African Journal of Drug & Alcohol Studies, 11(2), 2012

COMPARISON OF BASELINE DRINKING PRACTICES, KNOWLEDGE, AND ATTITUDES OF ADULTS RESIDING IN COMMUNITIES TAKING PART IN THE FAS PREVENTION STUDY IN SOUTH AFRICA

Charles D.H. Parry[1,2], J. Phillip Gossage[3] Anna-Susan Marais[1], Ronel Barnard[1], Marlene de Vries[1], Jason Blankenship[3], Soraya Seedat[1], Philip A. May[3,4]

[1]Department of Psychiatry, University of Stellenbosch, Cape Town, South Africa
[2]Alcohol & Drug Abuse Research Unit, Medical Research Council, Cape Town, South Africa
[3]The Center on Alcoholism, Substance Abuse, and Addictions, The University of New Mexico, Albuquerque, USA
[4]Department of Nutrition, Gillings School of Global Public Health, the University of North Carolina, Chapel Hill, USA

ABSTRACT

Foetal Alcohol Syndrome (FAS) has been identified as among the most serious consequences associated with hazardous and harmful drinking in the Western Cape province, South Africa. Community surveys were conducted in two wine growing regions in this province to assess drinking behaviour, guide interventions and serve as a baseline for assessing the impact of population-level interventions. As part of a cross-sectional comparative study interviews were conducted with 384 and 209 randomly selected adults in the prevention (PC) and comparison communities (CC) respectively. Over 80% of respondents resided in urban areas, except in the CC, where 61% of males resided on farms. Symptoms of hazardous or harmful drinking were reported by 16.0% of females and 32.5% of males in the PC, while 19.3% of females and 56.2% of males in the CC reported such drinking. Over two-thirds of respondents indicated that it was equally harmful for a woman to drink during any of the trimesters of pregnancy, but more than 30% of the women interviewed had never had a health worker speak to them about the effects of drinking during pregnancy. Over 10% had never heard of fetal alcohol syndrome. The findings reinforce the need for interventions to address hazardous/harmful use of alcohol in both communities and also to address gaps in knowledge regarding the effects of drinking during pregnancy.

Key Words: Alcohol, epidemiology, pregnancy, South Africa

Corresponding Author: Professor Charles Parry, Alcohol & Drug Abuse Research Unit, PO Box 19070, Tygerberg, 7505, South Africa. Phone: +27-21-9380419. Email: cparry@mrc.ac.za

INTRODUCTION

The World Health Organization (WHO)'s *Global Status Report on Alcohol* identified South Africa as being at high risk for alcohol-related problems. While abstention from drinking was found to be high, among drinkers it fell into the category of countries having highest consumption of absolute alcohol (AA)/drinker per year. South Africa also fell into the second highest category of countries that have harmful patterns of drinking and into the category of countries with the highest level of past year heavy episodic drinking, for both male and female drinkers (World Health Organization, 2011).

Among the nine provinces in South Africa, the Western Cape is particularly problematic for harmful alcohol use. National HIV/AIDS surveys (Shisana et al., 2005; 2009), for example, found that this province had the highest proportion of the general population aged 15 and older scoring eight or above on the AUDIT questionnaire (Babor et al., 2001), 16% in 2005 and 15% in 2008. Similarly, the National Youth Risk Behaviour Surveys found that young persons in grades 8 to 11 in the Western Cape reported substantially higher levels of binge drinking in the past 30 days than in other provinces (Reddy et al., 2003; 2010), 34% in 2003 and 41% in 2008. General population surveys have also found problem drinking to be higher in non-urban than in urban settings in this country.

Foetal Alcohol Syndrome (FAS) has been identified as among the most serious consequences associated with hazardous and harmful drinking in the Western Cape province, with rates as high as 88 per 1000 being reported in the prevention community of this study and surrounding areas (May et al., 2005; 2007). The prevention community (PC) is a town situated about a one hour drive from Cape Town that serves as a hub for the many local wine farms. Several large scale intervention projects have been implemented in recent years to address FAS, including a large U.S. National Institute on Alcohol Abuse and Alcoholism (NIAAA)-funded study designed to trial a comprehensive, public health model, community-wide, FAS prevention programme defined by the Institute of Medicine (IOM) in the PC and four other Western Cape Province comparison communities (CC). One nested study within this larger trial involves community surveys to assess the effect of the intervention on drinking at the community level.

Specific aims of this sub-study include: (i) assessing the health of the population in the PC and CC with a particular focus on alcohol, tobacco and other drug use and associated problems, (ii) determining the knowledge and attitudes of respondents towards risky drinking practices in both communities, (iii) assessing responses in both communities to selected policy options designed to address such practices, and (iv) serving as a baseline measure of the impact of a broad range of universal, selected and indicated interventions to be rolled out as part of the larger trial.

METHOD

Design

Cross-sectional surveys were undertaken between October 2008 and June 2010 in the PC and CC.

Sampling

A cluster random sampling approach was used to select study participants, In the PC the predetermined target sample (N=384) was divided among the nine municipal wards according to the proportion of persons aged 18 to 64 in the 2001 Census (Statistics South Africa, 2001). In the CC the target sample comprised 384 participants who were similarly selected from 10 municipal wards. The CC are situated over a mountain from the PC. In both areas farming is the predominant employment sector. Exclusion criteria included persons residing in institutions and persons younger than 18 years and older than 65.

For wards comprising only urban areas, maps of the wards were obtained from the municipality. On each map 4x4 centimeter blocks were drawn covering all the wards

and each was numbered. A random number generator was then used to select 20% of the blocks per ward. Plots were numbered in the chosen blocks and the total number of participants that were needed to be interviewed in that ward was divided into the total number of blocks. The random number generator was again used to identify the plots and the municipality approached to provide the physical address corresponding to each selected number. If there were more than one eligible interviewee present within each household, then all potential interviewees were identified and one randomly selected.

In wards comprising only farms, two persons were interviewed per farm. The number of persons to be interviewed per ward was divided by two yielding a number of farms that needed to be visited, i.e. every "nth" farm. If the number of persons to be interviewed was an odd number then three persons would be interviewed at the last farm. The random number generator was used to select the "n" farms. The residents of the selected farms were then listed on a sheet and the random number generator used to select the two (or three) interviewees per farm.

In wards comprising farms and urban areas, census and other information was used to come up with a ratio of residents of farms and urban areas. This ratio was multiplied by the number of interviewees to be selected from the ward to give the number of residents to be interviewed from farms and urban areas. Numbers were rounded off to the nearest whole number and the strategies identified above for selecting interviewees from farms and urban areas were then used to identify interviewees in each area. If a person meeting eligibility criteria was not at home or refused to participate, then interviewers went to a neighbouring house (first left, then right, and reversing this the next time they needed to replace someone who was not at a target house) until they obtained someone suitable to interview.

Instrument

The questionnaire comprised 250 questions and was adapted from various U.S. national household surveys and previous field surveys utilized by members of the study team in the United States and South Africa. It contained demographic questions, questions on health status and risky behaviours, drinking behaviour and associated consequences, questions about use of tobacco and other drugs, and various questions assessing knowledge and attitudes regarding the effects of drinking and the consequences of drinking. It included both the CAGE and AUDIT scales. The Alcohol Use Disorders Identification Test (AUDIT) is a 10 item self-rating questionnaire and has been validated for use in primary health care settings and community settings. A total score of 8 or more on the AUDIT indicates hazardous and harmful alcohol use as well as possible alcohol dependence (Barbor, Higgins-Biddle, Saunders & Monteiro, 2001). In the four-item CAGE scale (Erwing, 1984) asks if participant have ever felt that they should cut down on their drinking (C); have been annoyed by being criticized for drinking (A); felt guilty about drinking (G); or have ever had a drink first thing in the morning to steady nerves or get rid of a hangover (E). Participants with affirmative answers to two or more questions were classified as screening positive for alcohol problems. The full questionnaire was available and administered in either English or Afrikaans.

Procedures

Teams of one or two well-trained interviewers approached potential study participants and explained the study to them and took them through the consent process. Interviews were conducted in the homes of study participants or outside if necessary to ensure privacy. Respondents were given a Rand 50 (equivalent to $7.15) shopping voucher for completing the survey. Data collection was completed from October 2008 to June 2010 in the PC and from November 2008 to May 2010 in the CC. Protocols and consent forms were approved by ethics committees from the University of New Mexico, the University of Cape Town, and Stellenbosch University.

Data analysis

Descriptive statistical analyses were performed using SPSS version 20 (IBM, 2011). For the bivariate analyses within sites, in order to compare males and females on selected variables, Chi-square tests of association and t-tests for independent samples were undertaken. In order to compare the PC and CC binomial logistic regression (forward stepwise) was undertaken. Variables were selected for inclusion based on the variables where big differences between PC and CC were evident from the descriptive statistics presented from the within-site gender comparisons in the bivariate analyses.

RESULTS

The final sample included 384 participants from the PC and 209 from the CC.

Within site bivariate analyses by gender

The data show that there were significantly more females in the baseline samples in both communities (Table 1) but that the age of male and female participants did not differ in each of the two sites. Ethnic differences between males and female at the two sites were also not found to differ significantly. Over 60% of males and females in each site defined themselves as being "Coloured"[1]. In the CC males were found to be more likely to reside in rural areas whereas female participants were more likely to reside in urban areas. In the PC no differences between males and females were noted in terms of years of schooling completed, whereas in the CC females were more educated than male participants. With regard to marital status, no significant differences were noted in either community. In both communities females reported being more religious than males, but this was only found to be statistically significant in the CC. In both communities substantially more males reported working for money than females, and in both substantial differences were noted in occupations reported for males and females. For example, more males were farmworkers than females in both sites, and in the CC more females reported being factory workers or doing domestic work than their male counterparts. Differences between males and females were also noted in both communities with regard to usual employment status with, more males being likely to report working full time.

A comparison of selected health measures is contained in Table 2, with a focus on risky behaviours and HIV/AIDS. More males in the CC reported ever having a TB diagnosis. In both communities substantially more male participants reported having had sex under the influence of alcohol than females. In the CC significantly more females than males reported having been tested for HIV/AIDS. In the PC, among those disclosing that they were HIV positive, the mean age at which they were diagnosed with HIV is substantially lower among males than females. Significant gender differences were also seen regarding unprotected sex and domestic violence experienced, with males engaging in more of the former, and females experiencing more of the latter, across both the PC and CC sites.

In terms of the use of alcohol, tobacco and other drugs (Table 3), within the two sites males and females differed from each other on virtually all variables studied, with male use, problematic use and negative consequences always being worse than that for females. More than 90% of males reported lifetime use of alcohol compared to only 65% to 75% of females. Substantially more male drinkers consumed alcohol in the past week as compared to female drinkers, but this was only statistically significant in the CC. Differences in types of drinks were also noted between males and females, with, for example, significantly more males reporting nearly always drinking beer in the PC as compared to females, more females

[1]The terms "white", "black", and "Coloured" refer to demographic markers and do not signify inherent characteristics. They were chosen for their historical significance. Their continued use in South Africa is important for monitoring improvements in health and socio-economic disparities, identifying vulnerable sections of the population, and planning effective prevention and intervention programmes.

Table 1: Baseline **s**ocio-demographics by gender separately for prevention and comparison communities (%, unless otherwise specified)

Variables	Prevention Community (N=384)			Comparison Communities (N=209)		
	Males	**Females**	***p***	**Males**	**Females**	***p***
Gender of Sample	31.3	68.7	0.000	39.2	60.8	0.002
Current Age						
Range	18 – 64	18 – 64	NS	18 - 64	18 – 64	NS
Mean (SD)	37.1 (12.7)	38.1(12.4)	(0.494)	38.3 (13.4)	38.2 (11.7)	(0.965)
Ethnic or Racial Group						
Indian/Asian	0.0	0.8		0.0	0.0	
Black	16.7	17.2		13.8	14.5	
Coloured	63.3	60.3		72.5	62.1	
White	19.2	21.8	NS	13.8	23.4	NS
Other	0.8	0.0	(0.478)	0.0	0.0	(0.210)
Current location of residence						
Rural	15.8	11.4		61.3	14.5	
Urban (conventional)	84.2	87.5	NS	38.8	85.5	0.000
Urban (informal settlement)	0.0	1.1	(0.255)	0.0	0.0	
Years of schooling completed						
Mean (SD)	10.1 (2.7)	10.0 (2.6)	NS (0.677)	7.5 (4.1)	9.4 (2.9)	0.000
Marital status						
Single (never married)	40.0	30.0		30.4	28.5	
Married	48.3	49.0		35.4	39.0	
Living with boyfriend/girlfriend common law partner	8.3	11.8		31.6	20.3	
Separated	0.0	2.3		1.3	3.3	
Divorced	3.3	3.0	(NS)	1.3	2.4	NS
Widowed	0.0	3.8	0.057	0.0	6.5	(0.111)
Does respondent practice a religion						
Yes	88.3	93.5	NS (0.117)	76.2	87.9	0.037
Work for money	62.5	38.0	0.000	83.8	49.2	0.000
Usual occupation						
Factory worker	5.8	3.8		7.5	16.4	
Farm worker	11.7	4.2		55.0	10.7	
Office worker	5.8	6.9		1.2	1.6	
Housewife	0.0	26.7		0	25.4	
Domestic work	0.0	2.7		0	7.4	
Other	50.8	25.6	0.000	23.8	23.0	0.000
Usually does not work	5.0	3.8		2.5	4.9	
Unemployed	20.8	26.3		10.0	10.7	
Usual employment status,						
Full time	55.0	28.6		79.7	27.3	
Part time	10.0	9.9		1.3	10.7	
Seasonal	0.0	0.4		3.8	19.8	
Unemployed	21.7	32.8		11.4	17.4	
Not employed, disabled	5.8	2.3	0.000	2.5	1.7	0.000
Not employed and not looking for work	7.5	26.0		1.3	22.3	
Student or no occupation	0.0	0.0		0.0	0.8	
Total weekly household income Rand, Mean (SD)	2011.3 (2919.4)	1960.9 (2696.5)	NS (0.877)	936.4 (1316.6)	1640.5 (3094.2)	(NS) 0.064

Table 2: Baseline health status by gender separately for prevention and comparison communities (%, unless otherwise specified)

Variables	Prevention Community (N=384)			Comparison Communities (N=209)		
	Males	Females	*p*	Males	Females	*p*
Ever diagnosed with TB	11.7	9.5	NS (0.517)	17.5	7.3	0.024
Sexually active	77.5	71.9	NS (0.246)	80.0	68.5	NS (0.072)
Has a sexually transmitted disease	6.7	6.1	NS (0.834)	12.5	11.3	NS (0.793)
Has had unprotected sex	12.5	6.5	0.050	28.7	15.3	0.021
Has had sex while under the influence of alcohol	29.4	13.7	0.000	45.0	12.1	0.000
Has been tested for HIV/AIDS	67.5	70.3	NS (0.575)	56.2	71.0	0.031
Has been diagnosed with HIV/ AIDSs	0.8	1.9	NS (0.440)	0.0	2.4	NS (0.162)
Among those diagnosed with HIV/ AIDS, age diagnosed Mean (SD)	20.0 (0.00)	33.4 (4.0)	0.039	N/A	34.7 (1.53)	NS (-)
Among those diagnosed with HIV/ AIDS, respondent is on HIV/AIDS medication	100.0	50.0	NS (0.361)	N/A	66.7	NS (-)
Domestic violence events personally experienced (lifetime)	0.8	40.1	.000	2.5	100.0	.000

*n<3. ** - will not be reported due to small number of males reporting having experienced domestic violence

reporting drinking beer in the CC, and more males reporting drinking wine, champagne and hard liquor in the CC than their female counterparts.

Current male drinkers in both communities reported drinking more than twice the number of drinks in the past week than females in these communities (Table 3). The mean number of binge drinking episodes in the past week was high among current male and female drinkers, but significantly less among female drinkers in both the PC and CC. Across both sites more than 10% of respondents were rated as having symptoms of alcohol problems as measured by the CAGE questionnaire and such symptoms were rated as being higher among males in both sites, particularly so in the CC where almost half of males in the entire sample scored above the cutoff on this instrument. In both sites significantly more males compared to females scored above the cutoff of 8 on the AUDIT, 16% to 19% of females and 33% to 56% of males. In the CC almost one in four males scored 20 or above on this instrument which is indicative of possible alcohol dependence.

At both sites males were more likely to report having sex with non-regular partners when they have been drinking compared to females, but this was only statistically significant in the CC. Statistically significant difference in the age of first trying cigarettes was noted between males and females in the CC site. At both sites more females than males disagreed or strongly disagreed with the statement that alcohol should be made more available (Table 4). The majority of men and women knew that it was harmful for a woman to consume alcohol during all nine months of her pregnancy. However, more men than women did not know or were not sure when drinking was most harmful. Similarly, most men and women knew that all beverages containing alcohol can be equally harmful for the fetus, but more men than women indicated that drinking spirits was more harmful than other types of alcoholic beverages. According to the data, only a

Table 3: Baseline use of alcohol, tobacco and other drugs by gender separately by site (%, unless specified otherwise)

Variables	Prevention Community (N=384)			Comparison Community (N=209)		
	Males	Females	*p*	Males	Females	*p*
Ever consumed alcohol	90.8	74.8	0.000	92.5	65.0	0.000
Age first tried alcohol Mean (SD)	18.0 (4.4)	19.7 (5.3)	0.005	16.3 (3.55)	19.3 (5.43)	0.000
Age began drinking regularly Mean (SD)	19.8 (4.6)	21.3 (5.8)	0.032	19.6 (3.8)	21.2 (3.6)	0.011
Past 12 month use of alcohol	64.2	47.5	0.002	75.0	46.8	0.000
Among current drinkers*, consumed alcohol in past week	75.3	62.4	NS (0.057)	88.3	56.9	0.000
Nearly always drink beer (Current drinkers)	46.8	28.8	0.010	20.0	43.1	0.006
Nearly always drink hard liquor (Current drinkers)	6.5	4.0	NS (0.453)	3.3	0.0	0.000
Nearly always drink wine or champagne (Current drinkers)	15.6	20.8	NS (0.347)	44.3	22.4	0.014
Among current drinkers, number of drinks consumed in past week Mean (SD)	10.5 (16.8)	4.0 (6.9)	0.000	12.7 (12.3)	3.7 (4.9)	0.000
Among current drinkers, drinkers only, number of binges in past week Mean (SD)	0.8 (1.1)	0.5 (0.9)	0.037	1.1 (1.3)	0.5 (0.7)	0.003
Among current drinkers, estimated BAC for heaviest drinking day in past week: Mean (SD)	0.159 (0.3)	0.071 (0.1)	0.017	0.199 (0.3)	0.087 (0.1)	NS (0.062)
CAGE Score						
0-1	80.0	88.6		52.5	83.1	
2-4	20.0	11.4	0.025	47.5	16.9	0.000
AUDIT scores						
0-7	67.5	84.0		43.8	80.6	
8-15	21.7	10.3		26.2	12.9	
16-19	5.8	2.7		6.2	4.0	
20-40	5.0	3.0	0.003	23.8	2.4	0.000
When drinking they are more likely to have sex with a non-regular sex partner (among current drinkers)	5.2	1.6	NS (0.153)	11.7	0.0	0.007
Age first tried smoking cigarettes or chewing tobacco: Mean (SD)	17.9 (4.7)	18.3 (6.0)	NS (0.685)	16.5 (3.9)	18.1 (4.5)	0.046
Age began smoking cigarettes or chewing tobacco regularly Mean (SD)	19.0 (5.0)	18.7 (5.61)	NS (0.741)	18.9 (3.9)	19.8 (4. 6)	NS (0.277)
Age first tried illegal drugs like cannabis or methamphetamine Mean (SD)	19.3 (4.4)	18.5 (3.5)	NS (0.576)	20.2 (6.3)	19.9 (6.0)	NS (0.901)
Among drug users, age began using illegal drugs regularly Mean (SD)	18.7 (3.2)	19.8 (4.5)	NS (0.428)	22.1 (7. 3)	11.5 (9.2)	NS (0.077)
Frequency of use of cigarettes during the past 12 months						
Never	55.0	67.2		37.5	60.2	
Less often than every other month	0.0	0.8		1.2	0.8	
Once every month or two	0.0	1.1		2.5	0.8	
Once every 2 or 3 weeks	0.8	0.0		1.2	0.0	
Once a week or more often	44.2	30.9	0.033	57.5	38.2	0.023
Frequency of cannabis use						
Never	94.1	99.2		89.7	98.4	
Less than once per month	2.5	0.4		1.3	1.6	
Once every 1 to 2 months	0.8	0.4		1.3	0.0	
Once every 2 to 3 weeks	0.0	0.0		1.3	0.0	
Once a week or more often	2.5	0.0	0.014	6.4	0.0	0.023

*-past 12 months

Table 4: Baseline knowledge, attitudes and exposure to information by gender separately for each site (%, unless otherwise specified)

Variables	Prevention Community (N = 384)			Comparison Communities (N = 209)		
	Males	Females	Significance *p*	Males	Females	Significance *p*
Alcohol should be made more available						
Strongly disagree	75.0	85.9		33.8	58.2	
Disagree	15.8	9.5		41.2	28.7	
Neither agree./nor disagree	2.5	3.8		1.2	6.6	
Agree	2.5	0.0		16.2	4.9	
Strongly agree	4.2	0.8	0.003	7.5	1.6	0.000
Mean number of drinks it takes a person to get drunk (SD)						
Man	6.2 (4.2)	6.5 (5.0)	NS (.607)	7.1 (4.2)	7.2 (5.5)	NS (0.922)
Woman	4.1 (3.5)	4.2 (3.6)	NS (0.912)	4.2 (2.4)	4.3 (3.0)	NS (0.827)
During which months of a woman's pregnancy is it most harmful to drink alcohol						
First 3 months	19.2	17.6		7.5	13.0	
4-6th month	4.2	2.3		2.5	0.0	
7-9th month	1.7	1.5		3.8	0.8	
All months	68.3	77.9		75.0	82.1	
Don't know/not sure	6.7	0.8	0.011	11.2	4.1	0.033
Mean number of drinks per day pregnant women can drink without hurting foetus (SD)	0.4 (1.1)	0.2 (0.5)	0.013	0.3 (0.8)	0.1 (0.5)	NS (0.052)
Which alcoholic beverage is more harmful to drink during pregnancy						
Beer	0.8	1.1		1.2	1.6	
Wine	3.3	1.9		5.0	0.8	
Spirits	16.7	6.5		17.5	7.3	
None is harmful	0.0	0.4		1.2	1.6	
All could be equally harmful	75.8	88.5		70.0	84.6	NS
Don't know/not sure	3.3	1.5	0.024	5.0	4.1	(0.095)
Has a doctor or any health care provider ever talked with them about the effects of drinking alcohol during pregnancy						
Yes	27.4	69.2		29.9	61.7	
No	71.8	30.8		68.8	38.3	
Didn't recall/not sure	0.9	0.0	0.000	1.3	0.0	0.000
Ever heard about foetal alcohol syndrome or FAS						
Yes	80.0	88.1		65.8	86.2	
No	20.0	11.9		31.6	13.0	
Didn't recall/not sure	0.0	0.0	0.036	2.5	0.8	0.003

NS = not statistically significant

third of the men and two-thirds of the women had discussed the consumption of alcohol with a doctor or health care provider. At both sites more women than men reported having had such discussions. Lastly, women were significantly more likely than men to report having heard of the terms fetal alcohol syndrome of FAS. In fact between 20% and 34% of men reported never having heard of these terms.

Comparisons across sites

The baseline data show that the PC and the four CC appear to be quite different on many measures. For example, from Table 1 it is evident that a greater proportion of males were interviewed in the PC as compared to the CC (39.2% versus 31.3%), but more males were from the coloured ethnic group in the CC (72.5% versus 63.3% in the PC). The CC are substantially more rural. Educational achievement also appears to be greater in the PC, especially among males. In the CC, males were three times more likely to be living with a girlfriend or in a common law arrangement: 31.6% versus 8.3% in the PC. Female respondents in the PC were more likely to be practicing a religion (93.5%) when compared to the CC (87.9%), and more males and females in the CC appear to work for money than their counterparts in the PC. Males in the CC were five times more likely to be farm workers (55.0% vs. 11.7%); more males and females were unemployed in the PC. Twenty-four percent of workers in the CC were seasonal workers compared to just 0.4% in the PC and pay for males in the CC was half of what is paid for males in the PC (see Table 1).

With regard to selected health status variables (Table 2), the proportion of males reporting ever having received a TB diagnosis was substantially greater in the CC. Almost twice as many respondents had a sexually transmitted disease in the CC and unprotected sex appeared to be more frequent in the CC. Rates of domestic violence experienced by females in the CC appeared to be more than double those of females in the PC.

With regard to use of various substances and consequences of their use (Table 3), there were several differences between the two sites. For example, use of beer appears to be more common among male respondents in the PC as compared to the CC whereas use of wine (and champagne) appears to be more commonly reported among males in the CC. Problematic alcohol use as measured by the CAGE and AUDIT questionnaires was high at both sites, but appears to be even higher among males in the CC as does having sex with non-regular sex partners. Conversely the mean age of beginning to use illegal drugs regularly appeared to be substantially lower among females in the CC (11.5 years of age versus 19.8 years). The frequency of cigarette use among male smokers in the CC also appeared to be substantially higher than among males in the PC.

With regard to knowledge, attitudes and exposure to information (Table 4), sentiments against making alcohol more available appeared to be stronger among both males and females in the PC as compared to the CC. Uncertainly regarding when in a women's pregnancy it was most harmful to drink appeared to be higher among both males and females in the CC. Among males at least knowledge of FAS appeared to be substantially lower in the CC.

Binary logistic regression (forward stepwise) results (Table 5) showed that the following two variables significantly discriminate between participants from the two communities: occupation (being a farmworker verses not) and attitude toward alcohol. Respondents from the CC were more likely to be farmworkers, and the stronger the attitude that alcohol should be made more available, the greater the likelihood that a participant was from the CC. Overall, these variables correctly classify 72.4% of respondents as being either from the

Table 5: Forward stepwise binomial logistic regression results

Variables	Wald	df	Sig.
Occupation (being a farmworker)	32.920	1	.000
Attitude toward alcohol	29.047	1	.000

R^2= .13 (Cox & Snell), .19 (Nagelkerke). Model χ^2 = 80.08, p = .000

PC or the CC (overall model significance (X^2 = 32.79, p = .000).

DISCUSSION

In both communities (PC and CC) high levels of lifetime and past 12 month alcohol use were recorded, substantially higher for both males and females than among provincial samples in the Western Cape province Survey (Department of Health, Medical Research Council, OrcMacro, 2003). Percentages for lifetime use were more than 20% higher in the PC and CC samples. With regard to alcohol use in the past 12 months, levels were at least 9% higher in the PC and CC samples among males and almost 20% higher among females. The proportion of the population in the PC and CC having hazardous or harmful alcohol use ranged between 32.5% and 56.2% for males and between 16.0% and 19.3% for females. These proportions are substantially higher than the provincial estimates (Shisana et al., 2009) and are likely to be due to factors such as greater poverty in rural areas and the legacy of the "Dop" system whereby farm workers in some areas used to receive part of their wages in alcohol, and a pattern of heavy binge drinking, particularly on weekends, developedVarious differences between males and females at the two sites were noted in both sites, namely in lifetime use of alcohol and, symptoms of problem drinking (as indicated by high CAGE scores) and harmful drinking (as indicated by the AUDIT). This is to be expected given greater levels of problematic drinking reported among males in South Africa and elsewhere in the world (Obot & Room, 2005; Parry et al., 2005; Shisana et al., 2009). In the CC males were more likely than females to be found to reside in rural areas, to be less educated, and to earn less. Some of these differences are likely due to an oversampling of male farmworkers in the CC than in the PC.

Differences between men and women were also found in views regarding harmful drinking during pregnancy. More men indicated that it is more harmful to drink during particular trimesters rather than saying it is harmful to drink during all trimesters. It is of concern that across the two sites between 30.8% and 38.3% of women had not had a doctor or health care provider ever talk to them about the effects of drinking during pregnancy. An even greater proportion of men had not had such conversations with providers. This is not surprising because men in South Africa are known to consult health care settings less frequently than women (Harris, et al, 2011). The high levels of men and women who indicated that they had not heard of the terms foetal alcohol syndrome or its Afrikaans equivalent or "FAS" is a matter of concern given that this health issue has received considerable attention in the local, community media for almost two decades, at least in the PC.

This baseline study revealed various differences between the PC and CC. In particular, the multivariate analysis highlighted significant differences in occupation (more farm workers in the PC) and attitudes to attitude towards alcohol (more permissive in the CC). However, as the CC is more rural and situated further from Cape Town, these findings are not unexpected.

The study and the findings reported above have various limitations. The relatively small sample size, especially in the CC, made it difficult to undertake complex multivariate analyses. The fact that more farm workers were sampled in the CC may mean that the two samples are not entirely comparable. In addition, the data pertain to two particular communities in the Western Cape that were not randomly selected. Therefore, the findings may not be generalisable to all rural, farming communities in the Western Cape.

CONCLUSIONS

Across both sites, the baseline community surveys revealed that substantial amounts of alcohol are consumed by drinkers on a typical drinking day, with heavy or binge drinking commonly reported. It is of further concern that more than 30% of women had never had

a health worker speak to them about the effects of drinking during pregnancy, and that over 10% of women had never heard of FAS. The need for interventions to reduce hazardous and harmful drinking in the study communities was therefore confirmed. Careful consideration should be given to addressing ignorance regarding when it is harmful to drink alcohol during pregnancy. Also there is an obvious need for health workers to talk to men and women about the effects of drinking during pregnancy and to discuss FASD in general. Future surveys with larger sample sizes which will permit more detailed, sophisticated, and representative multivariate analyses of the data are needed and are planned by the authors.

It is hoped that subsequent community surveys undertaken in 2012 will show that interventions instituted locally have led to a reduction in harmful drinking practices and an improvement in knowledge of risky behaviours, attitudes about heavy drinking, and a reduction in risky behaviours.

ACKNOWLEDGEMENTS

This project was funded by the NIAAA Grants RO1 AA09440, R01 AA11685, and RO1/UO1 AA01115134, and the National Institute on Minority Health and Health Disparities (NIMHD). Faye Calhoun, D.P.A., Kenneth Warren, Ph.D., T-K Li, M.D., and Marcia Scott, Ph.D. of NIAAA have provided intellectual guidance, participated in, and supported the South African studies of FASD in a variety of ways since 1995. Our deepest thanks are extended to the Mayor of the PC and to any in the community who have graciously hosted and assisted in the research process over the years.

We especially acknowledge the contribution of these research team members who collected or helped process the community survey data: Theresa Alexander, Annalien Blom, Isobel Botha, Marise Cloete, Avril Downie, Simone Europa, Romena Ferreira, Natalie Hendricks, Suzanne Human, Belinda Joubert, Leandi Matthys, Elmarie Nel, Alitha Pithey, Sumien Roux, Gill Shrosbree, Jeanetta Steenekamp, and Meretha van Rooyen. We thank Ella Spillmon for help in processing the data.

REFERENCES

Babor, T.F., Higgins-Biddle, J.C., Saunders, J.B., & Monteiro, M.G. (2001). *AUDIT. The Alcohol Use Disorders Identification Test: Guidelines for use in primary care. Second edition.* Geneva: World Health Organization. Department of Mental Health and Substance Dependence.

Department of Health, Medical Research Council, OrcMacro. (2007). *South Africa Demographic and Health Survey 2003.* Pretoria: Department of Health.

Erwing, J.A. (1984) Detecting alcoholism: The CAGE questionnaire. *JAMA*, 252, 1905-1909.

Harris, B., Goudge, J., Ataguba, J.E., McIntyre, D., Nxumalo, N., Jikwana, S., Chersich, M. (2011). *Inequities in access to health care in South Africa. Journal of Public Health Policy, 32,* S102-S123.

IBM Corp. Released 2011. *IBM SPSS Statistics for Windows, Version 20.0.* Armonk, NY: IBM Corp.Obot, I.S. & Room, R. (Eds.). (2005). *Alcohol, gender and drinking problems.* Geneva: Department of Mental Health & Substance Abuse, World Health Organization.

May, P.A, J. Gossage, J.P., Marais, A.S.. Adnams, C.M. Hoyme, H.E.,. Jones, K.L.. Robinson, L.K.. Khaole, N.C.O. Snell, C.. Kalberg, W.O. Hendricks, L. Brooke, L. Stellavato, S. and Viljoen, D.L. The Epidemiology of Fetal Alcohol Syndrome and Partial FAS in a South African Community. *Drug and Alcohol Dependence*, 88, 259-271, 2007.

May, P.A., Gossage, P., Brooke, L.E., Snell, C.L., Narais, A-S., Hendricks, L.S., et al. (2005). Maternal risk factors for fetal alcohol syndrome in the Western Cape Province of South Africa: A population based study. *American Journal of Public Health*, 95, 1190-1199.

Parry, C.D.H., Plüddemann, A., Steyn, K., Bradshaw, D., Norman, R., & Laubscher, R. (2005). Alcohol use in South Africa: Findings from the first demographic and health survey (1998). *Journal of Studies on Alcohol*, 66, 91-97.

Reddy, S. P., Panday, S., Swart, D., Jinabhai, C. C., Amosun, S. L., James, S., Monyeki, K. D., Stevens, G., Morojele, N., Kambaran, N. S., Omardien, R. G., & Van den Borne, H. W. (2003). *Umthenthe Uhlaba Usamila: The South African Youth Risk Behaviour Survey 2002*. Cape Town: South African Medical Research Council.

Reddy, S.P., James, S., Sewpaul, R., Koopman, F., Funani, N.I., Sifunda, S., Josie, J., Masuka, P., Kambaran, N.S., Omardien, R.G. (2010). *Umthente Uhlaba Usamila – The South African Youth Risk Behaviour Survey 2008.* Cape Town: South African Medical Research Council.

Shisana, O., Rehle, T., Simbayi, L.C., Parker, W., Zuma, K., Bhana, A., Connoly, C., Jooste, S. & Pillay, V. (2005). *South African national HIV prevalence, HIV incidence, behaviour and communication survey, 2005.* Cape Town: HSRC Press.

Shisana, O., Rehle, T., Simbayi, L.C., Zuma, K., Jooste, S., Pillay-van-Wyk, V., Mbelle, N., Van Zyl, J., Parker, W.,Zungu, N.P., Pezi, S., & the SABSSM III Implementation Team (2009). *South African national HIV prevalence, incidence, behaviour and communication survey 2008: A turning tide among teenagers?* Cape Town: HSRC Press.

Statistics South Africa., 2001. *Census in brief.* Accessed on 2 October 2006. http://www.statssa.gov.za

World Health Organization. (2011*).Global status report on alcohol and health*. Geneva: WHO.

World Health Organization. (2010*).WHO Global strategy to reduce harmful use of alcohol*. Geneva: WHO.