky consumption by club members while at the club (path a in Fig. 1); (2) whether risky consumption at the club was directly associated with overall hazardous consumption (path b in Fig. 1); (3) the extent that club alcohol management practices were indirectly associated with overall hazardous consumption, mediated through risky drinking at the club (path a and b ($a*b$) in Fig. 1); and (4) after adjusting for risky consumption at the club, whether alcohol management practices were directly related to members' overall hazardous consumption (path c', in Fig. 1).

[insert figure 1 about here]

Method

Design

A cross-sectional survey of winter community football clubs (rugby league, rugby union, Australian Football League and soccer) and their members was undertaken in the state of New South Wales (NSW), Australia [20]. Clubs were recruited from major city, regional and rural communities. The data were collected as baseline data for an intervention trial.

Participants

Club-level data

Clubs in each sporting code were identified from regional sporting association websites and local councils. All identified clubs were contacted and their eligibility for the study was assessed in terms of their: having senior players and over 30 members; being a non-elite sporting club; selling or supplying alcohol; and not holding a registered club or hotel liquor licence. Invitation letters were sent to all eligible clubs, followed up with phone calls to confirm eligibility and assess interest in participation. After a club consented to participate, the club president or other relevant representative completed a

15-minute Computer-Assisted Telephone Interview (CATI) regarding club characteristics and alcohol management practices.

Individual club member data

The club president or nominee was asked to randomly select 25 adult members who had most recently celebrated a birthday. The club provided a letter to such members inviting them to participate in the study, determined their interest in participating, and provided the research team with the contact details of consenting members. Consenting members were then contacted and completed a 20-minute CATI. Ethics approval for the study was obtained from the University of Newcastle Human Research Ethics Committee.

Measures

Club characteristics

Club nominees were asked to indicate the postcode (zip code) of the home ground/club house location. The type of football code of each club (e.g. soccer, rugby) was recorded based on recruitment data.

Club member socio-demographics

Club members were asked to indicate their educational level, occupation, age, gender and income using items drawn from the Australian Household National Surveys [21]. Respondents were also asked to indicate the type of affiliation they had with the club (player, supporter).

Alcohol management practices at the club

Interview items regarding club alcohol management practices were based on the 2007 NSW Liquor Act guidelines [22] that seek to reduce harm associated with misuse and abuse of alcohol in licensed premises by encouraging responsible practices regarding its sale, supply, service and consumption. Club presidents or representatives were asked (yes/no) if they implemented any of the following 11 practices:

- 1) All bar staff are trained in RSA (yes/no);
- 2) Bar staff serve intoxicated individuals (yes/no);
- 3) Intoxicated individuals are allowed to enter club premises (yes/no);
- 4) Full meals (not just snacks) are served when alcohol is available (yes/no);
- 5) Full strength alcohol is more expensive than low alcohol drinks (yes/no);
- 6) Bar staff never consume alcohol while on duty (yes/no);
- 7) Bar is open 4+ hours (yes/no);

8) Club has at least one alcohol-focused awards (e.g. beer awarded for player of the match); drink vouchers; drinking competitions. The responses to these promotion questions were coded into 'club has at least one drink promotion'(yes/no).

9) Club is sponsored by liquor industry; a hotel or pub; a registered club; brewer or winemaker. The responses to these sponsorship questions were coded into 'club has at least one type of sponsorship'(yes/no).

10) Alcohol is served at training.

11) Alcohol is served off-season.

Risky alcohol consumption at the club

Australian drinking guidelines recommend that to minimise the risk of short-term harm (accidents, injuries, etc.) associated with occasions of alcohol consumption, individuals should not have more than four standard drinks in a single drinking occasion [9]. The prevalence of such risky alcohol consumption at the club was assessed using the Graduated Frequency Index (GFI) [21]. The GFI has been demonstrated to be a reliable and valid instrument for alcohol research [23, 24].

The GFI comprises a series of questions that require respondents to indicate how often they have consumed alcohol over a given period (e.g. 1–2 days a week; once a month) and the amounts of alcohol usually consumed on drinking occasions in this period (e.g. 5–6 standard drinks; 1–2 standard drinks), “while at the club”. A retrospective time period of three months was used in this study, as this was the length of the sporting season: For example: “Whilst at the club, how often in the last 3 months have you had between 5 and 6 standard drinks?” The definition and examples of an Australian standard (i.e. contains 10 grams of alcohol) preceded all questions on alcohol consumption [9].

Overall hazardous consumption

The Alcohol Use Disorders Identification Test (AUDIT) was used to assess overall risk of alcohol-related harm [25]. The AUDIT is a 10-item multidimensional instrument measuring three domains: frequency and quantity of use (AUDIT-C); dependence; and harmful alcohol use. Scores above 6 on the AUDIT C scale are a strong predictor of high volume drinkers (overall hazardous consumption) [26]. As harmful consumption was the focus of the study, the AUDIT-C was used as the primary measure for overall consumption. The third item of the AUDIT-C was specifically used to estimate the proportion of risky drinking that may be occurring at the club (see statistical analysis below). This question asks “How often do you have six or more drinks on one occasion?”. Responses are; “never”, “less than monthly”, “monthly”, “weekly”, and ‘daily or almost daily’. The AUDIT has been demonstrated to be a valid and reliable screening instrument [25].

Statistical analysis

Club characteristics

The postcode of the home ground/club house location was used to determine the socio-economic status (SES) of a club’s location [27] and whether it was located in a rural or metropolitan region [28].

Club member alcohol consumption at the club

Responses to the GFI were used to calculate the average amount of alcohol consumed over the past three months, and whether an individual’s consumption exceeded Australian guideline levels for short-term risky drinking, while at the club.

Estimated Proportion of Overall Hazardous Consumption that occurs at the Club

Using four questions from the GFI (in the last 3 months, consumed 5-6 standard drinks, 7-10 standard drinks, 11-19 standard drinks, and greater than 20 standard drinks, while at the club) , a binary variable was created which indicated whether a respondent consumed more than 5-6 drinks in the last three months while at the club.

Using the third item of the AUDIT –C, a binary variable was created that classified individuals as either “never” or “sometimes” consuming six or more standard drinks in a single drinking occasion. The ‘never’ category included individuals who reported never drinking six or more standard drinks in a single drinking occasion. Individuals allocated to the “sometimes” category reported to drink six or more standard drinks “less than monthly”, “monthly”, ‘weekly” or “more than weekly”. To estimate the proportion of overall hazardous consumption that was occurring at the club, these two binary variables were cross-tabulated.

Path Model

A path model was developed and a mediational analysis was undertaken to address the study aims [29]. The analysis followed the MacArthur mediation framework [30]. Unlike the Baron and Kenny [31] mediation approach, which pre-specifies underlying mediating mechanisms, the MacArthur approach aims to generate hypotheses about possible associations between variables.

The first stage of the analysis was to develop a fully saturated model [32]. This model simultaneously estimated paths from all 11 alcohol management practices and risky drinking at the club (see Table 1), and all 11 paths between alcohol management practices and overall hazardous drinking. The saturated model also included the path between risky drinking at the club and overall alcohol consumption. Age and gender were included in the model to allow for any confounding effect these variables may have had [33].

After fitting the saturated model, non-significant ($p > 0.05$) paths were removed and modification statistics were used to assess whether other possible changes could be made to the model. Model fit was assessed with the Comparative Fit Index (CFI). Mediated effects (path $c' = a*b$) were estimated and tested for significance. The percent of the total effect mediated was calculated by $[(\beta a \beta b) / (\beta a \beta b) + (\beta c')]$, using estimates from the saturated final [32]. Prior to the analysis, Tolerance and Variance inflation (VIF) statistics were examined

to assess whether there was any multicollinearity between any of the variables that were used in the analysis.

The path modelling was undertaken with Mplus version 7.11. As categorical endogenous variables were part of the modelling, the WLSMV estimator and Theta parameterisation were used [34]. All the path analyses used robust standard error estimation to adjust for clustering at the community football club level. Mediation estimates were derived using the Mplus ‘indirect’ command. Descriptive analysis was undertaken with Stata version 12. To assist interpretation, predicted probabilities of probit estimates were also calculated.

Results

Community sports clubs

Three hundred and twenty-eight sports clubs were approached; 70 per cent were eligible to participate in the study (n=228). In total, 32 per cent of all eligible clubs participated (n=72) (Rugby League N=23; Rugby Union N=20; soccer=17; and AFL n=12). The number of consenting and non-consenting clubs did not differ significantly by football code ($\chi^2=6.68$ (1); $p=0.08$), or geographical region ($\chi^2=2.0$ (1); $p=0.66$). Table 1 outlines the demographics details of the clubs. The majority (71%) of participating clubs were located in rural and remote areas. Club delegates who completed the club survey were most frequently club presidents (56%; n=36) or club secretaries (32%; n=22).

[insert table1 about here]

Participants

Contact details for 1,726 club members were obtained from club delegates, 1,671 of whom met the eligibility criteria (97%). Ninety per cent (n=1,514) of the eligible participants were able to be contacted, and 1,428 completed the survey, providing a consent rate of 94 per cent, and overall response rate of 85 per cent. An average of 20 club members completed the

survey from each club. Table 1 also outlines the demographics of the club members in the sample. The majority of the sample was male (82%) and played sport at the club (53%). The average age of respondents was 34, and 83 per cent were currently employed.

Table 1 also presents the alcohol practices reported to be implemented at the clubs. The most common alcohol management practices were having the bar open for less than four hours (85.9%), and charging more for full-strength alcohol (74.6%). Approximately 60 per cent of clubs were sponsored by an organisation that produced, sold or distributed liquor (83.3%). The tolerance statistics for all the variables used in the analysis ranged between .68 and .92; the Variance inflation statistics ranged between 1.04 and 1.47. These statistics indicated that there wasn't any multicollinearity issues associated with the alcohol management variables used in the analysis.

Risky drinking at the club

Forty-two per cent of the sample consumed alcohol at a level that placed them at short-term risk of harm (>4 standard drinks) at least every three months. Just over a quarter (27%) consumed at this level at least every month over the last three months.

AUDIT: Overall hazardous consumption

Overall AUDIT scores ranged from zero (n=93; 6.5%) to 22 (n=1; 0.1%), with a mean of 5.87 and standard deviation of 3.83. AUDIT-C scores ranged between zero (7%) and 12 (0.5%). The mean AUDIT-C score was 6.11; approximately 46% of respondents had a total score of more than six. The mean AUDIT-C score for respondents who were classified as risky or not risky drinkers at the club were 5.50 (SD=2.74) and 7.90 (SD=1.93), respectively.

Estimated Proportion of Overall Hazardous Consumption at the Club

As measured by the third item of the AUDIT-C scale, approximately 82% of respondents reported to have consumed six or more standard drinks on one occasion. As measured by the four GFI items, approximately 40% of respondents reported drinking

more than 5-6 standard drinks in the last three months, while at the club. A cross-tabulation of these two variables indicated that approximately 47% of respondents who reported to consuming 6 or more drinks on one occasion, also reported to have drunk six or more drinks while at the club in the last 3 months ($\chi^2=166.7$ (1); $p=0.000$),

Path model

Figure 2 portrays the final path model. The coefficients in the Figure are standardised probit estimates; predicted probabilities are also displayed. After removing non-significant paths, modification fit statistics indicated that neither adding nor removing paths would improve the model fit. The final model fit statistics indicated the model was a good fit for the data (CFI=1.01).

[insert figure 2 about here]

Alcohol management practices associated with risky drinking at the club

Three of the 11 club alcohol management practices were associated with a significant probability of risky drinking at the club (path a in figure 1). The predicted probabilities were as follows: 'serves intoxicated individuals' (.59), 'has at least one alcohol promotion' (.57), and having the 'bar open for more than 4 hours' (.56).

Risky consumption at the club and its association with overall hazardous consumption

Being a risky drinker at the club was associated with an increased probability of overall hazardous consumption (.66) (path b in figure 1).

Mediated associations

The association between overall hazardous consumption and three alcohol management practices was mediated through risky drinking at the club (see path a*b in figure 1). Table 2 outlines the mediated effects, standardised probit estimates, predicted

probabilities and the percent mediated for the final path model. Having the bar open for more than 4 hours, serving intoxicated individuals, and having at least one alcohol promotions, were associated with a similar probability of being an overall hazardous drinker (between .52 and .54).

Nearly two-thirds (59.0%) of the association between having the bar open for more than 4 hours and hazardous consumption was mediated through risky drinking at the club. Approximately three quarters (74.6%) of the association between serving intoxicated individuals and hazardous consumption was mediated through risky drinking at the club. Similarly, 70% of the association between having at least one alcohol promotion and hazardous consumption was mediated through risky drinking at the club.

[insert Table 2, about here]

Practices directly associated with overall of consumption

After controlling for mediated effects, none of the alcohol management practices were found to be directly associated with overall hazardous consumption (see path c' in figure 1). The association between alcohol management practices and overall hazardous consumption was only through risky drinking at the club (see path a*b in figure 1)

Discussion

To our knowledge, this is the first study to identify associations between alcohol management practices in community football clubs and both risky drinking in this setting and overall alcohol consumption. In respect to the Australian drinking guidelines, three alcohol practices were identified as being associated with an increased probability (between .56 and .59) of risky consumption at the club (4 or more standard drinks in one sitting at the club). Risky drinking at the club was consistently associated with an increased probability of overall hazardous drinking, as measured by the AUDIT-C (.66).

All three alcohol management practices significantly associated with risky drinking at the club were also indirectly associated with overall consumption. Overall, risky drinking at

the club accounted for approximately 59% - 70% of the association between these three alcohol practices and overall consumption. None of the alcohol management practices were found to be directly associated with overall hazardous consumption. The association between alcohol management practices and overall hazardous consumption was only through risky drinking at the club. Given the proportion of Australians who participate in community sports clubs, collectively, these findings suggest that improving the alcohol management practices of sports clubs may provide a mechanism to reduce the burden of harm associated with alcohol misuse in Australia.

Approximately 82% of respondents reported to drink more than 6 standard drinks as part of their overall consumption. Approximately 47% of these respondents also reported to have consumed 6 or more drinks at their club in the last 3 months. This suggested that close to half of the respondents who report to generally drink six or more standard drinks are doing this in community sports club setting.

Alcohol management practices associated with an increased probability of risky consumption at the club included: serving intoxicated individuals; alcohol promotions; and having the bar open for more than 4 hours. These findings are consistent with analogous research undertaken in licensed premises, where promotions such as happy hours or cheap drinks have been shown to be associated with increased consumption [19]. Similarly, evidence for RSA training shows that in licensed venues where bar staff are trained in RSA and those practices are enforced, fewer patrons become intoxicated [18, 35]. Extended trading hours have also been shown to be linked to greater levels of alcohol related harm [18, 36]

Overall, the findings of this study suggest that targeting the alcohol management practices of clubs has the potential to reduce risky drinking in sports clubs and overall hazardous consumption by club members. A number of opportunities are available to health policy makers and practitioners to do this. In one example of such an approach [20]—the ‘Good Sports Program’ implemented by some community sports clubs in Australia—

reductions have been reported in amount of alcohol consumed and consequently in the risk of alcohol-related harms [37,38]. The Good Sports Program implements alcohol management practices in a three-stage accreditation program. It is free of charge and clubs progress through it at their own pace [39].

While this study shows promise, it is not without limitations. First, the study has used cross-sectional data to assess associations between variables, not causal relationships. Although it is hypothesised that the likely direction of association is from management practices to risky alcohol consumption, it cannot be ruled out that individuals who consume more alcohol may be attracted to clubs that do not implement appropriate alcohol management practices. Similarly, while mediation analysis is a validated method, when used with cross-sectional data it should be treated as descriptive, with observed findings requiring experimental or longitudinal studies to validate findings and their directionality. As the study included a greater number of rural clubs compared to metropolitan clubs, the findings may reflect differences in consumption between rural and metropolitan settings, the role of sports clubs in different communities, and in the socio-economic status of club locations.

Notwithstanding these limitations, this study is the first to suggest that the implementation of a comprehensive alcohol management program in community sports clubs has the potential to substantially reduce both risky consumption in the club setting and overall risky consumption. Given the proportion of Australian population who participate in community sports clubs and role community sports club play in the leisure and recreation for Australians, such an intervention could contribute to reducing the burden of alcohol-related injury, illness and disease of the Australian population.

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*a=association between practices and risky alcohol consumption at club; b=association between risky consumption at club and overall hazardous consumption; a*b=mediated (indirect) relationship between club alcohol management practices (path a) and hazardous consumption (path b), through risky drinking at the club; c'=direct association between practices and hazardous consumption after adjusting mediated effect; c represents the total effect of practices on overall hazardous consumption; mediated and direct effects: $c = (a*b) + (c')$

Fig. 1. Hypothesised relationships between alcohol management practices, alcohol consumption at the club and overall hazardous consumption.

Table 1 Individual Demographics, and Club Alcohol management practices

Individual Demographics (N=1428)		
Age		
Range		18–80
Mean		34
<i>SD</i>		12
Annual Individual Income (Gross)		%
\$83,200 or more		20
\$52,000 to \$83, 199		28
\$31, 200 to \$51, 999		22
\$1 to \$31,199		26
Nil or do not know		3
Educational Attainment		%
Year 9 or less		2
Year 10		16
Year 11/12		27
TAFE		32
University undergraduate		23
Current Occupation		%
Manager/administrator		30
Trade/labourer		35
Clerical		17
Not in workforce		17
Club Involvement		%
Player		55
Supporter/non player		11
Coach		15
Multiple roles		5
Gender (Male)		83
Club Alcohol Management Practices (N=72)		%
1. All staff RSA trained		63
2. Serves intoxicated individuals*		58
3. Allows intoxicated individuals to enter*		27
4. Bar open 4+ hours		86
5. Bar staff do not consume alcohol		60
6. Serves (substantial) food with alcohol		8
7. Charges more for full-strength alcohol		75
8. Has at least one drink promotion		42
Happy Hour		28
Cheap drinks		4
Drinking competitions		18
All-you-can-drink functions		7
Alcohol awards		21
Drink vouchers		10
9. Sponsorship (any type)		83
Hotel/pub		54
Registered club		47
Liquor store		3
Winemaker/brewer		8
10. Serves alcohol at training sessions		28
11. Serves alcohol in off-season		24

*reported at the individual level

Table 2 Predicted Probabilities, Standardised Probit Estimates and Mediated Effects for Final Path Model

DV → IV	Probability	Mediated Effect IV→ Risky → AUDIT-C			
		Est.	Prob	P	% Mediated
Risky					
Bar_4h	.555	.057	.523	.006	59.0
Serve	.586	.089	.535	.000	74.6
	.573	.076	.531	.001	70.0
Promote					
Age	.459				
Gender	.398				
AUDIT-C					
Risky	.660				
Age	.417				
Gender	.426				

DV; dependent variable; IV: independent variable; Est. Standardised probit estimate; Prob: probability;

P= p-value: % mediated= percent risky drinking at the club mediates the association between IV and audit_c.