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Pastime in a pub: Observations of young adults' activities and alcohol consumption

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Abstract

Alcohol consumption typically takes place in a time-out situation, which can be spent by engaging in several leisure time activities. Usually, conversation is the dominant pastime in a bar, but this may take place during other activities, like watching TV or playing games. These activities may inhibit drinking because of the physical difficulties of drinking and being active at the same time. Findings of an observational study on drinking in young adults (N=238) in a bar lab will be discussed. In the present study, we followed the ad-lib drinking of peer groups (7–9 persons) during 1-h periods. The results suggest that (1) selection of activities is not related to initial drinking level or personality characteristics; (2) active pastime is related to slower drinking than passive pastime (in males); (3) male problem drinkers appear to compensate for the "lost" amount of drinking after an active phase; and (4) involvement in active pastime is not related to total alcohol consumption. Implications of these findings are discussed.

Keywords: Pastime; Drinking rate; Observations; Naturalistic setting

1. Introduction

A limited number of studies have focussed on contextual (Choquette, Hesselbrock, & Babor, 1985; O'Hare, 2001) or situational (e.g., Babor, Mendelson, Greenberg, & Kuehnle, 1978; Bach & Schaefer, 1979; Demers et al., 2002; Knibbe, Van de Goor, & Drop, 1993; Van de Goor, 1990) characteristics that

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may predict alcohol consumption. These studies showed that factors such as drinking location, day of the week, group size, and gender composition of the drinking group are related to differences in drinking. Demers et al. (2002) examined the contribution of drinking setting and individual characteristics to reported alcohol intake per drinking occasion and found that situational characteristics, such as group size and type of relationship with others of the same drinking group might explain as much variance in alcohol consumption as individual characteristics, such as gender and living arrangement. By observing drinking behaviour of youngsters in pubs, discos, and youth centres, Van de Goor (1990) found, e.g., that, in larger groups and in places with a higher volume of music broadcasted, more alcohol is consumed. As far as we know, Van de Goor is also the only researcher to date who examined the relation between activities and drinking of youngsters in the same situation. She found that youngsters who were involved in active forms of pastime (like playing games or dancing) drank less than others who were involved in more passive pastime (like conversation) when going out.

These findings were based on thorough observations of actual drinking situations, which we consider an accurate way to evaluate the effects of activities on general alcohol consumption. Nevertheless, this type of research method does not allow drawing conclusions about the causes of the differences in drinking rate between individuals (i.e. do slower drinkers choose certain activities? or do these activities inhibit drinking?). Neither did her method give insight into the consequences of being involved in activities for alcohol consumption over a longer period. Unfortunately, to our knowledge, no studies yet have examined the interrelationship between activities undertaken in a bar setting and individual differences in drinking.

Theoretically, offering young people ways to spend their time actively might be an elegant approach to reduce the alcohol consumption in situations where drinking is normative. Attempts to cut down alcohol consumption are often destined to fail, because adolescents highly value their own autonomy (Collins, Gleason, & Sesma, 1997), and interferences of adults to affect alcohol consumption are often not welcomed (see e.g. Whitehead & Russell, 2004 on health resistance, which particularly appears in teenagers and young adults). Perhaps just offering alternative ways (such as e.g. providing games) to spend time in a public drinking place will not be immediately perceived by youngsters as a method to intrusively influence alcohol consumption, since the choice to become involved in these activities is up to the youngsters themselves. By spending more time actively, the adolescents' total alcohol consumption may decrease because of the possible lower consumption rate during activities.

On the other hand, when involvement in activities would lead to longer lasting drinking sessions, this method can be considered ineffective in decreasing total alcohol consumption. The same goes when offering certain games would lead to youngsters starting to play drinking games. Apart from offering relaxation, fun and positive social advantages, playing drinking games may lead to extreme intoxication, sexual manipulation and assault (Borsari, 2004; Johnson, Hamilton, & Sheets, 1999). Younger students are especially at risk for these consequences, because among them drinking games are more prevalent (Borsari, 2004). Finally, when those who were active for some time compensate for the "lost" alcohol consumption by drinking at a higher rate when passive, it is useless to advise facilitation of activities in an attempt to reduce alcohol consumption. In other words, when those who have been active for some time have been drinking at a low rate, start drinking at an extra high rate after being active, the total consumption may be the same or even more than when no active pastime has been displayed.

In the current study, we focus on drinking during a fixed amount of time and will not examine possible risks for extended drinking episodes and the onset of drinking games. We aim to answer the question whether engagement in active pastime leads to lower alcohol consumption. First, we will examine

whether some individuals will be more likely to be involved in certain activities than others. On the basis of questionnaire information about personality characteristics and regular alcohol consumption, we try to predict the participation in and duration of active pastime in a time-out situation in a bar. Secondly, we report alcohol consumption rates during different activities. This will enable us to test whether spending time more actively is associated with lower alcohol consumption during these activities. Thirdly, we test whether differences in alcohol consumption rate between activities will lead to lower total alcohol consumption, or whether more active individuals will manage to drink just as much as others, by drinking faster during other activities. In other words, whether they may catch up. Finally, some persons might be more likely to compensate for periods of inhibited drinking by consuming more when passive, while others might be less likely to compensate. We examine whether drinking to compensate might occur more often in individuals scoring higher on problem drinking tendencies. We assume that those individuals might be the ones more likely to experience inhibition of alcohol consumption as problematic. Therefore, we decided to look at problem drinking scores as a possible moderator of compensatory behaviour during less active moments. Also, we executed analyses for the total group, and separately for males and females, because many processes concerning alcohol consumption are quite different for the sexes (see e.g. Suls & Green, 2003).

Findings of an observational study on drinking in young adults in a bar lab setting will be discussed. In this study, we followed the ad-lib drinking of 238 individuals in 30 peer groups of 7 to 9 persons during 1-h periods.

2. Methods

2.1. Participants

Participants were 238 young adults who volunteered to participate (see Bot, Engels, & Knibbe, 2005). They entered our laboratory setting as a group in a sense that one undergraduate student invited 6 to 8 friends to join this research project. A total of 30 peer groups enrolled. The majority of the groups ($n=27$) consisted of 8 persons. A total of 128 men (54%) and 110 women (46%) participated, ranging in age from 18 to 28 years old. 203 participants (85%) had at least finished pre-university education, which indicates that this study involved participants with a relatively high educational level. 50 respondents (21%) indicated to live with their parents or other caretakers, whereas the others indicated to either live alone, or with a partner or friend. The constellation of the groups ranged from all men (7%) and all women (7%) to mixed gender (86%).

2.2. Procedure

The participants were invited to join a study on the effects of alcohol on group discussions and judgements. This story was in order to avoid that the participants' attention was drawn to the actual aims of the study, i.e. examining alcohol consumption in an ad-lib drinking setting. This type of procedure is employed in many studies on modelling effects of alcohol consumption (see review by Quigley & Collins, 1999). The groups were invited to our bar lab for two sessions in 1 year; in this paper, we only looked at the results of the first measurement. The sessions took place in a bar laboratory setting at our campus, all at weekdays in the beginning of the evening (usually from 7 p.m.) and lasted 2 h. The bar lab was situated

in a room furnished as an ordinary small pub, with a bar and stools, tables and chairs, and indoor games like table soccer and billiards, and a TV/video. During the sessions, the radio played popular music. Volume and type of music were kept similar for all groups. Participants were told that we hired this bar from the faculty and that it was normally used for private parties and celebrations of staff members of the university.

First, after the participants had entered the bar lab, the procedure of the study was explained. Then, they were asked to fill in a questionnaire containing various questions about drinking patterns, expectancies, friendships, and types of relationship within the group. This took about 40 min. Next, they evaluated 10 persons for attractiveness and intelligence by pictures shown on the TV screen, after which they had 30 seconds for each picture to discuss within the group. This task was constructed to be undemanding, since answers were dependent on the participants' own judgement. The aim of employing a task of this nature was to prevent that the amount of alcohol consumed was dependent on some participants' urges to do well on these tasks. During the completion of the questionnaire and the task, non-alcoholic drinks were offered.

After completing this task, which needed about 10 min in total, they had a 50–55-min time out, in which they had to stay in the bar lab. They could play some of the available games, watch TV, or have conversations. Participants were told that they could order a drink at the bar and that the bartender would not offer them anything, because this would burden him unnecessarily, and it would be unethical for researchers to push the participants towards drinking. Soft alcoholic beverages (i.e. beer and wine) and non-alcoholic drinks were available and for free. It is essential to mention that soft alcoholic drinks are relatively cheap in the Netherlands. For example, in ordinary bars or restaurants, the price of a 0.25 cl beer does not exceed 2.00 euros. This implies that offering drinks for free does not encourage excess drinking for the majority of Dutch youngsters. Of course, if this study would have been conducted in cultures with a different drinking culture, offering drinks for free would probably lead to binge drinking in many of the participants. Nonetheless, still many students consumed a substantial number of drinks in this time-out session. Nuts and chips were offered for free as well.

After the 50–55-min free time slot, a second task, similar (but with different pictures) to the first one, was carried out. After 2 h, the participants went home by taxis. They received 30 euros per group for their participation.

During the 2-h session, video and audio recordings were conducted. Two cameras were used (one flexible with zoom and one steady), hidden in two corners of the bar lab. A research assistant operated the camera in an observation room adjacent to the bar lab. Participants were told in advance that they would be observed during the complete experiment and all gave written permission for the use of these data for our study. We stressed that they were not obliged to drink alcohol, because non-drinkers or light drinkers were also of interest for our study. Pilot studies were conducted to verify the credibility of the setting and procedure. Participants strongly endorsed the setting's credibility and not one of the 32 participants in the pilot studies guessed the actual aim of the study. Participants were allowed to smoke during the session (if the other group members approved), because in the pilot studies we noticed that forcing smokers not to smoke while drinking strongly affects the feasibility of a normal drinking occasion for them.

The research proposal had been approved and granted by the Dutch Foundation for Scientific Research. The medical ethical committee (CCMO Arnhem-Nijmegen) approved of the protocols for our study. Debriefing of participants was done after the second assessment. After debriefing, participants were pointed at the possibility to withdraw their consent for using the observational data in our research.

2.3. Measures

2.3.1. Personality

A 30-item version (Vermulst & Gerris, 2005) of the Big Five Personality Questionnaire assessed the factors of the Big Five factor structure (Goldberg, 1990). The questionnaire consists of five scales, each consisting of six items on a seven-point scale ("does not apply at all" to "totally applies"). The scales measure agreeableness ($\alpha = 0.74$), conscientiousness ($\alpha = 0.91$), emotional stability ($\alpha = 0.82$), extraversion ($\alpha = 0.88$), and openness to experience ($\alpha = 0.70$). Furthermore, we assessed sensation-seeking behaviour by a translation of a 13-item questionnaire, in which the respondent had to choose which of two statements applied most ($\alpha = 0.51$) (Merrens & Brannigan, 1998).

2.3.2. Weekly alcohol consumption (self-reports)

Weekly alcohol consumption was assessed by asking on which of the last seven days the respondent consumed alcohol, and if so, how many drinks were consumed. The summed-up total of the last 7 days was used in the analyses (cf. Hajema & Knibbe, 1998).

2.3.3. Alcohol related problems (self-reports)

A short version of the severity of problem drinking scale of Cornel, Knibbe, van Zutphen, and Drop (1994) was employed to assess the level of problems due to alcohol consumption. Factor analyses with LISREL 8 (Jöreskog & Sörbom, 1993) on a large data set of 6205 adults showed a clear one-factor solution for the total scale. A screening instrument of 6 items (Candel, 2001) matched satisfactorily with scores on the total scale consisting of 15 items ($R^2 = 0.92$). Examples of items are "Have you ever tried to quit drinking without being successful?" and "Did your partner or close relatives ever worry about your alcohol consumption, or complain about it?" Answers were on a dichotomous scale.

2.3.4. Pastime

Each individual's activities were coded during the 50–55-min time out. Activities were exhaustively and exclusively coded, i.e. at each point in time one and only one activity was coded. This way, each individual had behavioural codes for the total duration of the time out and relative measures for each activity could be calculated. The activities coded were: being alone, making phone calls, playing billiards, playing pinball, making conversation, playing cards, watching TV, playing table football, and visiting the toilet. Changing of activity codes was done as scarcely as possible. When for instance a person was playing table football and decided to order drinks from the bar and meanwhile had a short conversation with group members at the bar, this was still coded as playing table football and not conversation, if this person returned to the table football. Because of the possibility to watch recordings several times, accurate scores could be assigned. For the purpose of this paper, we further constructed two categories of pastime. The first one was 'active', consisting of the activities 'playing pinball', 'playing cards', and 'playing table football'. 'Playing billiards' was not part of this category, because this game offers the players opportunities to compensate their drinking when it is the other players' turn. In essence, playing billiard might be considered a combination of both active and passive pastime. 'Making phone calls' and 'visiting the toilet' can also be considered active or at least inhibiting alcohol consumption, but are not activities that people can easily be tempted to, as can be done in the case of offering games. This makes them irrelevant for prevention purposes. The second category of pastime was 'passive', consisting of 'being alone', 'conversation', and 'watching TV'.

2.3.5. Alcohol consumption rate (observational data)

This was calculated by counting the number of drinks received during a certain activity divided by the total time the individual was involved in this activity. Since changing from one to another activity was possible after the drink had been received, it does not necessarily imply that the consumption of the total drink actually took place during this activity. Nevertheless, we consider this score a strong measure, moreover as coders were instructed to be scarce when it comes to changing scores for an activity. In the present study, we used beer glasses that were smaller than standard glasses. In all sessions, the same kind of glasses were used and filled to the same level. The contents of beer glasses were on average 160 ml. The (lager) beer we used in our study contained 5% alcohol, which means that a glass of beer contained on average 8 ml pure alcohol. We divided the number of glasses consumed by 1.5 to reach the equivalent of 12 ml pure alcohol for the count of beer consumed. This is in line with a Dutch standard glass. The contents of the (standard) wine glass in our study is 110 ml. The wines we offered contained from 11% to 12% alcohol; therefore, a glass of wine contained from 12.1 to 13.2 ml pure alcohol. Non-alcoholic drinks were not counted for this measure.

2.3.6. Total alcohol consumption (observational data)

We counted the number of drinks consumed in the 50–55-min time out during the ad-lib drinking session. We applied the same weighing of beer and wine used for the calculation of the alcohol consumption rate. If participants did not finish their drinks at the end of the session, we subtracted the rest volume from the total consumption. Again, non-alcoholic drinks were not counted for this measure.

Several observers scored the activities and drinking behaviours of the participants, and scored an initial single measures intraclass correlation of 0.90 (average measures: 0.95). This relatively high level of agreement, together with an analysis of the recordings in which different codings appeared, and a discussion about the differences between the observers' initial codings, led us to decide to allow single codings as observational measures.

2.4. Strategy for analyses

Data from the questionnaires were entered in SPSS 12.0. The video and audio recordings were coded in The Observer 5.0 (Noldus Information Technology b.v., Wageningen). To give an impression on how the data have been coded, we included Fig. 1, which depicts the course of activities and alcoholic drinks received by the participants in one particular group. The upper line of each participant shows the activities of this person, and the lower line shows the moments at which an alcoholic consumption was obtained.

Concerning the analyses of the observational data, we had to omit two groups; one because of technical problems, and another because the group members decided to do a drinking game during the time-out session. In the latter group, individual drinking behaviour could of course not be predicted by possible explanatory variables such as the chosen activity. It should be stressed that none of the other 28 groups played drinking games.

We first reported the means and standard deviations of the occurrence of the various activities, and the means and standard deviations of the drinking rate during these activities. Further, we analysed whether personality characteristics and regular drinking patterns predicted if participants were more involved in certain activities, by using multiple regression analyses. Secondly, we scrutinized whether

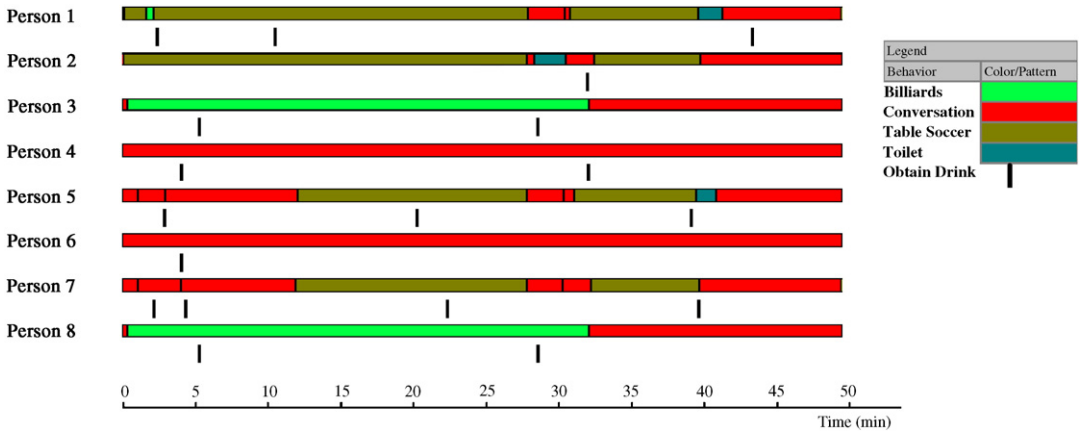

Fig. 1. Illustration of the codes of the members of one group, their pastime, and alcohol consumption.

the duration of involvement in active pastime was associated with faster drinking during passive episodes. Because participants' observed drinking levels are strongly dependent on the specific peer group they are in (reflected in the intraclass correlation; $r=0.46$, $p<0.001$), we used both the commonly applied multiple regressions and the less widespread multilevel analyses (MLwiN 2.02). In the latter, we tested both fixed and random effects. The fixed effects are the regression weights of the independent variables, and the random effects indicate the variance in the regression weights between groups. If a random effect is found, this means that a relation between an independent variable and a dependent variable varies between groups. Because large scale-differences between the measures led to illegible results (zeros in the table), we standardised the predictor variables in the multilevel analyses.

We tested, also by multiple regressions and multilevel analyses, whether the duration of active pastime was associated with total alcohol consumption in the observed hour. Finally, we examined possible interaction effects of the duration of active pastime with two variables, on both the drinking rate during passive pastime and the total alcohol consumption. The first is the interaction with the amount of alterations from active to passive pastime; the second is the interaction of the duration of active pastime with problem drinking tendencies.

3. Results

3.1. Descriptives

Concerning self-reported alcohol consumption, almost all participants (99%) reported lifetime consumption of alcohol. Robust differences between men and women were apparent. Male participants reported a stronger engagement in 6+ drinking ($M=5.65$ vs. $M=4.54$, $t(238)=6.61$, $p<0.001$), a higher weekly consumption ($M=21.76$ vs. $M=10.39$, $t(238)=6.11$, $p<0.001$), to consume more drinks per hour ($M=4.25$ vs. $M=2.53$, $t(238)=5.91$, $p<0.001$), and scored higher on the problem drinking scale ($M=7.51$ vs. $M=6.77$, $t(238)=4.77$, $p<0.001$) than females. Also during the observed time-out session, males drank more than females ($M=3.31$ vs. $M=2.02$, $t(221)=7.42$, $p<0.001$).

Table 1 shows the participants' mean duration of the activities unfolded during the observed time-out period. Males are more often alone and involved in playing billiards than females. Females are more often involved in playing pinball (the low mean duration is the result of the breaking down of the pinball machine early in the study; for reasons of consistence and completeness, we still report it here), conversation, and watching TV. When looking at the composite scores, it appears that men and women do not differ in the amount of time spent actively. Women do, however, spend more time passively than men. This appears to be the result of male involvement in billiards (neither in the active nor the passive category), where women are more involved in watching TV (passive).

In Table 2, the mean drinking rates during the activities are displayed. Males drink significantly more alcohol during conversation than females. No other significant differences are found between the average drinking rates of males and females, even though this may be partly due to the high variances, since there seems to be a tendency of males to drink more over all activities. The high drinking rate during pinball games is the result of a few individuals who were trying to play pinball at the beginning of the free time slot, they received their first drink and subsequently found out that the machine had broken down, after which they chose another activity. The composite drinking rates show that men drink more than women when passive, but not when active. Males (and the total group) had higher drinking rates when they were passive compared with active; however, this difference was not found in females.

3.2. Personality and regular alcohol consumption predicting pastime

Because of the located gender differences in pastime, we tried to predict involvement in pastime controlling for gender. The Big Five personality dimensions and sensation-seeking behaviour were both

Table 1
Mean duration (%) of pastime in the observed time-out period

Pastime	Total group	Males	Females	*t*-value
Active				
Cards	16.09 (28.85)	16.56 (29.23)	15.49 (28.49)	0.28
Pinball	0.81 (3.48)	0.33 (0.82)	1.42 (5.12)	−2.08*
Table football	13.34 (17.45)	14.97 (19.06)	11.25 (14.98)	1.62
Passive				
Alone	1.13 (4.14)	1.64 (5.35)	0.49 (1.37)	2.31*
Conversation	38.72 (33.91)	34.20 (31.30)	44.51 (36.32)	−2.23*
TV	10.95 (27.19)	4.41 (17.48)	19.30 (34.31)	−3.90***
Other				
Billiards	16.06 (24.51)	24.37 (28.75)	5.43 (10.71)	6.76***
Calling	0.44 (4.09)	0.71 (5.43)	0.08 (0.63)	1.28
Toilet	2.32 (4.96)	2.69 (6.17)	1.85 (2.69)	1.35
Active	30.24 (30.94)	31.86 (31.97)	28.17 (29.59)	0.88
Paired samples test	<***	=	<***	
Passive	50.81 (35.08)	40.25 (32.76)	64.30 (33.43)	−5.37***

Mean duration is based on all 221 participants; standard deviations are between brackets; *$p<0.05$, **$p<0.01$, ***$p<0.001$. Symbols following "paired samples test" indicate differences in involvement in active and passive pastime within the gender groups.

Table 2
Average alcohol consumption rate per hour

Pastime	Total group	*N*	Males	*N*	Females	*N*	t-value
Active							
Cards	2.84 (3.93)	79	3.44 (4.71)	47	1.96 (2.15)	32	1.67
Pinball	5.66 (18.92)	50	5.59 (21.78)	32	5.79 (12.92)	18	−0.04
Table football	3.54 (4.67)	136	3.96 (5.03)	82	2.91 (4.04)	54	1.28
Passive							
Alone	3.03 (9.43)	76	3.78 (10.16)	48	1.75 (8.03)	28	0.90
Conversation	4.45 (5.28)	221	5.75 (5.64)	124	2.78 (4.26)	97	4.47***
TV	2.98 (5.57)	40	6.01 (9.30)	12	1.68 (1.95)	28	1.60
Other							
Billiards	3.40 (5.52)	128	3.82 (5.42)	91	2.38 (5.71)	37	1.34
Calling	1.52 (3.24)	10	1.90 (3.56)	8	0.00 (0.00)	2	0.72
Toilet	1.79 (5.99)	82	2.43 (6.09)	46	0.98 (5.85)	36	1.10
Active	3.23 (4.19)	173	3.40 (3.83)	104	2.98 (4.70)	69	0.65
Paired samples test	<**	<***	=				
Passive	4.33 (4.63)	221	5.54 (5.34)	124	2.79 (2.88)	97	4.89***

N total group = 221, *N* males = 124, *N* females = 97. Mean drinking rate is the number of standard glasses consumed in 1 h, calculated for participants involved in that specific behaviour, and weighed for the duration of that behaviour; standard deviations are between brackets; *$p<0.05$, **$p<0.01$, ***$p<0.001$.

unrelated to the involvement in any of the activities or the composite activity scores. Also self-reported weekly alcohol consumption and problem drinking showed no significant relation to any of the activities (not in tables). This implies that we found no evidence for the assumption that certain people are more attracted to passive or active diversion in a bar. In other words, the heavy drinkers are not more involved in games, nor do they primarily spend time on a stool at the bar (alone or involved in conversation) to assure a sufficient alcohol intake in that hour, compared to light or non-drinkers.

3.3. Active pastime predicting alcohol consumption when passive

Table 3 shows that for both males and the total group a longer duration of active behaviour is associated with a faster drinking rate while passive (step 1 of the regression). This implies that persons who are more involved in active pastime compensate possible inhibition of drinking in active periods when they are passive. An alternatively explanation of this finding could be that the ones more involved in active pastime are the ones who have been drinking more than others in the setting anyway. This explanation can be cancelled out, however, by the absence of a substantial correlation ($r=0.04$, NS). We checked for moderating effects of the number of alterations from passive to active behaviours, but no significant interactions between the relative amount of active pastime and numbers of alterations were found (not in tables). This indicates that the effect of drinking faster after having been active is not dependent on the number of switches from active to passive.

Furthermore, we checked for interactions of problem drinking tendencies with active pastime on the alcohol consumption rate while passive. Both for the total group and males, we first observed main effects of duration of active pastime and problem drinking on the drinking rate while passive (step 2 of the

Table 3
Multiple regression analyses predicting drinking rate while passive

	Total group		Males		Females	
	β	Total R^2	β	Total R^2	β	Total R^2
Step 1						
Relative duration active	0.17*	0.03*	0.22*	0.05*	0.02	0.00
Step 2						
Relative duration active	0.16*		0.23**		−0.00	
Problem drinking	0.29***	0.12***	0.23**	0.11**	0.21*	0.04
Step 3						
Relative duration active	0.01		0.03		−0.08*	
Problem drinking	0.07		−0.01		0.05	
Duration active × problem drink	0.35**	0.16**	0.38*	0.15***	0.25	0.07

N total group = 221, *N* males = 124, *N* females = 97; *p < 0.05, **p < 0.01. We depicted the standardized estimates per subsequent step in the analyses.

regression), which is reasonable taking in mind that problem drinkers simply drink more than those who are not problem drinkers, and this will also be the case during passive pastime. This main effect, however, was completely nullified by the interaction with the duration of active pastime (step 3). This implies that only (male) persons with a drinking problem tendency compensated for "lost" drinking during active

Table 4
Multilevel analyses predicting drinking rate while passive

	Total group	Males	Females
	Values (S.E.)	Values (S.E.)	Values (S.E.)
Fixed effects			
Intercept	4.46 (0.54)**	5.28 (0.68)**	2.95 (0.51)**
Relative duration active	0.46 (0.46) NS	1.11 (0.69)	–
Problem drinking	0.10 (0.34) NS	–	0.33 (0.42)*
Duration active × problem drink	1.06 (0.39)*	–	–
Random effects			
Level 2			
Intercept	6.43 (2.21)*	7.94 (3.26)*	5.22 (1.80)*
Relative duration active	1.55 (1.11)*	5.43 (3.01)*	–
Problem drinking	–	–	3.25 (1.20)*
Cov intercept—duration active	–	3.89 (2.38)*	–
Cov intercept—problem drinking	–	–	4.21 (1.37)*
Level 1			
Intercept	9.69 (1.03)**	9.98 (1.54)**	3.33 (0.59)**
Deviance	1187.68	689.63	440.01
Deviance empty model	1229.89	729.47	463.02
χ^2 (*df*)	42.21 (4)	39.84 (3)	23.01 (3)

N total group = 221, *N* males = 124, *N* females = 97; *p < 0.05, **p < 0.01. Insignificant values are omitted from the analyses in consecutive steps.

pastime, and non-problem drinkers did not drink faster after an active period. In addition, problem drinkers only seem to drink more than others during passive pastime, when they have been active for some time. In the multilevel analyses (Table 4), we found similar results, but only for the total group. For the males, the interaction of duration of active pastime with problem drinking did not reach significance ($p<0.10$). We did find a main effect for the duration of active pastime on the passive drinking rate, but checking for random effects showed that this effect strongly varied between groups. This implies that in some groups being active may lead to faster drinking after being active, and this may not necessarily be dependent on problem drinking tendencies, but may be associated with group characteristics. For females, no effects were found from the duration of active pastime on the drinking rate while passive.

3.4. Active pastime predicting total alcohol consumption

We finally tested whether the relative amount of active pastime during the time-out led to higher or lower consumption over the total observed time. No significant predictors from the amount of active pastime were found on the total alcohol consumption for the total group, and for the males and females separately (β's all smaller than 0.03, NS) (not in tables). This means that, even though the drinking rate is usually lower during active pastime, no inhibiting effects on the total alcohol consumption during a fixed time slot can be expected from the presence of games.[1]

4. Discussion

In the present study, we explored the relations between pastime and alcohol consumption during a time-out situation. First, we found that personality characteristics and reported drinking (problems) did not relate to choices of pastime in a bar lab. However, sex did; males appeared to be more involved in active pastime. Furthermore, males appeared to drink more over situations, especially during conversation. We found that male participants who were more involved in active pastime drank faster during passive pastime, depending on the membership of certain groups and possibly depending on whether they had problem drinking tendencies. Involvement in activities was not found to be related to overall consumption during our study, not even for individuals who scored low on alcohol related problems. Even though on the surface it seems that activities inhibit drinking, we did not find any evidence in this study. If, despite our findings, offering opportunities to play is effective in preventing alcohol consumption, this will probably only be in non-problem drinkers. This may not be what prevention workers aim at, for problem drinking is quite prevalent among young adults, and concerns are highest for individuals with problem drinking tendencies. This could also be an explanation for the fact that initial drinking levels are unrelated to the selected activities; for those participants for whom drinking is quite important (e.g. problem drinkers), activities may not be a burden when it comes to reaching considerable consumption levels.

[1] Because the classification of the activities is constructed on the basis of the authors' judgements and open to discussion, we also ran the analyses in Tables 3 and 4 with other possibly truthful classifications (putting playing billiards in the active category and leaving playing pinball out, because the pinball machine ran down quickly after the start of our study). Our results turned out to be quite robust.

In order to give a more clear-cut answer to the question whether offering opportunities to play may inhibit drinking, it may be relevant to compare our findings with those of observational studies in places without opportunities to play, or to study problem and non-problem drinkers who are experimentally assigned to consumption inhibiting conditions. It can also be useful to study peer groups' drinking behaviour for longer periods of time, like during a full night out. Aitken and Jahoda (1983), for example, found that time spent in a bar accounted for 49% of the variance in alcohol consumption, and it is unclear whether longer time intervals in a bar lead to other relations between active and passive pastime, or whether offering opportunities for active pastime may lead to longer drinking episodes. Another risk may be that offering games may trigger the onset of playing drinking games. As Borsari (2004), and Johnson et al. (1999) argued, drinking games may lead to increased drinking and serious consequences related to drinking. Therefore, and on the basis of our findings, we conclude that no inhibiting effects from offering games can be expected.

It is remarkable that for females no differences were found between the drinking rates while active and passive. This may partly explain why no compensation was found for longer involvement in active pastime, in the form of higher drinking rates when passive. Apparently for young adult females within a peer group drinking has no priority, or else differences between active and passive drinking rates would have been found, together with compensation for "lost" drinking after periods of activity. Another possible explanation for these findings is that for females some activities, like conversation, may be considered more active than for males (Moira Plant, personal communication, 2005). In that case, females may be so much involved in the topics of their conversations that this will physically inhibit their drinking pace.

A strong feature of our study is that we were able to keep many variables stable. Where many observational studies have to deal with large differences in the situations compared, variables like group size, music volume, and time of the day were stable over the groups in our study. This makes it more likely that differences in drinking rates between active and passive pastime are the result of differences in activities, instead of the result of a third variable (like the effects of group size on alcohol consumption, as observed by e.g. Cutler & Storm, 1975). Another strong point is that individual differences on personality characteristics between participants had been assessed, and individual differences that would act as predictor of activities and alcohol consumption should have emerged in our analyses. This makes our study one with a clear focus on purely activities performed in a time-out situation.

Our findings seem to support the reliability and credibility of examining alcohol use in groups in a bar laboratory setting (see for an extensive discussion: Bot et al., 2005). Although we aimed hard to create an atmosphere in which people would react as naturally as possible, the question remains whether we succeeded. There are some indications that we did. Firstly, as mentioned, the cover up story worked quite well according to the pilot studies. In addition, but this is primarily based on personal impressions, the behavioural patterns exhibited in the 1-h time-out session were quite representative for normal behaviour in a pub or bar; for instance, people laughed, played games, sometimes had conversations about rather intimate matters, made passes at each other, or watched TV. Secondly, there is also statistical evidence for the credibility of the setting. It is possible to not find systematic overlap between what people normally drink and what people drank in this specific setting. If those who normally drink substantially when being out would hardly drink in the bar lab setting, or vice versa, it would seriously conflict with the credibility of the setting. However, this was not the case. Young people who reported to drink excessively and frequently in everyday life were more likely to consume a high number of drinks in this 1-h time-out session in the bar lab.

4.1. Limitations

A limitation of this study is that we chose to compose two measures of pastime that are arbitrary. As we discussed earlier, there may be differences between individuals in what may be considered passive pastime. For some people, being in a conversation may be quite strenuous, whereas for others it may be pure relaxation, which may have an impact on the alcohol consumption rate. Also the measure "active" leaves room for discussion. "Making phone calls" and "visiting the toilet" may be called active too, but are substantially different from the games we labelled "active" in this study. Besides, they are not the kind of activities that can be manipulated, like can be done with playing by offering games, which makes them less practical when it comes to prevention of alcohol use. Further, we labelled "playing billiards" as other, because it has both active and passive components, but the same argument may go for e.g. "playing cards". Running the analyses leaving "playing cards" out of the "active" measure and putting "playing billiards" in showed no apparent changes in the results and confirmed that at least the finding stands that compensation takes place after slower drinking due to active pastime. Based on this study, we must conclude that no decrease in alcohol consumption can be expected when playing opportunities are offered.

Other limitations have to do with the generalisibility of the findings. Although we assume that we succeeded in creating a time-out context in which young people react as naturally as possible, some constraints have to be mentioned. First, the drinks were for free. This might have triggered a larger tendency to compensate for lost drinking than would occur in normal situations in which drinks usually have to be paid for. Second, young people were only in the bar lab for approximately 1 h. We do not know (a) whether people will choose different types or order of activities when they spend more time in a specific pub; or (b) whether compensation for 'lost alcohol consumption' because of involvement in activities such as playing table soccer would have been less substantial when people know in advance that they have plenty of time to do several activities. Finally, usually, people are not in a pub or disco with merely their friends. We do not know the effects on drinking patterns and activities when more people are around.

All in all, we can state that differences in drinking rates have been observed between individuals who were involved in active and passive pastime, but we cannot conclude that involvement in play will lead to lower total alcohol consumption during a time-out situation. Our study, however, is the only one in its kind and may not completely reflect what happens on a standard night out. Therefore, we consider this study exploratory, until other studies replicate our finding that individuals are able to titrate their alcohol consumption. When it comes to identifying other possible tools to decrease alcohol consumption in young adult peer groups, perhaps other factors may be more promising. In an earlier study (Bot et al., 2005), we found that gender composition of the group makes a large difference in individual alcohol consumption, and in the present paper we found that e.g. membership of a certain group may make a difference in individual predictors of drinking. In the near future we will more closely look into our data, taking group composition and group member characteristics into account. Perhaps studying peer group drinking behaviour in such a manner will lead to findings that are more useful for the prevention policy of excessive drinking in young adults.

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