

AFRICAN JOURNAL OF DRUG AND ALCOHOL STUDIES

Volume 6, Number 2, 2007

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ISSN 1531-4065

COMPOSITION OF SURROGATE ALCOHOL FROM SOUTH-EASTERN NIGERIA

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ABSTRACT

The quality of home brewed beverages (e.g., ogogoro) in Nigeria has been a source of concern for some time. However, the composition of these beverages remains largely unknown. In this pilot study samples of surrogate alcohol from the southeastern parts of Nigeria were analyzed for alcohol concentration, composition of volatile and non-volatile components and water quality. The results showed that the samples contained concentrations of alcohol that were in agreement with those previously reported for ogogoro. However, the concentrations of other components (e.g., methanol, lead) were well below those associated with acute toxic effects. One sample contained an unknown additive and was being sold as an 'antimalarial'. The implications of these findings are discussed.

KEY WORDS: KEY WORDS: surrogate alcohol, moonshine, quality of spirits, Nigeria

INTRODUCTION

Traditional alcoholic beverages have been consumed in Nigeria and other West African communities for centuries, and western commercial spirits, beer and wine have been available since pre-colonial days (Obot, 2007). African fermented foods were reviewed by Odufa

and Oyewole (1998). In many African countries, traditional spirits are obtained by the distillation of fermented local sugary substrates. However, information on these is hard to obtain since the production is illegal in many countries. Since colonial times the view is that the spirits may contain toxic alcoholic components due to lack of scientific quality control.

Table 1. Sample collective of Nigerian surrogate alcohol*

Sample	1	2	3	4	5	6
Sampling site	Agbani, Enugu State	Ogbete Market, Enugu	Amokwe, Enugu	Presidential Road, Enugu	Presidential Road, Enugu	Kuje, Abuja
Description	Clear, colorless liquid without distinct smell	Clear, colorless liquid without distinct smell	Clear, colorless liquid without distinct smell	Clear, colorless liquid without distinct smell	Brown liquid with dark precipitation, sold as anti-malarial	Clear, colorless liquid without distinct smell

*In Nigeria, the surrogate alcohol is known by different names depending on the locality (e.g., Akpeteshie, Kai-Kai, Ogogoro)

In West Africa, ogogoro (also known as kinkana and apetesi) is a spirit drink distilled from palm wine. In Nigeria, distillation takes place in small sheds dotted along the coastal areas and in villages across the South. The end product is a clear liquid with alcohol content often higher than 40%. The drink is stored in large plastic containers and transported to all parts of the country where it is sold in bottles. Consumers can also buy ogogoro in shots in drinking parlors. The production of ogogoro has risen sharply in Nigeria in recent years because it is used as the main ingredient in the production of commercial liquors. In what is a thriving market in fake brandy and whiskey today, the constituents of these drinks often turn out to be bad ogogoro and some coloring (Obot, 2000).

Besides anecdotal evidence and limited results from the 1980s (Odeyemi, 1980), there is no systematic information about the composition of Nigerian spirits available. We conducted this pilot study to obtain an up-to-date overview about Nigerian alcoholic beverages. For the first time, we have conducted a comprehensive analysis of ogogoro samples including alcoholic strength, volatile compounds, heavy metals, as well as water quality parameters. From those we aimed to identify the compounds occurring in toxic ranges that may be studied in more detail in a larger sample.

METHOD

Samples

Samples of surrogate alcohol (illegally produced and unrecorded) were obtained from retail outlets across the southeastern part of Nigeria. Aliquots (shots of about 50 ml) were purchased randomly from small retailers that serve the public in small gatherings, market squares, labour camps and/or lower cadre drinking parlors. The samples were poured directly into clean plastic vials collected from medical suppliers at the university. Contamination from other sources, e.g., water, was avoided. The small retailers had bought their supplies from major retailers who in turn had purchased them from the distillers. The distillations are done mainly in the Delta (Warri, Sapele and Burutu) and Rivers states of Nigeria. The source of raw material is presumably the sap from 'raffia palm'. The other sap of palm wine from the upland is more expensive and does not flow as much in quantity hence raffia palm wine is the most economic source for distillation. Any additive to the gin is done at the final retail outlet. The list of collection sites and a visual description of the samples is presented in Table 1.

Analytical procedure

Alcoholic strength and total dry extract were determined by Fourier transform infrared spectroscopy according to the method described

in Lachenmeier (2007). Volatile components were analyzed on the basis of the European Community reference methods for the analysis of spirits using gas chromatography (GC) with a flame-ionization detector (FID) (European Commission, 2000). Additional details on the GC-FID procedure are published elsewhere (Lachenmeier et al., 2006). Ethyl carbamate was determined using GC with tandem mass spectrometry (GC-MS/MS) (Lachenmeier et al., 2005). Anionic composition was analyzed using ion chromatography (Lachenmeier et al., 2003). Conductivity was measured using the procedure in Lachenmeier et al. (2007b). Inorganic elements were analyzed using semi-quantitative inductively coupled plasma mass spectrometry (ICP-MS) after evaporation of the sample and re-constitution in ultra-pure water. Furthermore, all samples were screened for unknown substances using high-performance liquid chromatography with a diode-array detector (HPLC-DAD) and gas chromatography with mass spectrometry (GC-MS).

Reporting of results

Alcoholic strength is indicated by 'percent by volume' (% vol). Volatile compounds contained in each sample are expressed in the unit 'g/hl of pure alcohol' or 'g/hl of 100% vol. alcohol' (i.e., the concentrations are standardized in regard to the alcoholic strength) according to the procedure outlined in the European Community reference methods for the analysis of spirits (European Commission, 2000). This approach is superior because the samples can be directly compared irrespective of their individual alcoholic strength. For better clarity, we use the abbreviation 'g/hl p.a.'. The results for the non-volatile components are presented as 'mg/l'.

RESULTS

The results for alcoholic strength and volatile composition are outlined in Table 2. The alcoholic strengths of the sample were in the range between 32.2 and 42.6% vol. Methanol

was detected in all samples in concentrations between 4.4 and 31 g/hl p.a. The content of higher alcohols encompassed a considerable range between 34 and 269 g/hl p.a. Two samples had a rather low content of higher alcohols (34 and 46 g/hl p.a., samples # 1 and 6), whereas the other samples had higher concentrations above 150 g/hl p.a. The same difference was found for the esters ethyl acetate and ethyl lactate, as well as for acetaldehyde.

Besides the substances shown in Table 2, we have quantitatively analyzed 1-hexanol, benzyl alcohol, benzyl acetate, benzaldehyde, ethyl benzoate, ethyl caprylate and methyl acetate. However, these substances were not detectable in any of the samples. Ethyl carbamate was also not detectable in any of the samples using GC-MS/MS. During the screening analyses for unknown substances using HPLC-DAD and GC-MS, no further toxicologically relevant substances were discovered. We were able to exclude quinine as the anti-malarial substance in sample 5, but could not spectrally assign a possible herbal medicine used for this regard.

All elements that were positively detected during our ICP/MS screening analysis for elemental composition are shown in Table 3. The most abundant elements with concentrations in the mg/l range were the alkali and alkaline earth metals sodium (2.5–54 mg/l), potassium (3.4–93 mg/l), calcium (0.8–3.8 mg/l), and magnesium (0.13–4.9 mg/l). Besides those, only copper was contained up to the mg/l range (0.01–3.7 mg/l). Other metals were found only in traces.

The conductivities of the samples ranged from 19 to 133 $\mu\text{S}/\text{cm}$ (Table 4). Chloride was detected in most of the samples (3.9–46.7 mg/l). Nitrate was positive in three samples (2.3–29.1 mg/l), sulfate in two (8.3–13.3 mg/l), whereas phosphate was detected in only one of the samples (6.8 mg/l).

DISCUSSION

Strength of alcohol beverages

The alcoholic strengths of the samples were in good accordance with the range of 26.8 to

Table 2. Volatile composition of Nigerian surrogate alcohol in comparison to EU limits and data from the literature

Sample	1	2	3	4	5	6	EU maximum level for neutral alcohol/ for fruit spirits (EC, 1989)	Ogogoro from Nigeria (Odeyemi, 1980) ¹	Moonshine from Tanzania (Mosha et al., 1996) ²	Samogon from Russia (Nuzhnyi, 2004) ²	Legally distilled fruit spirits (Lachenmeier and Mußhoff, 2004) ²
Ethanol [% vol]	32.2	42.4	42.6	37.6	37.4	37.0	-	24.5-40.3	21.0-44.0	(no data)	31.2-49.1
Methanol [g/hl p.a.]	4.4	31	20	18	18	5.6	50/1000	nd-9	20-38	0-164	25-1389
Acetaldehyde [g/hl p.a.]	1.5	11	11	18	17	1.2	0.5/no limit	(no data)	0.5-8	1.3-212	(no data)
1-Propanol [g/hl p.a.]	24	37	28	29	30	32	-	nd-50	10-19	2-142	16-1393
1-Butanol [g/hl p.a.]	nd	1.0	0.8	0.6	0.5	nd	-	(no data)	50-200 ⁽³⁾	0-65	1-55
2-Butanol [g/hl p.a.]	0.5	2.6	3.8	3.3	3.5	nd	-	(no data)	(no data)	0-53	nd-368
Isobutanol [g/hl p.a.]	5.6	48.8	28.0	26.0	26.4	2.1	-	33-153	(no data)	4.7-967	15-813
Amyl alcohols [g/hl p.a.]	5.2	175	101	93	94	nd	-	127-291	(no data)	9-1170	4-456
2-Phenyl ethanol [g/hl p.a.]	0.5	4.4	3.7	2.8	2.8	nd	-	(no data)	(no data)	0-38	(no data)
Ethyl acetate [g/hl p.a.]	2.2	62	47	38	36	nd	1.3/no limit	nd-70	(no data)	0.8-164	(no data)
Ethyl lactate [g/hl p.a.]	2.4	50	75	38	39	nd	-	(no data)	(no data)	0-66	(no data)
Sum of higher alcohols [g/hl p.a.]	36	269	165	155	157	34	0.5/no limit (minimum 200)	180-460	(no data)	(no data)	(no data)

nd: not detected (detection limit 0.5 g/hl p.a.)

¹recalculated from original data in wt-% or mg/l

²recalculated to g/hl p.a. under assumption of an alcoholic strength of 40% vol

³data reported for "butanol", no differentiation between isomers was made

39.9% previously reported for African ogogoro (Odunfa and Oyewole, 1998). Two samples had an alcohol content above 42% vol. The range is also consistent with the one given in a report about African traditional beverages from Tanzania (Mosha et al., 1996). In general, the alcoholic strength of the Nigerian spirits corresponds to the usual strength of European style spirits of around 40% vol (Lachenmeier and Musshoff, 2004). Surrogate alcohols from Russia and Eastern Europe were reported to contain

higher alcoholic strengths than commercial spirits (Lang et al., 2006; McKee et al., 2005). This observation was not made in our Nigerian sample collection. Therefore, with respect to ethanol, we were not able to differentiate between the surrogate samples and commercial alcoholic beverages with similar strengths.

Volatile composition

In addition to ethanol, the samples contain a number of volatile compounds, which are

Table 3. Inorganic composition of Nigerian surrogate alcohol in comparison to WHO and EU limits (results of ICP-MS semiquantitative analysis)

[mg/l]	1	2	3	4	5	6	EU Drinking water quality standards (EC, 1988)	WHO Guidelines for Drinking-water quality (WHO, 2006)
Al	nd	0.022	0.011	nd	0.063	nd	0.2	-
B	nd	nd	nd	0.61*	1.4*	0.051	1.0	0.5
					0.007	-		0.7
Ba	0.035 0.001	nd	nd	nd	4 0.004	nd	-	-
Bi	3	nd	nd	nd	9	nd	-	-
Ca	3.7 0.002	0.94	2.3	0.84	3.8	2.5	-	-
Co	1	nd	nd	nd	nd	nd	-	-
Cr	nd 0.000	nd	nd	nd	9	nd	0.05	0.05
Cs	9	nd	nd	nd	nd	nd	-	-
Cu	0.11 0.002	3.6*	3.7*	2.1*	1.2	0.014	2.0	2
J	8	nd	9	nd	nd	nd	-	-
K	11	4.5	3.7	3.4	93	7.1	-	-
Mg	1	0.13	0.47	0.13	4.9	0.39	-	-
Mn	0.043	0.028	0.032	0.009	0.15*	nd	0.05	0.4
Na	54	25	5.4	2.5	3.9	17	-	-
Ni	nd	0.007	nd	nd	nd	nd	0.02	0.07
P	0.074	0.17 0.001	0.036	0.057	1.8	0.16	-	-
Pb	nd	5	nd 0.003	nd	nd	nd	0.01	0.01
Rb	0.015	0.004	5	0.001	0.18	0.004	-	-
Si	nd	nd 0.004	0.22 0.007	nd 0.001	0.88	1	-	-
Sr	0.015 0.001	5	9	4	0.015 0.008	0.028 0.001	-	-
Ti	5	nd	nd	nd	5	4 0.002	-	-
W	nd	nd	nd	nd	nd	8	-	-
Zn	0.066	0.7	0.93	0.12	0.085 0.002	0.019	-	-
Zr	nd	nd	nd	nd	9	nd	-	-

Notes: "nd" not detected; *value above limit of EU or WHO for drinking water (no limits for spirits available)

expected in products derived from alcoholic fermentation.

The methanol content was relatively low (i.e. lower than the EU limit of 50 g/hl p.a. for neutral alcohol). This fact shows that the products were not manufactured from fruit materials, which would lead to significantly higher methanol concentrations (usually above 100 g/hl p.a.). At this stage we can only speculate from which raw materials the spirits were manufactured, as no literature data for comparison are available.

Methanol is the substance most often associated with the toxicity of surrogate alcohol (Lachenmeier et al., 2007a). However, the low methanol concentrations in the Nigerian spirits are of no toxicological concern. The maximum tolerable concentration of methanol in alcoholic beverages is 2% vol, which equates to approx. 5000 g/hl p.a. (Paine and Dayan, 2001). This is above 150 times higher than the highest concentration of 31 g/hl p.a. found in the samples. Our results are in total agreement

Table 4. Conductivity and anionic composition of Nigerian surrogate alcohol in comparison to WHO and EU limits

Sample	1	2	3	4	5	6	EU Drinking water quality standards (EC, 1988)	WHO Guidelines for Drinking-water quality (WHO, 2006)
Conductivity [μ S/cm]	133	57	-*	19	88	36	2500	-
Chloride [mg/l]	46.7	29.3	3.9	nd	3.9	nd	250	-
Nitrate [mg/l]	29.1	nd	nd	nd	2.3	13.3	50	50
Phosphate [mg/l]	nd	nd	nd	nd	6.8	nd	-	-
Sulfate [mg/l]	13.1	nd	nd	nd	8.3	nd	250	-

Notes: ‘nd’ not detected (detection limits: chloride 2 mg/l, nitrate 5 mg/l, phosphate 10 mg/l, sulfate 5 mg/l); *not determined because the sample amount was too small

with the only study of the volatile composition of Nigerian ogogoro available in the literature to our knowledge: Odeyemi (1980) analyzed 7 samples of ogogoro and found that they did not contain any significant amounts of methanol and that there was clearly no risk of methanol poisoning from the ogogoro in their study.

Acetaldehyde is an undesirable substance in spirits because of its unpleasant flavour. It is also regarded as possibly being carcinogenic to humans (Group 2B) (IARC, 1999). During distillation acetaldehyde is enriched in the first fraction, which is generally discarded (Pieper et al., 1987). During production of spirits acetaldehyde may be formed not only as a product of alcoholic fermentation by *Saccharomyces* yeast, but also as a metabolite of microorganisms like lactic acid bacteria or acetic acid bacteria. Therefore, an increased amount of acetaldehyde usually indicates flaws in the fermentation process. Using German standard distillation stills most of the acetaldehyde can be separated. Nevertheless, a complete separation is not technically possible. An average acetaldehyde residue of between 12–18 g/hl p.a. (48–72 mg/l) can be found in German fruit spirits according to Pieper et al. (1987). The acetaldehyde content of the Nigerian spirits is in excellent agreement with the range found in German fruit spirits. The first distillation fractions appear to have been separated during production

of the spirits. Another indication of this is the relatively low concentrations of ethyl acetate, which is also enriched in the first fractions.

Alcohols with more than two carbon atoms are commonly called ‘higher’ or ‘fusel’ alcohols (sometimes volatiles in alcoholic beverages besides ethanol are also called congeners). Most higher alcohols occur as by-products of yeast fermentation, and are important flavour compounds. The content of higher alcohols in alcoholic beverages is generally not seen as of toxicological relevance. For example, the Joint FAO/WHO Expert Committee on Food Additives included higher alcohols (1-propanol, 1-butanol, isobutanol) in the functional class ‘flavouring agent’ and commented that there was no safety concern at current levels of intake when used as a flavouring agent (JECFA, 1997). For certain groups of spirits, the European Union even demands a minimum volatile substance content (i.e., the quantity of volatile substances other than ethanol and methanol, which are mainly higher alcohols). For example, fruit spirits must have a content of volatile substances of at least 200 g/hl p.a., whereas neutral alcohol should be almost entirely free of higher alcohols (max. 0.5 g/hl p.a. (European Council, 1989). The higher alcohols in our samples were generally lower than 200 g/hl p.a. (one exception with 269 g/hl p.a.). The higher alcohols in our study were lower than

those reported by Odeyemi (1980). It is not known whether this is the result of improved production techniques since the writing of the paper by Odeyemi, or if the differences purely derive from variations between the raw materials or yeast strains used. The concentrations of higher alcohols in our Nigerian samples were also lower than those reported in Russian samogon or legal fruit spirits (see Table 2 for comparison).

Non-volatile compounds and water quality

Because elements and ions are generally non-volatile, most of the inorganic content found in the spirits is derived from water used for dilution to drinking strength. Inorganic contamination may occur from use of the distillation equipment. For example, during the production of moonshine in the U.S., the leaching of lead from solder or other lead-containing materials in the radiators caused lead contamination of the moonshine (Lachenmeier et al., 2007a). In the Nigerian spirits, lead was only detected in one case in a very low lead level of 0.0015 mg/l, which is below the drinking water standard of the WHO and EU (0.01 mg/l) (European Council, 1988; WHO, 2006). Our samples therefore offer no explanation of the previous observation that excessive alcohol use may cause increased blood lead concentrations in alcohol users in Nigeria (Adeniyi and Anetor, 1999).

The drinking water standards were exceeded by one product for manganese (0.15 mg/l), by two products for boron (0.61 and 1.4 mg/l), and by three products for copper (2.1, 3.6 and 3.7 mg/l). The origin of manganese and boron is most likely the water. Our results verify the findings of Ukhun et al. (2005), who reported that the mineral contamination of Nigerian palm wine might have occurred during the bottling stage, most likely from the dilution water. In contrast, the copper concentrations may be possibly traced to the copper stills used for distillation as the major source. It is therefore not atypical to find copper levels of this magnitude in spirits, e.g. levels as high as 5.31 mg/

l of copper were measured in sherry brandies (Cameán et al., 2000) or levels up to 9.2 mg/l (Bettin et al., 2002) or up to 14.3 mg/l (Nascimento et al., 1999) of copper in Brazilian sugar cane spirits. Our study therefore verifies the previous view that copper levels in Nigerian foods well compare to similar food items from other parts of the world (Onianwa et al., 2001).

For toxicity evaluation, it should be noted that the limits were derived for drinking water, which has a much higher rate of daily consumption than spirits. While some of the spirits under investigation slightly exceeded the drinking water limits, it cannot be concluded that such spirits are toxic or unsuitable for consumption. However, the Codex alimentarius general standard for contaminants and toxins in foods requires that contaminant levels shall be as low as reasonably achievable and that contamination be reduced by applying appropriate technology in food production, handling, storage, processing and packaging (Codex alimentarius, 1997). In this regard, we think that inorganic contaminants should be reduced in the spirits, especially in the drinking water, from which they are derived.

The samples were analyzed for inorganic anions, because of the nitrate problem that was previously described for Nigerian water supplies and alcoholic beverages (Bassir and Maduagwu, 1978; Ezeagu, 1995; Ezeonu et al., 1992). Nitrate may pose a public health problem because it may be a precursor in the formation of carcinogenic nitrosamines, which have been of some concern in the Nigerian diet (Maduagwu & Bassir, 1979). The nitrosamine contamination itself was previously found to be a negligible problem in Nigerian alcoholic beverages (Maduagwu & Uhegbu, 1986).

We have detected nitrate in three of the samples in concentrations up to 29.1 mg/l, which is below the drinking water limit, and much lower than levels up to 360 mg/l that were reported from contaminated Nigerian water supplies (Ezeonu et al., 1992). The conductivities of the samples were also relatively low, indicating an overall sufficient water quality

or water treatment processes. Conclusions and health implications

The debate on the composition and possible harmful effects of home brews has been of concern and has been brought to the attention of the media in Africa. As an example, on Thursday Sept.1, 2005, the BBC program *Africa Live* invited their audience to comment on whether home brews have a place in modern Africa. In their introduction they stated that 'Local brews can provide much-needed money for poor families. . . . But if not brewed properly, they can be dangerous and each year hundreds of people die after drinking these spirits'. We were thus surprised at the high quality of the beverages analyzed in this study. The samples contained concentrations of alcohol that were in agreement with those previously reported for ogogoro, but the concentrations of the other components (e.g., methanol, lead) were well below those associated with acute toxic effects. However, our findings must be interpreted with caution because the samples were obtained from a defined geographical area and thus may not be representative of the composition of home brews produced in other parts of Nigeria where different raw materials and possibly contaminated water may be used in the manufacturing process.

Although these findings are encouraging, the situation must be constantly monitored. These surrogate alcohol beverages are produced illegally and the production is uncontrolled. Therefore the composition of these beverages may change rapidly and result in harmful consequences.

There was one disturbing finding in this study. One sample of the home brew contained an unknown additive and was being sold as an 'antimalarial'. One of the authors (O.E.) who lives in Nigeria claims that this is a common practice. Malaria is endemic in Nigeria and use of these home brews as 'antimalarials' can have public health consequences because it can deter individuals from getting proper treatment for this debilitating condition. Further investigation of these additives is needed.

ACKNOWLEDGEMENTS

The laboratory analyses were supervised by K. Schoeberl (ICP/MS), E.-M. Sohnus (GC-FID), T. Kuballa (GC-MS and GC-MS/MS), R. Attig (IC) and M. Kohl-Himmelseher (HPLC). The authors thank H. Heger, M. Jaworski, H. Havel, K. Müller, M. Ürün and G. Bippes for excellent technical assistance.

REFERENCES

- Adeniyi F.A., & Anetor J.I. (1999). Lead-poisoning in two distant states of Nigeria: an indication of the real size of the problem. *African Journal of Medicine and Medical Science*, 28, 107–112.
- Bassir O., & Maduagwu E.N. (1978). Occurrence of nitrate, nitrite, dimethylamine, and dimethylnitrosamine in some fermented Nigerian beverages. *Journal of Agricultural and Food Chemistry*, 26, 200–203.
- Bettin S.M., Isique W.D., Franco D.W., Andersen M.L., Knudsen S., & Skibsted L.H. (2002). Phenols and metals in sugar-cane spirits. Quantitative analysis and effect on radical formation and radical scavenging. *European Food Research and Technology*, 215, 169–175.
- BBC News: Africa. Should we drink home brews? news.bbc.co.uk/2/hi/africa/4188106.stm (accessed Aug 3, 2007).
- Cameán A.M., Moreno I.M., López-Artíguez M., Repetto M., & González A.G. (2000). Metallic profiles of sherry brandies. *Sciences des Aliments*, 20, 433–440.
- Codex alimentarius (1997). Codex general standard for contaminants and toxins in foods (CODEX STAN 193-1995, Rev.1-1997). www.codexalimentarius.net (accessed Aug 3, 2007).
- European Commission (2000). Commission Regulation (EC) No 2870/2000 laying down Community reference methods for the analysis of spirits drinks. *Official Journal of the European Communities*, L333, 20–46.

- European Council (1989). Council Regulation (EEC) No 1576/89 laying down general rules on the definition, description and presentation of spirit drinks. *Official Journal of the European Communities*, L160, 1–17.
- European Council (1988). Council Directive 98/83/EC on the quality of water intended for human consumption. *Official Journal of the European Communities*, L330, 32–54.
- Ezeagu I.E. (1995). Occurrence of nitrate and nitrite in water and some alcoholic beverages in Nigeria. *Nahrung-Food*, 39, 530–534.
- Ezeonu F.C., Egboka B.C.E., & Okaka A.N.C. (1992). Nitrate and Nitrite in Some Non-alcoholic Beverages and Water-Supplies in Onitsha, Nigeria. *Journal of Food Science and Technology*, 29, 329–330.
- IARC (1999) IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, Vol. 71, Acetaldehyde, International Agency for Research on Cancer, Lyon, France
- JECFA (1997) Summary of evaluations performed by the Joint FAO/WHO Expert Committee on Food Additives, World Health Organization, Geneva
- Lachenmeier D.W. (2007). Rapid quality control of spirit drinks and beer using multivariate data analysis of Fourier transform infrared spectra. *Food Chemistry*, 101, 825–832.
- Lachenmeier D.W., Attig R., Frank W., & Athanasakis C. (2003). The use of ion chromatography to detect adulteration of vodka and rum. *European Food Research and Technology*, 218, 105–110.
- Lachenmeier D.W., Frank W., & Kuballa T. (2005). Application of tandem mass spectrometry combined with gas chromatography to the routine analysis of ethyl carbamate in stone-fruit spirits. *Rapid Communications in Mass Spectrometry*, 19, 108–112.
- Lachenmeier D.W., & Musshoff F. (2004). Volatile congeners in alcoholic beverages. Retrospective trends, batch comparisons and current concentration ranges. *Rechtsmedizin*, 14, 454–462.
- Lachenmeier D.W., Rehm J., & Gmel G. (2007a). Surrogate alcohol: what do we know and where do we go? *Alcoholism: Clinical and Experimental Research*, 31, 1613–1624.
- Lachenmeier D.W., Schmidt B., & Bretschneider T. (2007b). Rapid and mobile brand authentication of vodka using conductivity measurement. *Microchimica Acta*, in press, DOI: 10.1007/s00604-007-0825-9.
- Lachenmeier D.W., Sohnius E.-M., Attig R., & López M.G. (2006). Quantification of selected volatile constituents and anions in Mexican Agave spirits (Tequila, Mezcal, Sotol, Bacanora). *Journal of Agricultural and Food Chemistry*, 54, 3911–3915.
- Lang K., Vali M., Szücs S., Adany R., & McKee M. (2006). The composition of surrogate and illegal alcohol products in Estonia. *Alcohol and Alcoholism*, 41, 446–450.
- Maduagwu E.N., & Uhegbu F.O. (1986) N-Nitrosamines and Nigerian habitual drinks, and cancer. *Carcinogenesis*, 7, 149–151.
- Maduagwu E.N., & Bassir O. (1979) Appearance and disappearance of dimethylnitrosamine during the fermentation of palm-sap enriched with some nitrogen compounds. *Journal of Agricultural and Food Chemistry*, 27, 60–63.
- McKee M., Szücs S., Sarvary A., Adany R., Kiryanov N., Saburova L., Tomkins S., Andreev E., & Leon D.A. (2005). The composition of surrogate alcohols consumed in Russia. *Alcoholism: Clinical and Experimental Research*, 29, 1884–1888.
- Mosha D., Wangabo J., & Mhinzi G. (1996). African traditional brews: How safe are they? *Food Chemistry*, 57, 205–209.
- Nascimento R.F., Bezerra C.-W.B., Furuya S.-M.B., Schultz M.S., Polastro L.R., Lima-Neto B.S., & Franco D.W. (1999). Mineral profile of Brazilian cachacas and other international spirits. *Journal of Food Composition and Analysis*, 12, 17–25.

- Nuzhnyi V. (2004). Chemical composition, toxic, and organoleptic properties of non-commercial alcohol samples. In Haworth A., & Simpson R. (eds.), *Moonshine Markets. Issues in unrecorded alcohol beverage production and consumption*. Pp 177–199. New York: Brunner-Routledge.
- Obot I.S. (2000). The measurement of drinking patterns and alcohol problems in Nigeria. *Journal of Substance Abuse*, 12, 169–181.
- Obot I.S. (2007). Nigeria: alcohol and society today. *Addiction*, 102, 519–522.
- Odeyemi F. (1980). The quality of the Nigerian native alcoholic beverage (Ogogoro). *Kemia Kemi*, 7, 134–135.
- Odunfa S.A., & Oyewole O.B. (1998). African fermented foods. In Wood B.J.B. (ed.), *Microbiology of Fermented Foods*. Pp 713–752. London, UK: Blackie Academic.
- Onianwa P.C., Adeyemo A.O., Idowu O.E., & Ogabiela E.E. (2001). Copper and zinc contents of Nigerian foods and estimates of the adult dietary intakes. *Food Chemistry*, 72, 89–95.
- Paine A.J., & Dayan A.D. (2001). Defining a tolerable concentration of methanol in alcoholic drinks. *Human and Experimental Toxicology*, 20, 563–568.
- Pieper H.J., Rau T., Eller T., & Volz A. (1987). A Speedy Method to Determine Acetaldehyde, with Particular Consideration Being Given to Quality Inspection in the Manufacture of Fruit Spirits. *Deutsche Lebensmittel-Rundschau*, 83, 35–41.
- Ukhun M.E., Okolie N.P., & Oyerinde A.O. (2005). Some mineral profiles of fresh and bottled palm wine - a comparative study. *African Journal of Biotechnology*, 4, 829–832.
- WHO (2006) Guidelines for drinking-water quality, World Health Organization, Geneva, Switzerland.

RELATIONSHIPS OF DRINKING BEHAVIOUR, GENDER, AND AGE WITH SELF-REPORTED ALCOHOL-RELATED PROBLEMS IN NAMIBIA

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ABSTRACT

The aim of this study was to assess the relationships of drinking patterns, gender and age with self-reported alcohol-related problems in Namibia using a cross-sectional design. A representative sample of the population aged 15 years or above (N=2,832) was surveyed in 1998 on quantity of alcohol consumed, frequency of heavy drinking, alcohol-related problems. Findings showed that when the quantity of alcohol consumed and the frequency of heavy drinking were controlled, women reported significantly less commonly than men various alcohol-related problems. Younger drinkers reported more commonly all problems except treatment experiences. The gender-specific findings are inconsistent with social norms which praise abstinence, or moderation for women. More studies are needed to shed light on the cultural dynamics behind the gender differences in experiencing alcohol-related problems.

KEY WORDS: **Keywords:** drinking, alcohol problems, gender, Namibia

INTRODUCTION

Almost all we presently know about the relationship between alcohol use and alcohol problems are based on studies conducted in developed countries. Yet, alcohol abuse is considered to be an extremely serious social problem in many developing countries. In this paper we analyse the relationships of quantity of alcohol consumed, drinking patterns, gender and age with reported problems related to one's own alcohol use in Namibia, a developing country in south-western Africa. The study is based on the first nation wide survey on alcohol and drug use in Namibia which was carried out in 1998. The results are compared with findings from the developed countries.

Namibia is located in south-west Africa on the Atlantic Ocean, bordering Angola in the

north and South Africa in the south. Namibia was a German colony from 1884 until the early phases of the First World War. After the war, Namibia, which was then called South-west Africa, was administered by South Africa under a League of Nations mandate. From 1971 onwards, South Africa held Namibia against the decision made by the International Court of Justice, until Namibia reached her independence in 1990. In the 1991 census the population of Namibia was about 1.5 millions (Central statistics, 1996). At the time of the census 43% of the population were below 15 years of age, and about 70% were below 30 years of age. Only 5% of the Namibian population had reached the age of 65 years. Most of the population lived (and still do) in rural areas and in the northern regions of the country. Furthermore, the 1991 census reveals that 26% of the

population aged 15 years or above and 66% of the population aged 65 years or over had never attended school (Central Statistics, 1994). Educational attainment on the tertiary level was rare. Only 4% of the population aged 20 years or above had some kind of tertiary education.

Namibia is characterised by two separate economies. On the one hand, there is the modern sector which employs highly advanced technologies in the production process and in the ways of life. On the other hand, there is the traditional sector which depends on subsistence production and has not reached any level of sophistication or development. There are great differences in the income accruing to population groups associated to or supported by these sectors. A study conducted by the United Nations divided the population of Namibia into three groups: 'Whites', 'non-whites supported by modern economy', and 'non-whites supported by traditional economy' (reported by Central statistics Office, 1996, 12–13). The percentages of these three population groups were 5.1, 40.0 and 54.9, but the proportions of the Namibian Gross Domestic Product they accounted for were 71.2, 25.4 and 3.4 per cent, respectively.

Alcohol consumption patterns in Namibia have been in transformation. Traditionally, Namibians, like most Africans, were indulged in beer-brewing by using sorghum, maize, millet and other traditional agricultural crops. Beer served as an incentive to work and was available at different special occasions ranging from agricultural ceremonies to entertainment. Traditional drinking was generally acceptable among male elders, although chiefs and kings controlled the use. Drunkenness was unacceptable. Because improper behaviour was condemned, the pre-colonial communities had limited alcohol consumption.

The contacts with missionaries and European traders had a considerable impact on the social lives of the Namibian people, because many of their traditional practices were eroded. The same thing happened to drinking habits. The colonial era brought spirits into Namibia,

and the colonial labour system supported occasional heavy drinking (MoHSS, 1999, III.C.4.-2). The racial liqueur laws prohibited the sale of alcohol to the indigenous people, and strict regulations ruled where, when and to whom alcohol was allowed to be sold. In consequence of the legislation and the regulations, illicit trafficking increased. These regulations also supported and forced to adopt a particular drinking pattern known as 'get drunk - and fast - before the bottle is taken away'. In 1960, the ban was released. After that alcohol consumption began to increase considerably. Since the beginning of the independence, the same trend has continued and the slowly widening relative affluence has brought along a very permissive atmosphere concerning alcohol use. Advertisement of alcohol is not controlled. Alcohol is readily available and its outlets are the most frequent services in the communities (MoHSS, 1999, III.C.4.-2). Production of home-brewed beverages is the dominant channel for alcohol availability. At the time of the survey it was illegal to brew beer at home, but control was practically non-existent, and cheap home-brewed beer found easily a market among the low- and no-income consumers. Production of home-brewed beverages is closely connected to food production in both the urban and rural areas. The producers are a heterogeneous group, but many of them are women, particularly widows or divorced older women in the same way as Maula (1997) has shown in Republic of Kenya. The common denominator is the need to provide livelihood. Especially for older women it is largely a question of survival.

Alcohol abuse is considered to be one of the main problems of Namibia (see, e.g., His Excellency, Dr. Sam Nujoma, President of the Republic of Namibia, in the foreword to Programme for the Prevention and Combating of Substance Abuse and Illicit Drug Trafficking, MoHSS, 1995). That is why it is understandable that alcohol became an issue in the social development co-operation project, the Health and Social Sector Support Program (HSSSP), through which Finland has supported the efforts of the Namibian Government to develop

the health and social sector in the country. The Ministry of Health and Social Services (MoHSS) established an unit, the Alcohol and Drug Resource Centre, to run treatment, rehabilitation, prevention and counselling programs. In 1998, the Centre conducted the first nation wide survey on alcohol and drug use in Namibia. The first findings based on the Nationwide KAP (Knowledge, Attitudes and Practice) Baseline Survey on Alcohol and Drug Use and Abuse showed a high proportion of abstainers (68%), high levels of alcohol consumption, the popularity of the traditional beverages, and the high prevalence of alcohol related problems among drinkers (Mustonen et al., 2001). These are all findings that fit well to the pattern which earlier has been characterised as 'African drinking' (e.g., Partanen, 1991; Parry & Bennetts, 1998). The relatively low frequency of heavy drinking, however, does not fit the standard dichotomy, the 'all-or-none' pattern, which has also been seen to characterise the African drinking habits (Partanen, 1991, pp.190–191), even in Namibia (Skjelmerud, 1999).

Descriptions of the African drinking pattern do not specifically address women's behaviour in this context. The Namibian study, as well as the other results from African studies, have reported the universal pattern that women drink less alcohol than men. The Namibian survey, however, indicates that the differences in heavy drinking between the genders are relatively small, smaller than in the developed countries. In addition, the findings also reflect the manifold links between alcohol and women in Namibia. Women are important producers of traditional alcoholic beverages, but they are also significant consumers of these products. (Mustonen et al., 2001)

About relationships of alcohol use and alcohol-related problems in developed countries

Data for studies concerning alcohol-related experiences and drinking come mainly from surveys and are based on subjective reporting. The following general trends and recurrent results can be found about the relationships of

drinking, gender, age, and alcohol-related problems from the studies conducted in industrialised countries:

First, greater use of alcohol results in a greater number of problems related to alcohol use, at least across the range of problems that surveys of general populations have covered (Mäkelä & Simpura, 1985; Hauge & Irgens-Jensen, 1986; Mäkelä & Mustonen, 1988; Edwards et al., 1994; Midanik, 1995; Mäkelä & Mustonen, 2000).

Second, frequency of heavy drinking or intoxication is a major predictor of alcohol-related problems (Knupfer, 1984; Greenfield, 1986; Hauge-Irgens-Jensen, 1986; Single & Wortley, 1993; Room et al., 1995; Single et al., 1995; Stockwell et al., 1996).

Third, most studies which in the recent years have analysed simultaneously the effects of alcohol consumption and the frequency of heavy drinking show that both the quantity of alcohol consumed and the frequency of heavy drinking have independent contributions (Single & Wortley, 1993; Room et al., 1995; Single et al., 1995; Rossow, 1996; Mäkelä & Mustonen, 2000). There is, however, an ongoing discussion of how useful the overall consumption is as a predictor (Rehm & Gmel, 1999).

Fourth, men drink more heavily than women, and correspondingly, the general tendency is that men also report more frequently all kinds of alcohol-related problems. After controlling for one or more drinking variables, however, the relationship between gender and drinking problems disappears or is greatly weakened (Hilton, 1991; Midanik & Clark, 1995; Single et al., 1995; Bongers et al., 1998). One recurrent result is that men report more social control reactions (such as criticized by family members, warned by friends, criticized at work) (Mäkelä & Simpura, 1985; Harford et al., 1991; Bongers et al., 1998). Gender differences that persist after controlling for overall alcohol consumption and heavy drinking form a complex pattern and they vary from one study to another (Mäkelä & Mustonen, 2000).

Fifth, younger drinkers usually report more alcohol-related problems when the overall

Table 1. Distribution of male and female drinkers by alcohol consumption during the past three months (%)

	Estimated alcohol consumption during the last three months (centilitres of 100% alcohol)						Total	
	0-50	50-100	100-200	200-400	400-800	800- %	N	
Male	23	13	17	16	19	12	100	472
Women	37	15	13	14	13	8	100	507
All	29	14	15	15	17	10	100	979

quantity of alcohol is controlled (Mäkelä & Simpura, 1985; Casswell et al, 1993; Midanik, 1995; Midanik & Clark, 1995; Mäkelä & Mustonen, 1996). Younger drinkers have reported more alcohol-related harms also at each frequency level of heavy drinking (Hilton, 1991; Single & Wortley, 1993; Room et al., 1995). The general tendency seems to be that younger drinkers report more problems even when both alcohol consumption and heavy drinking are controlled (Single & Wortley, 1993; Midanik & Clark, 1995; Room et al., 1995; Single et al., 1995; Gruenewald et al., 1996; Kellner et al., 1996; Rossow, 1996).

Specification of the analysis tasks

In analysing alcohol-related problems, gender and age are usually entered into the model before drinking variables, since demographic variables can be viewed as timely, logically and causally more basic than characteristics of drinking. In this report, however, we treat drinking variables as primary determinants of consequences of drinking. One's drinking behaviour determines mainly one's problem experiences related to drinking. Only by comparing alcohol-related problem experiences between individuals having the same drinking habits, we can find out how individual characteristics affect problem experiences. Therefore, we first examine the relationships of the drinking variables to problem variables, and secondly, we study which gender and age differences persist after alcohol consumption and heavy drinking have been controlled.

For the sake of reliability and parsimony, problem questions are commonly combined as summary measures. The drawback is that items having quite different conceptual relations to

drinking behaviour are being lumped together (Mäkelä & Mustonen, 2000). Summary measures can also hide, for example, gender differences in experiencing alcohol-related problems (Schafer & Cherpitel, 1998). In this report, we therefore analyse each problem related to alcohol use separately.

METHOD

Sample

In June and August, 1998, interviews were conducted with a representative sample of the population aged 15 years and above in Namibia (for sampling operations, data collection and representativeness of the data, see Mustonen et al., 2001). The sampling procedure guaranteed that the pre-decided sample size was reached because sampled persons who refused to participate were substituted by re-sampling. The number of completed and valid questionnaires totalled 2,832. Respondents who had had a drink 'with any alcohol of any type' within the past year were defined as drinkers. The following analyses were based on the 472 male and 507 female drinkers for whom information was available for all the independent variables. The male respondents were younger (40 per cent were 18–29 -years old and 35 per cent 30–49 -years old) than the female respondents (29 per cent and 50 per cent, respectively). All the dependent (problem) variables, except the treatment variable, had only few missing values (from 0 to 3 cases). The number of missing values for the treatment variable totalled 135.

In each of the seven regional stratum (almost) the same number of respondents was selected, although the actual population size

Table 2. Distribution of male and female drinkers by heavy drinking frequency during the past three months (%)

	Heavy drinking ¹ frequency during the past three months					Total	
	Never	1-2 times	3-5 times	6-11 times	12 times or more often (weekly or more often)	%	N
Male	50	21	14	11	4	100	472
Women	68	14	9	6	3	100	507
All	58	18	12	9	3	100	979

¹Six or more units of alcohol (any type) on one occasion.

varied between them. The procedure resulted in variable sampling fractions between the strata. Absenteeism of males in the households resulted in under-sampling of males, and this under-sampling varied between the strata. Because of the variable sampling fractions and the under-sampling of males, the analyses presented in this article have been based on data weighted jointly by gender and strata. The weights were based on the population aged 15 years and over in the 1991 Population and Housing Census. They were constructed in such a way that the weighted sum of the sample sizes from all strata and gender groups equalled the actual overall sample size, and the proportion of the weighted sample accounted for by a certain region stratum and gender group corresponded to the group's proportion of the general population.

Alcohol measures

The quantity of alcohol consumed was based on the following question: 'More generally, over the past month, please indicate which and how much of each of the following types of alcohol you have consumed'. The quantities of used alcohol were asked separately for home-brewed beer, store-purchased (bottled or canned) beer, home-brewed hard liquor (spirits), store-purchased hard liquor (spirits) and wine. The unit of quantity varied between the different types of alcohol as follows: 1000ml for home-brewed beer, dumpie (340ml) for

store-purchased beer, nippie (200ml) for home-brewed and store-purchased hard liquor, and glass (100ml) for wine. We converted the quantities into millilitres of pure alcohol by using the following alcohol contents: 0.03 for home-brewed beer, 0.045 for store-purchased beer, 0.40 for home-brewed and store-purchased hard liquor, and 0.12 for wine. Monthly alcohol consumption has been counted by summing up the quantities of different beverages consumed during the past month. Because the reference period of most of the alcohol related problems was three months, an estimate of alcohol consumption during the past three months was counted by multiplying the monthly consumption by three. The distribution of drinkers by alcohol consumption is given in Table 1.

The frequency of heavy drinking was asked as follows: 'How often have you had six or more units of alcohol (any type) on one occasion?'. The reference period for the question extended over the past three months. The question was asked if a respondent had had a drink within the past year (i.e., he or she was a drinker). For tables, we categorised responses as follows: 1) Not during the past three months, 2) 1-2 times, 3) 3-5 times, 4) 6-11 times, and 5) 12 times or more often during the past three months (Table 2). For logistic regression analyses, the last two categories were combined.

The dependent variables used in this paper and their overall frequencies are listed in Table

Table 3. Overall prevalence of problems (%) related to alcohol use among male and female drinkers over the past three months and during lifetime

Drinking problem	Male (N= 472)	Female (N= 507)	All (N= 979)
Past three months			
Feeling of remorse and guilt after drinking	58	45	52
Difficulties getting alcohol out of mind	49	35	43
Skipped a meal because of drinking	47	26	38
Unable to stop drinking	42	31	38
Unable to do something expected	39	32	36
Needed a drink first in the morning	40	21	32
Unable to remember what happened	35	23	29
Lifetime			
Felt like drinking more than was good	57	46	53
Criticised by family	54	30	44
Injured	27	13	20
Broken up with friend or spouse	19	10	15
Has sought treatment ¹	4	4	4

¹The number of missing values for the treatment question totalled 135. It is obvious that in many cases interviewers had skipped the question when they were not supposed to do so. According to the instructions they should have asked the question when the respondent had replied 'yes' to the preceding question 'Have you ever felt like you drank more than was good for you on a regular basis?'. The analyses of the treatment variable were based on those 415 male and 429 female drinkers for whom information was available.

3. Respondents were asked about their alcohol-related problems over the past three months and at all times. The seven questions addressing symptoms of alcohol dependence over the past three months were as follows: 'How often have you experienced a time when you were not able to stop drinking during a single drinking session despite wanting to do so?', '(h)ow often have you been unable to do something expected of you because you had too much to drink?', '(h)ow often have you needed a first drink in the morning to get yourself going after a heavy drinking session?', '(h)ow often have you had a feeling of remorse or guilt after drinking?', '(h)ow often have you been unable to remember what happened the night before because you had been drinking?', '(h)ow often have you skipped a meal because you drank alcohol instead?', and '(h)ow often

have you found it difficult to get the thought of alcohol out of your mind?'. A response was the number of events during the past three months. For the analyses we have re-coded the responses as 1 or 0 to indicate whether the problem was experienced or not. Five questions were asked related to the life-long problems: 'Have you ever been injured as a result of drinking?', '(h)ave you ever been criticised by a family member for the amount of alcohol that you drink?', '(h)ave you ever broken up with a girlfriend / boyfriend / spouse / friend because of your alcohol consumption?', '(h)ave you ever felt like you drank more than was good for you on a regular basis?' and, if a response was Yes to the latter question, '(d)id you seek treatment of any type?'. Response categories were Yes and No.

Modelling alcohol related problems

Logistic regression models were computed predicting the probability of each dependent variable as a function of logarithmic alcohol variables, gender, and age. The *p*-values were based on the likelihood ratio test of the difference between the -2 log-likelihood (-2LL) statistics of the two consecutive models including and not including the coefficient to be tested (Menard, 1995, p. 38). Models were first computed predicting the probability of each dependent variable as a function of alcohol consumption during the past three months and the number of heavy drinking days during the same period. Secondly, gender and age were added separately to the models. Thirdly, gender and age were added to the models already including one of them. Lastly, the gender by age interaction terms were added to the models including the terms which had turned out to be statistically significant at the previous stages. Gender was coded for the analyses as zero or 1 and treated as an interval scaled variable (Hosmer & Lemeshow, 1989, p. 47). Age was introduced as a categorical variable with three values (15–29 years old, 30–49 years old, 50 or more years old). The youngest group was the reference category.

Before comparing the predictive power of the measures of various aspects of drinking behaviour, it is wise to look for the optimal transformation of each independent variable (Greenfield, 1998). In our explanatory analyses, we compared the predictive power of the untransformed and categorised drinking variables, and the logarithmic and the square root transformations of them. Logistic regression models were computed predicting the probability of each dependent variable as a function of each transformation of drinking variables. In taking the logarithm, zero values were replaced by value 0.05. As an indicator of the goodness of fit of each model, the difference between the -2LL statistics of the model including the intercept only, and a model including the effect of the alcohol variable, was used. The categorised and logarithmic drinking variables turned out to have clearly the best predictive power. Categorised alcohol consumption was the best

predictor for eleven out of twelve dependent variables. Categorised number of heavy drinking occasions was the best predictor for four dependent variables. The differences between the predictive powers of the categorised and logarithmic drinking variables were small however. The small differences are quite understandable because the categorical scales are, as they often are, 'pseudo logarithmic', having largest categories at the frequent end (Greenfield, 1998, 58S). The intuitive and spontaneous categorisations based on the data had resulted in approximately logarithmic classifications. Anyway, we tested the statistical significance of categorisation by adding each categorised drinking variable to the model including only the logarithmic transformation of the respective variable. The contribution of the categorised alcohol consumption turned out to be statistically significant for six dependent variables, and the categorised number of heavy drinking occasions for four dependent variables. After that, models for all dependent variables were estimated with the logarithmic transformations of both drinking variables. In addition, the same models were also estimated with the categorised drinking variables for all those dependent variables for which one or both of the categorised variables had been statistically significant after the logarithmic transformation of the respective variable had been controlled. The alternative transformations of the drinking variables did not result in changes in the statistical significance of any independent variable in the models. The traditional approach to the statistical model building involves seeking the most parsimonious model that still explains the data. The rationale for minimising the number of parameters in the model is that the resultant model is more likely to be numerically stable, and can be more easily generalised (Hosmer & Lemeshow, 1989, pp. 82–83). Following these principles, the final models included the effects of the logarithmic transformations of drinking variables, gender, age and the gender by age interaction which were statistically significant by the -2LL criterion. In Tables 4, 5 and 6, the *p*-values were based on the -2LL criterion. In addition, the

Table 4. Logistic regression models for alcohol-related problems as a function of the logarithm of quantity of alcohol consumed and the logarithm of number of heavy drinking days during the past three months and during lifetime

Alcohol-related problem	Intercept	Logarithm of alcohol consumption	p	Logarithm of number of heavy drinking days	p
Past three months					
Feeling of remorse and guilt after drinking	-0.2748	0.1482	<0.0001***	0.2812	<0.0001***
Difficulties getting alcohol out of mind	-0.7668	0.1811	<0.0001***	0.3550	<0.0001***
Skipped a meal because of drinking	-2.1430	0.3917	<0.0001***	0.2969	<0.0001***
Unable to stop drinking	-2.0841	0.4118	<0.0001***	0.4774	<0.0001***
Unable to do something expected	-2.2653	0.3905	<0.0001***	0.2772	<0.0001***
Needed a drink first in the morning	-2.8595	0.4739	<0.0001***	0.3637	<0.0001***
Unable to remember what happened	-2.4557	0.3771	<0.0001***	0.4091	<0.0001***
Lifetime					
Felt like drinking more than was good	-0.3532	0.1367	<0.0001***	0.1637	<0.0001***
Criticised by family	-0.7538	0.1816	<0.0001***	0.3107	<0.0001***
Injured	-2.0035	0.1757	<0.0001***	0.3385	<0.0001***
Broken up with friend or spouse	-3.3469	0.3448	<0.0001***	0.1970	<0.0001***
Has sought treatment	-3.3355	0.0683	0.0983	0.2383	0.0025**

***p ≤ 0.001, **0.001 p ≤ 01, *0.01 p ≤ 0.05.

levels of statistical significance by the Wald test are presented for each parameter estimate in the final models.

RESULTS

Alcohol consumption and the number of heavy drinking days during the past three months contributed independently to the prediction for almost all reported alcohol-related problems during the past three months and the lifetime. The only exception was seeking treatment sometimes during one's lifetime, for which the effect of alcohol consumption during the last three months did not reach statistical significance. According to Nagelkerke R^2 (Nagelkerke, 1991; SPSS Regression ModelsTM 9.0, 1999, pp. 45–46), the models containing just the drinking variables explained more of

the variation in the problem variables concerning the past three months in comparison to the lifetime problem variables.

In the models presented in Table 4 the number of heavy drinking days was included after alcohol consumption. Since the two drinking variables were highly correlated, the p values of their effects were affected by the order of inclusion into the model. However, for all the problems, except seeking of treatment, the effect of alcohol consumption was significant also when it was entered into the model after the number of heavy drinking days (models not shown here). Nearly all the various problems related to alcohol use were more commonly reported by men than women at the same level of alcohol consumption and heavy drinking. As an exception to this, women more often reported (after age was controlled) to have had problems to do something expected. The effect, however, was not statistically significant. Women reported

Table 5. Logistic regression models for problems related to alcohol use, experienced during the past three months as a function of the logarithm of alcohol consumption and the logarithm of heavy drinking days over the past three months, and gender and age

Alcohol-related problem over past three month	Intercept	Logarithm of alcohol consumption in the past three months	Logarithm of number of heavy drinking days in the past three months	Gender (women)	Age (30-49 years) (50+ years)
Feeling of remorse and guilt after drinking	0.2998	0.1600***	0.2605***		-0.2328
Difficulties getting alcohol out of mind	-0.2807	0.1797***	0.3378***	-0.2767*	-0.8023*** 0.0287
Skipped a meal because of drinking	-1.0971	0.3885***	0.2745***	-0.6570***	-0.4485** -0.0670
Unable to stop drinking	-2.0841	0.4118***	0.4774***		-0.4174*
Unable to do something expected	-2.2653	0.3905***	0.2772***		
Needed a drink first in the morning	-1.8927	0.4624***	0.3519***	-0.6646***	
Unable to remember what happened	-2.4557	0.3771***	0.4091***		

***p ≤ 0.001, **0.001 p ≤ 01, *0.0 p ≤ 0.05.

significantly less often than men various dependence symptoms (morning drinking, skipping a meal because of drinking, difficulties getting alcohol out of mind) and also remorse and guilty feelings after drinking (Table 5). In the final model of remorse and guilty feelings, gender was not statistically significant after age was controlled. Social reactions (criticised by family and broken up with friend or spouse) had been significantly less likely towards women than towards men at the same level of drinking and heavy drinking (Table 6). Women also reported less often than men injures and feelings drinking more than was good.

Younger respondents more commonly reported all alcohol-related problems. As an exception, older respondents had significantly more often sought treatment because of worries about their alcohol use. At the same level of drinking and heavy drinking, younger drinkers reported significantly more commonly remorse and guilty feelings after drinking and difficulties of getting alcohol out of mind as well as skipping meals because of drinking (Table 5). Younger drinkers had more commonly been

criticised by family members (Table 6). They were also more likely to report worries about drinking too much.

DISCUSSION

The first goal of this paper has been to examine the relationships of the quantity of alcohol consumed and the frequency of heavy drinking to problems related to alcohol use in Namibia. Next, the differences between the genders and age-groups in experiencing alcohol-related problems were examined when the level of alcohol consumption and heavy drinking were held constant. The data used was the first Nationwide KAP baseline survey on alcohol and drug use and abuse carried out in 1998.

The results showed that both the quantity of alcohol consumed and the frequency of heavy drinking are highly significant predictors of alcohol-related problems during both the past three months and the whole lifetime. Both drinking variables contributed independently

Table 6. Logistic regression models for problems related to alcohol use, as a function of the logarithm of alcohol to alcohol use, experienced during the past three months as a function of the logarithm of alcohol consumption and the logarithm of heavy drinking days over the past three months, and gender and age

Lifetime alcohol-related problem	Intercept	Logarithm of alcohol consumption in the past three months	Logarithm of number of heavy drinking days in the past three months	Gender (women)	Age (30-49 years) (50+ years)
Felt like drinking more than was good	0.6535	0.1184**	0.1557***	-0.7734**	-0.2589
Criticised by family	0.6608	0.1689***	0.2839***	-0.8350***	-1.2338**
Injured	-1.0070	0.1593**	0.3248***	-0.6746***	-0.1003
Broken up with friend or spouse	-2.5149	0.3517***	0.1769***	-0.4795**	-0.6268***
Has sought treatment	-3.7862		0.2621***		1.1395*
					1.0493*

***p ≤ 0.001, **0.001 p ≤ 01, *0.01 p ≤ 0.05.

to the prediction of problems. Our models simply showed that drinkers have more alcohol-related problems if they drink more.

In comparison to men Namibian women reported less commonly injuries and worries about one's own drinking habits at the same level of drinking and heavy drinking. Women reported also less often social reactions to their drinking. The last finding is inconsistent with repeated speculations from the industrialised countries which imply that female drinking is more strictly condemned than male drinking (Otto, 1981; Schmidt et al., 1990; Gomberg & Nirenberg, 1993). It also fits poorly to the traditional norms which still prevail in Namibia. These norms praise abstinence, or at least moderation for women, whereas even heavy drinking is seen as a proper behaviour among men. Social norms and stigma regarding (heavy) drinking may have caused that women have under-reported social reactions to their drinking – as well as injuries and worries about their drinking habits. Stigma and fear for being an alcoholic and having lost control over one's drinking may have affected self-rating of alcohol dependence. Moreover, the norms may have also resulted in under-reporting of some dependence symptoms among women. Thus, it is possible that the gender differences in

Namibia, suggested by the results of the present study, can be explained by gender differences in under-reporting of alcohol-related problems.

There is also another possible explanation for the gender differences found in this study. These differences may also reflect dissimilarities in living conditions between the genders in Namibia. In a country like Namibia, black women have been experiencing double discrimination. Apartheid has discriminated all non-white people, and women have been oppressed on the basis of their sex. Although they are now granted equal rights on paper, their lives are still affected by discrimination. At the bottom of the society, there are poor, black women. They are working at homes or at subsistence agriculture, or are self-employed or day-workers. Women in these occupations constitute three fourths of all women aged 18 years or above. They constitute even a higher proportion among the female drinkers in Namibia. Most producers of home-brewed alcoholic beverages are poor black women. Earlier studies have showed that in Namibia most of alcohol (73%) is drunk as home-brewed alcoholic beverages (Mustonen et al., 2001). There is even a natural explanation why the producers consume their own products frequently and in large amounts. In Namibia, as well as in other

Sub-Saharan African cultures, the producer or seller of alcoholic beverages must have the first drink in order to show sociability and prove that the product is adequate, and what is even more important, that it is not poisonous. The common denominator among the female producers is the need to improve their economic livelihood. For many of them, and for their families, it is largely a question of survival. Therefore, it is quite natural that family members do not blame or criticise an alcohol-producing woman because of her drinking habits. Her friends and spouse may even share her lot. So, there is no need to break up the friendship or the relationships because of her drinking. This may be the reason why the family members or spouses do not react to these women's drinking, and why women themselves do not worry about their own drinking. For many of them, injuries and various dependence symptoms can be a natural part of their life which they no more attribute to their drinking.

The above results have been discussed from the position of Namibian women. They can be viewed, however, even from the other side of a coin, from the position of Namibian men. Men are more valued in Namibia, and therefore, they may be more commonly criticised by family members, spouses and friends. The social reactions may have made men to worry about their amounts of alcohol consumed and be aware of other problems and dependence symptoms which are possibly related to their drinking.

Younger drinkers in Namibia reported more commonly almost all problems related to alcohol use when analyses were made by holding the level of consumption and heavy drinking constant. Young drinkers reported also dependence symptoms more commonly when compared to older drinkers. Similar results showing higher rates of alcohol dependence symptoms among younger drinkers have been reported even in many studies conducted in industrialised countries (Harford et al., 1991; Midanik, et al., 1996). Some speculations have been presented regarding this seemingly odd result. It has been suggested that it might be that

younger drinkers' interpretation of the items used to measure dependence have been based more on single episodes of heavier drinking as opposed to the effects of long-term heavier drinking (among older people) (Midanik et al., 1996). Results from Namibia also showed that younger drinkers have been criticised by family members more often than the older ones. This criticism could indirectly affect self-ratings of alcohol dependency items among younger drinkers. The criticism may also explain why younger drinkers more commonly reported to have had worries about their own drinking. The results can mean that the criticism from family members can affect young drinkers' self-rating of their drinking habits. Another question is whether - or how - the criticism affects their drinking patterns or not. This question is relevant especially in a country like Namibia where home-brewing is an important source of livelihood for many families and where alcohol is easily available everywhere. Anyway, the results showing that younger drinkers had higher incidence of the dependence items of the AUDIT at all levels of consumption and heavy drinking casts some doubts on the validity of this measure when used across age groups (see also Mäkelä, 1996).

All in all, the results of the study suggest that further research is needed to shed light on the cultural dynamics behind the gender differences in experiencing alcohol related problems. The findings also suggest that more studies, in both the developing and developed countries, are needed to examine how respondents at different ages and gender interpret the various items used in dependence measures.

REFERENCES

- Bongers, I. M. B., van de Goor, L. A. M., van Oers, J. A. M. & Garretsen, H. F. L. (1998) Gender differences in alcohol-related problems: controlling for drinking behaviour. *Addiction*, 93, 411-421.
- Casswell, S., Zhang, J. F. & Wyllie, A. (1993) The importance of amount and location

- of drinking for the experience of alcohol-related problems. *Addiction*, 88, 1527–1534.
- Central Statistics office (1994) *1991 Population and Housing Census: basis analysis with highlights*. Windhoek: National Planning Commission, Central Statistics Office (CSO).
- Central Statistics Office (1996) *Living Conditions in Namibia: Basic description with highlights. The 1993/1994 Namibia Household Income and Expenditure Survey: Main Report*. Windhoek: Central Statistics Office (CSO).
- Edwards, G., Anderson, P., Babor, T. F., Casswell, S., Ferrence, R., Giesbrecht, N., Godfrey, C., Holder, H. D., Lemmens, P., Mäkelä, K., Midanik, L. T., Norström, T., Österberg, E., Romelsjö, A., Room, R., Simpura, J. & Skog, O.-J. (1994) *Alcohol Policy and the Public Good*. Oxford: Oxford University Press.
- Greenfield, T. K. (1986) Quantity per occasion and consequences of drinking: A reconsideration and recommendation. *The International Journal of Addiction*, 21, 1059–1079.
- Greenfield, T. K. (1998) Evaluating Competing Models of Alcohol-Related Harm. *Alcoholism: Clinical and Experimental Research*, 22, 52S–62S.
- Gomberg, E.S. & Nirenberg, T. D. (1993) *Women and substance Abuse*. Norwood: Ablex Publishing.
- Gruenewald, P. J., Mitchell, P. R. & Treno, A. J. (1996) Drinking and Driving: drinking patterns and drinking problems. *Addiction*, 91(11), 1637–1649.
- Harford, T. C., Grant, B. F. & Hasin, D.S. (1991) The effect of average daily consumption and frequency of intoxication on the occurrence of dependence symptoms and alcohol-related problems. In: Clark, W. B. & Hilton, M. E. (eds.) *Alcohol in America: drinking practices and problems* (pp. 213–237). Albany: State University of New York Press.
- Hauge, R. & Irgens-Jensen, O. (1986) The relationship between alcohol consumption, alcohol intoxication and negative consequences of drinking in four Scandinavian countries. *British Journal of Addiction*, 81, 513–524.
- Hilton, M. E. (1991) Demographic characteristics and frequency of heavy drinking as predictors of self-reported drinking problems. In: Clark, W. B. & Hilton, M. E. (eds.) *Alcohol in America: drinking practices and problem* (pp. 194–212). Albany: State University of New York Press.
- Hosmer, D. W. & Lemeshow, S. (1989) *Applied Logistic Regression*. New York: John Wiley & Sons.
- Kellner, F., Webster, I. & Chanteloup, F. (1996) Describing and Predicting Alcohol Use-Related Harm: An Analysis of the Yukon Alcohol and Drug Survey. *Substance Use & Misuse*, 31, 1619–1638.
- Knupfer, G. (1984) The risks of drunkenness (or, ebrietas resurrecta): a comparison of frequent intoxication indices and of population sub-groups as to problem risks. *British Journal of Addiction*, 79, 185–196.
- Mäkelä, K. (1996) How to describe the domains of drinking and consequences. *Addiction*, 91, 1447–1449.
- Mäkelä, K. & Mustonen, H. (1988) Positive and negative experiences related to drinking as a function of annual alcohol intake. *British Journal of Addiction*, 83, 403–408.
- Mäkelä, K. & Mustonen, H. (1996) The reward structure of drinking among younger and older male drinkers. *Contemporary Drug Problems*, 23, 479–492.
- Mäkelä, K. & Mustonen, H. (2000) Relationships of drinking behaviour, gender and age with reported negative and positive experiences related to drinking. *Addiction*, 95, 727–736.
- Mäkelä, K. & Simpura, J. (1985) Experiences related to drinking as a function of annual intake and by sex and age. *Drug and Alcohol Dependence*, 15, 389–404.
- Maula, J. (1997) *Small-Scale Production of Food and Traditional Alcoholic Beverages in Benin and Tanzania. Implications*

- for the Promotion of Female Entrepreneurship. Helsinki: The Finnish Foundation for Alcohol Studies.
- Menard, S. (1995) *Applied Logistic Regression Analysis*. Sage University Paper series on Quantitative Applications in the Social Sciences, 07–106. Thousand Oaks, CA: Sage.
- Midanik, L. T. (1995) Alcohol consumption and social consequences, dependence, and positive benefits in general population surveys. In: Holder, H. D. & Edwards, G. (eds.) *Alcohol and Public Policy: evidence and issues* (pp. 62–81). Oxford: Oxford University Press.
- Midanik, L. T. & Clark, W. B. (1995) Drinking-related problems in the United States: description and trends, 1984–1990. *Journal of Studies on Alcohol*, 56, 395–402.
- Midanik, L. T., Tam, T. W., Greenfield, T. K. & Caetano, R. (1996) Risk functions for alcohol-related problems in a 1988 US national sample. *Addiction*, 91, 1427–1437.
- MoHSS (1995) *Programme for the Prevention and Combating of Substance Abuse and Illicit Drug Trafficking: Master plan*. Windhoek: Ministry for Health and Social Services (MoHSS).
- MoHSS (1999) *Green Paper: Situational Analysis on Social Welfare Policies in Namibia, Volume 1: Summary and Recommendations*. Windhoek: Ministry of Health and Social Services (MoHSS), Directorate of Social Services, Health and Social Sector Support Programme in Namibia (HSSSP / Finland).
- Mustonen, H., Beukes, L. & Du Preez, V. (2001) Alcohol drinking in Namibia. In: Demers, A., Room, R. & Bourgault, C. (eds.) *Surveys of Drinking Patterns and Problems in Seven Developing Countries* (pp. 45–57). Geneva: World Health Organisation, Department of Mental Health and Substance Dependence.
- Nagelkerke, N. J. D. (1991) A note on general definition of the coefficient of determination. *Biometrika*, 78, 691–692.
- Otto, S. (1981) Women, alcohol and social control. In: Hutter, B. & Williams, G. (eds.) *Controlling Women: the normal and the deviant* (pp.154–167). London: Croom Helm.
- Partanen, J. (1991) *Sociability and Intoxication: Alcohol and Drinking in Kenya, Africa, and the Modern World*. Helsinki: The Finnish Foundation for Alcohol Studies.
- Parry, C. D. H. & Bennetts, A. L. (1998) *Alcohol policy and public health in South Africa*. Cape Town: Oxford University Press.
- Rehm, J. & Gmel, G. (1999) Patterns of alcohol consumption and social consequences: results from an 8-year follow-up study in Switzerland. *Addiction*, 94, 899–912.
- Room, R., Bondy, S. J. & Ferris, J. (1995) The risk of harm to oneself from drinking, Canada 1989. *Addiction*, 90, 499–513.
- Rossow, I. (1996) Alcohol-related violence: the impact of drinking pattern and drinking context. *Addiction*, 91, 1651–1661.
- Schafer, J. & Cherpitel C. J. (1998) Differential item functioning of the CAGE, TWEAK, BMAST and AUDIT by gender and ethnicity. *Contemporary Drug Problems*, 25, 399–409.
- Schmidt, C., Klee, L. & Ames, G. (1990) A review and analysis of literature on indicators of women's drinking problems. *British Journal of Addiction*, 85, 179–192.
- Single, E., Brewsters, J. M., MacNeil, P., Hatcher, J. & Trainor, C. (1995) The 1993 General Social Survey II: alcohol problems in Canada. *Canadian Journal of Public Health*, 86, 402–407.
- Single, E. & Wortley, S. (1993) Drinking in various settings as it relates to demographic variables and level of consumption: findings from a national survey in Canada. *Journal of Studies on Alcohol*, 54, 590–599.
- Skjelmerud, A. (1999) "What do you do for life if you don't drink?": *The meaning of alcohol for young Namibian women*. Oslo: DIS/ Centre for Partnership in Development.

MUSTONEN

*SPSS Regression Models*TM 9.0 1999. Chicago:
SPSS Inc.
Stockwell, T., Hawks, D., Lang, E. & Rydon,
P. (1996) Unravelling the preventive para-
dox for alcohol problem. *Drug and Alco-
hol Review*, 15, 7–15.

**FIELD TALES OF HAZARDOUS HOME BREWED ALCOHOLIC BEVERAGES:
THE CASE OF SELEBI PHIKWE, BOTSWANA**

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ABSTRACT

This paper explores types of recipes, ingredients and methods of preparation of home brewed alcohol beverages and perceptions of how they impact on the health of their consumers. A study conducted in the high-density, low-income residential areas of Selebi Phikwe, Botswana, during February and March 2003 comprised 16 focus group discussions; 6 in-depth interviews conducted in liquor outlets; two large groups of 75 and 52 *shebeen* queens and kings; and 8 in-depth interviews of *shebeen* queens and kings. Results indicated that the original basic ingredients of most home-brewed/distilled alcoholic beverages were of fermentable starch source, such as malted sorghum, water and either white or brown sugar. The majority of contemporary *shebeen* queens still use traditional local ethnic names for home-brewed/distilled alcoholic beverages, while utilising unorthodox and poisonous ingredients to make their brews more intoxicating. Expedient commercial motives dictate that a lot of what is included in the home-brewed/distilled alcoholic beverages is of poor quality, often contaminated and toxic and this has maligned most of such products. While most informants recognized the negative health effects of consuming home brewed alcoholic beverages, the overwhelming majority alluded to their accessibility, availability, acceptability and affordability as facilitating agents to imbibing them. The study reveals that the currently proposed Botswana National Alcohol Policy falls short of recognising the current realities and dynamics of the informal local brews relative to formal sector brews. The paper calls for a nationally representative study with broader scope that blends quantitative and qualitative data, to foster an evidence-based approach to fine-tune the Botswana National Alcohol Policy.

KEY WORDS: Key Words: home brews, qualitative study, health hazards, Botswana

INTRODUCTION

In many African countries, traditional forms of alcohol produced through a simple procedure of fermentation of seeds, grains, fruits, vegetables or materials from baobab trees are usually poorly monitored for quality and strength, as well as frequently contaminated and toxic (WHO, 2004; Haworth and Simpson 2004). Because traditional alcoholic beverages are locally produced in villages and homes, they are often outside the control

of local governments (WHO, 2004). Due to the difficulty in collecting data for a product that is largely illegal, this issue has been largely neglected by the research community (Haworth and Simpson (2004) and very little published materials exist about these kinds of beverages, prompting WHO (2004:6) to describe the source of data as “. . .almost exclusively grey literature on the Internet”. This paper seeks to explore the available types of home-brewed alcoholic beverages and their health consequences as perceived

by respondents in Botswana, using Selebi Phikwe as a case study.

Historically in most villages of Botswana largely unfiltered opaque beverages were produced for a variety of occasions ranging from agricultural and religious ceremonies to personal and family hospitality (Molamu and Manyeneng, 1988: 64–65; Macdonald and Molamu, 1999: 77). In Botswana, brewing and beer consumption have generally been an integral part of village life while sorghum, a staple food throughout southern Africa, was a primary ingredient in the production of traditional alcoholic beverages (Molamu, 1989).

In Botswana *bojwala* and *khadi* are both forms of home-brewed alcohol that are invariably cheaper than Western-type beverages. The latter include *Chibuku*, a brand name for industrially produced thick sorghum beer that is sold in waxed cardboard cartons. Popularly known as “shake-shake,” it is often sold alongside home brews as its sale does not require a license (Macdonald and Molamu, 1999).

The marketing outlets of the formal sector include bars, bottle stores, liquor restaurants, and *Chibuku* depots. In the squatter areas and informal settlements, however, the significance of the *shebeen*—also popularly known (as in many parts of South Africa), as a drinking “spot”—is well established (Molamu and Manyeneng, 1988; Macdonald and Molamu, 1999). Malahleha (1984: 13) cited in Molamu and Macdonald (1999), defines a *shebeen* as “an unlicensed, unconventional drinking establishment where alcoholic beverages are sometimes brewed, and always sold and dispensed at any time that is convenient to the patrons and the proprietors.” Although traditionally *shebeens* were the domain of women, after independence, many men who migrated to the city and could not get employment ventured into the *shebeen* business. This led to the introduction of the hitherto not known concept of “*shebeen king*”. Molamu and Manyeneng (1988:87) maintained that “A major feature of these establishments is that they are owned and managed mainly by women—popularly called “*shebeen queens*” in Southern Africa”. They further argued that the available evidence

showed that in most villages and the urban areas *shebeens* constituted an important part of the alcohol production and distribution network. The distinguishing characteristic of *shebeens* or “drinking spot” is that unlike other marketing outlets of the formal sector such as bars, bottle stores and liquor restaurants, *shebeens* are almost always located at private homes in Botswana. These outlets have become an important phenomenon in the social and economic lives of impoverished groups throughout the southern Africa region including Botswana (Molamu and Manyeneng, 1988 ; Macdonald and Molamu, 1999).

The brewing of traditional alcohol on a small scale, for commercial purposes, has turned into one of the primary sources of income for many households, especially single parent or female headed units. This has especially been the case in 1986, when the Presidential Commission on Economic Opportunities legitimized home brewing and recommended that the government remove any existing restrictive regulations “in order to allow all Batswana to engage in various forms of commercial activities in the informal sector. *Shebeens* were accepted as a commercial and social reality” (Molamu & Manyeneng, 1988: 86), and by 1986 it was estimated that over 58,000 *shebeens* operated in Botswana (Haggblade, 1992: 405). *Shebeens* in the urban areas were found mainly in the high-density, low-income residential areas. In a study conducted in the peri-urban areas of Francistown, Gaborone and Selebi Phikwe, it was found that the production and sale of home-made beer represented the main activity of over 50 percent of self-employed persons in the sample (Busang, 1986)

There is very little published data on the types of home brewed alcoholic beverages in Botswana. It was only recently that both the Botswana National Strategic Framework for HIV/AIDS 2003–2009 and the Substance Abuse and Drug Trafficking Strategic Plan, 2003–2007 identified alcohol as one of the key socio-cultural factors driving the HIV epidemic; thus sparking the debate on national

alcohol policy formulation (NACA, 2003; Tsimako, 2003). This debate seems to be exclusively concentrating on the marketing outlets of the formal alcohol sector viz. bars, bottle stores, liquor restaurants, and, to a lesser degree, *Chibuku* depots. The proposed national policy does not explicitly cover *Shebeens*. This is in spite of a plethora of Botswana public and private media reports that are replete with stories of horrendous deaths related to home-brewed alcohol consumption.

The proposed national alcohol policy for Botswana does not encompass regulation of home-brewed alcoholic beverages produced and sold in *shebeens*. This is likely to result in the proliferation of *shebeens* as alternatives to bars and nightclubs. If this happens without any concrete knowledge of the quality, strength, and health implications of such beverages, the outcomes could be catastrophic. This study, seeks to enlighten policymakers on the ingredients and perceived health consequences of home brewed alcohol. It uses qualitative data which are useful for describing a phenomenon in terms of criteria elicited from the informant's point of view, that is, the *emic* perspective.

Description of Selibe-Phikwe

Selebi Phikwe Town/District was selected among 23 districts of Botswana by the African Comprehensive HIV/AIDS Partnership (ACHAP) to pilot community mobilization campaigns on alcohol abuse and HIV prevention based on two selection criteria: political commitment and readiness or ability to address a controversial subject. Selebi Phikwe is a copper-nickel mining town located in the north-east of Botswana, 400 kilometres from the capital Gaborone. About 100 kilometres to the east of the town lies the border with the Republic of South Africa, which exposes it to the influx of mobile population groups. The population of Selebi Phikwe is currently estimated at about 50 000 (Population and Housing Census, 2001) with an expansive population pyramid in which 65.3 percent are between the ages of 15 and 59 years. The explosive population growth is mainly attributed to the migration of young

men and women seeking employment in the mining and manufacturing sectors. High migration and population density have serious implications for excessive alcohol consumption and exposure to HIV/AIDS. Selebi Phikwe's current HIV prevalence of 52.2 percent among women aged 15–49 years remains the highest in the country (NACA, 2003).

The Qualitative Data

Sixteen focus group discussions (FGDs) and 6 in-depth interviews (IDIs) were conducted in formal liquor outlets (mainly bars and nightclubs). Moreover, 8 in-depth interviews of *shebeen* queens and kings and two *kgotla* large group meetings of 75 and 52 *shebeen* queens and kings (*bo-mmasepoto* or owners of depots) in Botshabelo and Kagiso wards were also held. *Shebeen* queens turned up in unexpectedly large numbers at these two meetings and could not be turned away. These two groups can hardly be referred to as focus groups because a focus group should have between six and twelve discussants. The author and four other University of Botswana research staff who were studying different aspects of alcohol and HIV in Selebi Phikwe and Mahalapye as well as two ACHAP senior staff, attended these two meetings with the author acting as recorder. In addition, two of the youth researchers trained by the author took notes at these meetings.

Discussants and interviewees who were willing, knowledgeable or experienced, and who viewed home brewed alcohol and its health consequences from different perspectives were chosen. They ranged from 18 to 65 years. The aim was to assemble a "wide-ranging panel of knowledgeable informants" (Weiss, 1994: 17). Free flow of discussion within focus groups (except for two large meetings of *shebeen* queens), was facilitated by choosing discussants who were similar in status and shared a common perspective on the topic under investigation. Each focus group consisted of 5 to 10 people.

IDI respondents were chosen for their ability to inform on the types of home brewed alcoholic beverages and their health effects; the

knowledge, attitudes, and values pertaining to home brewed alcohol production and consumption; the health problems people face in their lives; their own experiences; and their broader perceptions of how the consumption of home-brewed alcoholic beverages affect health. Of the eight *shebeen* owner interviewees, 6 were women and two were men. Discussants and interviewees ranged in age from 18 to 65 years. Most had at least one child. Older people were also included to provide a “window on the past” (Weiss, 1994:1).

Some discussants and interviewees were selected purposively, while others were recruited through snowball sampling. Nine unemployed males between 20 and 24 years who were members of the Men, Sex and AIDS Non-Governmental Organisation were selected in Selebi Phikwe for a fortnight’s training in qualitative research skills. Five of them had Cambridge (senior high school) Certificate while the rest had junior school certificate. Given that research use increases significantly if relations between researchers and community members are participatory and collaborative (Porter and Pryor-Jones, 1997), discussions with different individuals and groups at community, target and individual levels were held prior to and during data collection.

Data gathering process

Moderation and note taking of all focus group sessions and in-depth interviews conducted among liquor outlets were done by youth researchers. Both FGDs and IDIs were tape recorded and transcribed verbatim in Setswana as soon as possible after completion of the interviews to preserve original meaning and detect emergent themes requiring more probing in subsequent interviews. Although the normal practice of qualitative researchers is to transcribe only as much as they need (Weiss, 1994), in this instance everything was recorded and the transcripts treated as material to be mined. For in-depth interviews, notes were taken and proceedings moderated and tape-recorded.

Given the sensitive nature of the subject, discussants and interviewees were assured that

all information provided would be treated confidentially. Ensuing discussion therefore used pseudonyms to protect their identity. An issue-focused approach was adopted in analyzing the qualitative data. This is an approach that describes what has been learned from all informants about a particular situation (Weiss, 1994). Data were coded according to concepts and categories used in the paper, and from these, excerpt files were compiled that collected material from focus groups and interviews that dealt with the same issue.

Findings from FGDs, IDIs and the two large groups of 75 and 52 *shebeen* queens and kings are supported by quotations translated by the author and by case descriptions. Excerpts are presented using the “preservationist approach” (Weiss, 1994: 192); that is, material is presented in the original speech so as to reproduce the words recorded on tape as accurately as possible. Verbatim vernacular words, with English translation in parenthesis, are inserted in places for emphasis. Since the FGDs and IDIs were not representative, terms like “a few”, “some” or “many” are used to give impressionistic views in situations where to state actual proportions would be meaningless. Where informants are described as “young adults”, “adults” or “elderly” they are respectively aged less than 25 years, 25–49 years and 50 years or older.

RESULTS

Types of recipes, ingredients and methods of preparation of home brewed alcoholic beverages

This section gives an account of existing home-brewed alcoholic beverages in Selebi Phikwe. It gives their names and ingredients as well as descriptions of how they are prepared. The section also gives reports of discussants’ and respondents’ perceptions of how these beverages affect health.

Available categories of alcoholic beverages in Selebi Phikwe

In Selebi Phikwe, there are mainly three categories of alcoholic beverages. The first category is Botswana Brewery and Kgalagadi Brewery beer and spirits (which include beer, brandy, gin, vodka and cane spirit), all collectively and popularly known as *bojalwa jwa sekgowa* (European alcohol or whiteman's alcohol). The second category is *Chibuku Shake-Shake* while the last is home-made brews called traditional brews or *bojalwa jwa Setswana* or *Setso* (Setswana alcohol or cultural alcohol).

Responding to the question on the available categories of alcoholic beverages in Selebi Phikwe, one elderly shebeen queen in an IDI at a Selebi Phikwe bar said:

There is the well known Kgalagadi Breweries alcohol referred to as bojalwa jwa sekgowa, which, includes beer lagers, ciders, wines, gins, brandy, and hot stuff. There is also Chibuku shake shake, which is brewed just like Botswana's traditional beer but they put a little bit of yeast in it to speed up the fermentation process. It is brewed with sorghum, moomelo (malt) and sugar. The last category is the home-brewed alcoholic beverages. These vary in composition and effects and I personally despise them because I doubt their hygiene. Their sanitation (bosekono) is questionable. . . . People just drink them without any knowledge of their quality and whether they were prepared under hygienic environments. . . . But I must state, however, that they are popular among the poor, the unemployed and labourers because they are cheap. Commercial beer is expensive for these poor people.

Mokuru (*bojalwa jwa Setswana/ traditional beer*)

It was originally brewed from sorghum, ground malt (*moomelo*), water and sugar as a fermentation catalyst. *Moomelo* (malt) is made by soaking sorghum grain in water, allowing it to germinate and then drying the germinated grain in the sun on a sack mat. After a few days, the dried grains are collected to be ground. It was unanimously contended that, whereas nowadays some brewers add sugar and yeast,

traditionally sugar and yeast were never used. It was generally construed as the safest home brewed beer because it does not cause any serious complications to the person's health. It was renowned for the therapeutic property of cleansing the digestive system.

Khadi alcohol beverage

In investigating what *khadi* really is, discussants and respondents advanced a wide array of views. An elderly female *shebeen* queen, related her views and experiences of the ingredients of *Khadi* thus:

I come from Kanye and have been living in Selebi-Phikwe for 30 years. What I know is that although we like calling some types of alcohol here traditional brews, these really are not. For instance, nowadays, what people call khadi in Selebi-Phikwe is completely different from the Khadi that my mother taught me. Khadi was made from segwere (potato-like fruit) called Tlhobokwe (Grewia berries). It would be peeled, and then put into a pot full of water and boiled. It would be boiled twice or thrice with the boiled water spilled away as it was regarded as dirt (leswe). . . . That is, cleansing and rinsing. After the second or third boiling, the nicely cut root is taken out, dried and then crushed into a powder. Some however, would not make it into complete powder but would leave it as sliced root. Whether it is sliced or completely crushed, it is called seretse (Crushed or sliced Grewia berries). One of the following berries; motswetswejane (Grewia retinervis), moretlwa (raisin berries or Grewia flavenscens), mopenewene and mogwana would then be put into another pot of water and boiled. The boiling water from one of these berries' flavour, would then be added to the powder (seretse), and then brown sugar added. The mixture would then be stirred thoroughly and then left to bela (ferment) overnight in a tank-like container. The tank containing the mixture would then be covered with empty sacks (kgetsana tse di senang sepe) to keep it warm overnight in order to speed up fermentation. The mixture will then settle at the bottom of the tank after fermentation has taken place (itsheka). After about 12 hours the liquid called

khadi is filtered (tlotlha) through using letogo la phaleche (muslin cloth) and the sediment is kept. . . . Because we are too many here and varied in culture, people bring different methods of brewing khadi and I personally feel that sometimes for lack of a better word people just name their concoctions (metwako) khadi. Things like methylated spirit, javel, tobacco snuff and dagga (motokwane) have never in our culture been added to Khadi.

Another elderly *shebeen* queen buttressed the above view by stating that ‘‘What people call *Khadi* nowadays is not *khadi*. It is *metwako* (concoctions) that are not originally Tswana’’. Another elderly *shebeen* queen discussant cautioned:

When describing khadi, you have to bear in mind that we come from different parts of the country. For instance in Kasane, where I originated, mowana seed was pounded into powder and added to Khadi. . . . So, really, because there is no baobab tree in Kanye, should we say theirs or ours is genuine khadi?(khadi ya mmatota). . . . Of course I totally agree that pernicious (dilo tse di borai) things like methylated spirit, javel, PM 10 battery lead, fertilizers, tobacco snuff and dagga(marijuana) (motokwane) were traditionally not used.

Overall, there was consensus that *Khadi* differed from place to place and its type depended on available ingredients.

Bojalwa (sorghum beer) and *khadi* were both home-brewed beer-like drinks that nowadays, depending on availability of ingredients and methods of fermentation, varied greatly in terms of taste, consistency and content. Some argued that it would be more appropriate to desist from calling them Setswana alcohol (*bojalwa ja setswana*) but instead, cultural alcohol (*Bojalwa ja Setso*) because their brewing hinges on where the producer comes from. Some, however, argued that *khadi* was often brewed to the consumer’s needs and tastes. Though generally made from a base or ‘‘mash’’; it can consist of a combination of any of the following ingredients: honey (*mooka* and *dinotshe*), wild berries, wild pumpkins, *mowana*, palm tree, wild roots, and oranges. *Khadi* tastes sweet with alluring nice aroma if it

is not fermented for more than a day. However, after a day of fermentation, it becomes sour and very strong in alcohol content. It is mostly preferred on the second day after preparation when it is neither sweet nor sour. Nowadays, however, in order to make *khadi* more intoxicating, yeast, dagga, black tobacco or tobacco snuff are sometimes added. *Mokuru* and *khadi* are major types of alcoholic beverages that are known to be less pernicious and debilitating than many other illicit brews which will be described below. They are known to rarely contain alcoholic content in excess of 4 percent. However, as already stated, there are those who add substances that make them debilitating.

Sekhokho (or *skhokian*)

Sekhokho is a home-brewed alcoholic drink, also called *Babirwa Dry Gin*, *Thothotho*, *Skhokian*, *Sthemba* or *Madome wa pompi* popularly brewed by almost all *shebeen* queens in Selebi Phikwe. It is called *Babirwa Dry Gin* because it was first brewed in the Babirwa Sub-District. This alcoholic drink, just like *Khadi*, has many strands and nicknames such as *kgaatsho* (*black-out*), *lemao* (*injection*), *segoga matlho* (what pulls one’s eyes), or *o lala fa* (you are going to sleep here). It tastes the same way like *Gin*. It is bitter and has a burning sensation, not comfortable to consume.

One elderly *shebeen* queen related her experience of how *skhokho* is prepared:

Sir! my understanding of skhokho’s preparation is that you first mix phaleche or bopi jwa mabele (maize-meal or sorghum-meal), brown sugar and moomelo (malt) with luke warm water. Thereafter, you leave the mixture overnight for fermentation (go bela or go bidisa) to take place. Sometimes the mixture is left for more than 24 hours in winter because fermentation is slow. The mixture is then boiled lightly on a cylindrical tank (teramo). This mixture is called motankama. The vapour that goes up as steam is trapped under the cylindrical tank’s lid and drops on the plate inserted in the tank with an outlet pipe that these drops pass through. The plate in the cylindrical tank is tied to a pipe that protrudes outside. This pipe

in the middle is then tied with a half-cut tyre filled with cold water to cool the steam coming out of the tank. At the mouth of the pipe is a bottle container to collect *skhokho*. . . The drops from the steam vapour which is collected in the plate, passe out through the pipe that is connected to the tank. As this steam passes through the cold water in the half-cut tyre, which is tied to the pipe, the steam basically becomes water. The pipe has a very small opening at its mouth and as the *skhokho* droplets slowly fall into the bottle container, this process is called *tho-tho-tho* (drop-drop-drop). . . This is how the other name of *skhokho* was derived. . . . Originally, yeast was never an ingredient of *skhokho* or *skhokhian* as brown sugar and milled malt (*moomela*) were deemed sufficient to make *skhokhian* very potent and intoxicating.

In rebutting the above description one elderly *shebeen* queen who claimed to originate from Bobonong (Babirwa Sub-District) retorted:

We should distinguish the home-brewed alcohol beverage claimed to be Skhokho, made here in Selebi Phikwe, from the Skhokho that was brewed for Babirwa ritualistic ceremonies (dingwao). For instance, what she is now describing is Botshabelo Skhokho, not Babirwa Skhokho as we know it. Babirwa skhokho uses milled malt (moomelo), white sugar and water and the process that she described. . . Original skhokho never used maize, brown sugar and yeast. All these stories of car batteries, PM 10 batteries, methylated spirit, yeast and many other concoctions, are people's invention here in Phikwe to attract customers.

Another elderly *shebeen* queen from Bobonong argued:

Skhokho ingredients in our culture, as the former speaker said, included water, white sugar and moomelo (malt). This was all and it was very potent. I cannot understand why people call their dangerous concoctions (mets-wako e e kotsi) skhokho. Every lethal and harmful concoction in Selibe Phikwe is now dubbed skhokho, that is unfair. . . Skhokho is originally a high potent decent alcohol suitable to be consumed only by mature and responsible

adults. You also had to know how to consume it because if it touched your mouth, it would burn it and your lips would turn red (o tswa ditatswa).

A majority of the informants agreed with the above description of the *skhokho* brewing process. The educated ones referred to this process as distillation. One bar owner stated: “*Skhokho* is an undiluted high potent concocted home brewed alcohol and can be deadly if mixed with stuff like yeast and clear *methylated* spirit. It is brewed by distillation process. In its pure form I think its alcohol content is in the range of 90–100 percent”.

An elderly *shebeen* king asserted:

The original skhokho has many names. In Bobirwa it is called skhokho, skhokhian, Babirwa dry gin, or Sthemba. Actually there are two types: there is Skhokho Number 1 and Skhokho Number 2. Skhokho number 1 is very potent and intoxicates quickly. This is the type that is derived from the original fermented mixture steam. Skhokho number 2 is made out of the remnants of the fermented mixture and it is much diluted. It is not as potent and intoxicating as the first one. The fermented mixture is called motankama. This type of alcohol is not for the fainthearted (bo matlhogojane). Its drinkers open their mouths so wide that it goes straight to the stomach without touching the lips and mouth. Its drinkers are identified by red chapped lips (ditatswa).

The descriptions of the above process of distillation resonated with most informants' reports. It was the general consensus among the discussants and respondents that *skhokho* produced in Selebi Phikwe is very potent and intoxicating and perceived as hazardous to health. Whereas some discussants originating from Bobirwa Sub-District claimed that the original *skhokho* was not pernicious, a majority, including a few from Bobirwa Sub-District, contended that even originally *skhokho* was hazardous irrespective of whether its original ingredients had been enhanced or not. It was generally agreed that that *skhokho* had severe intoxication effect. It is highly addictive and can knock one out within minutes.

Skopdonorr

It is brewed through mixing maize meal (*phaletshe*) and sour milk (*madila*) and then adding yeast. It would then be left to ferment overnight. The following day it would be ready for consumption. It tastes good and nice but a bit sour if left long (2–3 days) to ferment. While some praised it for increasing sexual libido, others condemned it for killing their sexual drive and desire. Others praised it for stimulating appetite. “It makes you crave for food as it scrapes your stomach to crave for food” (“*bo a fala rra mo maleng bo batla o ja tota*) claimed one elderly *shebeen* queen discussant. It was generally agreed that it was not supposed to be drunk on an empty stomach which leads to trembling and vomiting. Those who drink it regularly develop skin diseases like rash, shrinking and peeling off of skin (*dikoto*).

Explaining *Skopdonorr*, one elderly *shebeen* king discussant said:

The name Skopdonorr is actually Afrikaans. Skop means head, donnor means beating. Skopdonorr is not supposed to be drunk by poor, malnourished people. People who drink it vomit a lot and if they are malnourished, they easily become dehydrated and they start shaking and trembling. Because of the high unemployment rate here in Phikwe, the first thing that poor people do in the morning whenever they have a few thebes (thebe is the small unit of Botswana currency. 100 thebes=P1.00 and P6.00=US\$ 1.00), is to go to shebeens to drink it on an empty stomach and the results are really calamitous(kotsi-kotsi).

Contrary to this, another adult *shebeen* king discussant argued: “Sir, *skop* means to kick hard, donor like he said, means beating. Head is *kop* not *skop*. So, this alcohol’s name means that it totally incapacitates its consumers. It knocks them down to the ground”.

One adult *shebeen* queen respondent claimed:

Skopdonorr turns people into fools (e dira batho jaaka dimatla). Some of its consumers can unknowingly walk the street naked. It turns people into lunatics (ditseno). We are told that the one that is mixed with dagga makes people

go crazy and hallucinate, seeing ghosts (ba bona dipoko). Some shebeen queens add gin and vodka to make it potent.

Morula

It is brewed through fermenting *morula* fruits. They are peeled and the juice extracted. Brown sugar is added to the juice and this is mixed with water. Then it is covered and left to ferment overnight. The following day it is ready for selling. Its side effects are diarrhoea and vomiting for first time-users. However, these do not persist for a long period. It was stated that it can be quite dangerous if yeast is added to the mixture because its effects are just like that of *skopdonorr*. It is light brownish in colour and smells and tastes good. It tastes closely like mango fruit but a bit sour due to fermentation.

One adult male *shebeen* king discussant stated:

Although alcohol types like morula and skopdonorr, were originally safe to drink, one cannot vouch for their safety anymore. In their efforts to encourage customers to buy these, shebeen queens contaminate these by adding things like yeast, methanol and many toxic substances that are quite health hazardous.

In corroborating the above sentiments, another elderly *shebeen* queen discussant said:

Some alcohol producers use very eccentric methods (mehuta e e duleng mo tseleng) because they are bent on attracting customers. This ends up maligning (senya leina) the otherwise culturally good alcohol types. Morula for instance: why should people add yeast to speed up fermentation? Why should they add black label beer and vodka? Morula fruit is sour and that should be enough. These people are deliberately killing innocent unsuspecting people.

The above excerpt indicates that individual *shebeen* owners do realise and acknowledge that some home brewed alcohol beverages are harmful.

Ginger (also known as Phoko e tshetlha, Ka bidikama)

It is brewed by fermenting ginger with brown sugar and yeast. It tastes like ginger

beer. It was also reported to be quite lethal if consumed on an empty stomach. A young male night club patron discussant reported.

It destroys the liver and causes skin problems. The name kabidikama was derived from the fact that drinking too much of the stuff one fails to stand up, he just rolls on the ground urinating on his pants and sometimes defecating on the pants. One does not feel pain when drunk, the results or pains are felt the next day.

The majority argued that ginger is produced for almost all social events and it can be drunk by children. However, *shebeen* queens make it intoxicating by adding some concoctions (*metswako*) to increase its potency.

Laela mmago (Say bye to your Mum)

It is brewed like *khadi* except that yeast is added. It is one of the most dangerous beverages, as the name denotes. “Once you are going to drink *laela mmago*, you will be unreasonable to expect that you will come back home. . . You should bid fare-well to your mum because that day you are as good as dead”, explained an elderly male discussant. It was reported that, like ginger, one can neither stand up nor walk. The effects after prolonged use, are skin ailments, *dikoto*, liver disease and pain in the joints. It is very dark brown in colour. One respondent claimed, “This is the alcohol that has contributed to rape cases here in Phikwe because people do things in the dark (not knowing what they are doing)”. Generally it has a sour taste but very nice to drink. However, it becomes very sour and very strong after some days –very uncomfortable to swallow as becomes very sour and bitter.

Stopoti or Sepopoti

This is prepared from water melons. The juice is extracted and water and brown sugar are added. It is the same colour as guava juice and is sometimes called guava. It tastes like guava juice with a bit of sour taste. It is very nice but not good to drink if left for 3 days as it becomes very uncomfortable (bitter sour). Just like *morula*, it causes diarrhoea and sometimes vomiting when it is drunk for the first time. One elderly *shebeen* queen said:

Stopoti is made out of rotten water melon. Over-ripe water melons are the best ingredients. Everything inside the water melon, except seeds, is squeezed to extract the liquid. Some people add brown sugar while others use white sugar and yeast. I can tell you the results are deadly. First-time users vomit, have running stomach and they fart a lot (ba phinya bobbe).

Another respondent corroborated this by saying “You can’t stay next to the person who has drunk *stopoti*. They fart a lot with disgusting (*ferosa dibete*) odour”. One elderly *shebeen* queen respondent observed:

Stopoti in the past did not cause any harm because people did not know that things like yeast could be added to stopoti. That is why people easily get drunk. They put so many intoxicating things in stopoti and it messes people’s lives (senya matshelo a batho). We are just lucky that this is a seasonal alcohol, otherwise we would be in trouble.

A young adult female respondent expressed her sentiments by saying:

Stopoti can mess a person’s life and brain completely. I remember seeing my uncle one day after drinking it. Instead of going forward while walking, he was reversing. He was walking in reverse without bothering to see what he was colliding with. . . . Actually since he started drinking it, he is so thin and his skin is so rough, like that of a crocodile.

An elderly *shebeen* king said:

Stopoti is not child’s play. It should not be drunk on an empty stomach. The good thing about it is that it increases appetite. However, it turns people into complete lunatics (ditseno). I once saw a man who had drunk stopoti and was intoxicated in my neighborhood behaving like a mad man. He had running stomach and he undressed and defecated, just in front of everybody without caring about spectators’. . . He did not even notice that he was naked. . . . The behind of people who drink stopoti is always wet from perpetual diarrhea due to the loose system.

Stopoti’s alcohol content varies according to what the brewer has added to its base of water melon and sugar. It is a seasonal type of alcohol and it is abused whenever it is in season. It is

mostly associated with the Batswapong ethnic group.

Mokoko o ntshebile or shemane

It is made by mixing maize meal (*phalatshe*) with water, sugar and yeast and then leaving it to ferment. It has a very severe effect just like all the others, ranging from skin rashes to brain damage especially when taken without food. It is white in colour.

One adult *shebeen* queen who claimed to detest it said:

“Brewing *shemane* is actually criminal. That alcohol makes people zombies (fools). They live in their own world and cannot think properly”

Corroborating this another elderly *shebeen* queen said:

The names of this type of alcohol are replete with self-explanations (a tletse ka tlhaloso ya bone). Shemane simply means cracks. This alcohol cracks its consumers' skin. Their skin looks like a person's uncared for skin in winter. Mokoko actually means the husband of the shebeen queen. Apparently after consuming it, you can only stare at the shebeen queen but cannot do anything even if you lust for her. Some vulgar people call it "moroba polo" (break the penis). This means that this type of alcohol makes one impotent or useless. The alcohol takes care of the shebeen queen by making customers useless (ba sena mosola). Mokoko o ntshebile (the Cock is watching, simply means that). Amazingly people still drink it to blow off their minds.

Some informants claimed that there were *shebeen* queens who add milled malt, whisky, vodka and many other potent industrially produced alcoholic beverages to their home brews

It was claimed that its effects are much similar to that of *Skhokho* except that it does not burn the lips. Its consumers have protuberant stomach, depleted buttocks and dark skin colour while their eyes become very red and their voice hoarse. It was also asserted that it makes people age faster or look very old.

Various types of home brewed alcoholic beverages were alluded to in Selebi Phikwe. However, in most cases, assessment of their ingredients, how they were processed and their

effects led to the conclusion that, while their local names varied, they were all similar.

Health Hazards Associated With Home Brewed Alcohol

Discussants and respondents lamented that most home brewed alcoholic beverages produced in Selebi Phikwe are toxic and adulterated thus posing a serious health risk to people who consume them. It was reported that excessive consumption creates numerous health problems. They reported horrendous stories of insanity (cognitive impairment and neuropsychiatric disorders); perpetual diarrhoea leading to dehydration; nutritional deficiencies; infections due to addiction; and loss of appetite, blindness, and even death.

Shebeens were construed as locations offering a conducive milieu for producing poorly monitored home brewed alcoholic beverages. Most discussants and respondents unequivocally stated that home brewed alcoholic beverages produced out of commercial expediency were more likely to expose patrons to negative health risks. They asserted that there were many reports and known cases of negative health consequences related to harmful impurities and adulterants. Some gave an account of extreme cases whereby home brewed beverages resulted in long term hospitalisations, blindness, and even death.

Skhokho was generally perceived to be pernicious and debilitating. Irrespective of whether it was an original unadulterated *skhokho* or the Selebi Phikwe-enhanced type, the prevalent view was that it was harmful to health. One young male bar patron discussant reported:

My brother I fear Skhokho very much (Nna bra ke flopa skhokho blinde). Skhokho is not child's play. You can easily identify its consumers with red lips. They look twice their age. They have big stomachs and no buttocks. Their eyes are red and if a person was originally light in complexion, he/she becomes charcoal black. You simply see a moving corpse and it is highly addictive.

Another young female bar patron discussant stated:

Skhokho according to me should have long been banned. Can you imagine? If you pour it on raw goat liver, it instantly cooks that liver. . . And, red meat if you do not have wood, just get skhokho, it will cook it for you. Can you now imagine if it cooks the raw goat liver what it does to a living person's liver. Not to mention his/her mouth, throat, intestines and the like. It is really pathetic.

Buttressing the above view, one young male bar patron discussant said:

This type of alcohol is very deadly. They say it burns the lips. The person who is not careful when drinking it normally is identified by sores on the lips. They say it burns like petrol when put on fire and when you immerse a piece of the liver in it, it cooks so perfectly.

Demonstrating the controversy surrounding *Skhokho* one elderly male bar owner discussant reported:

Skhokho is a real health hazard. It is very popular in the Bobirwa district. When skhokho caused many young people and old alike to be very sick and sometimes killing them, some people tried to lobby Government to ban it but our MP plainly told parliament that poor people in the Bobirwa district live on Skhokho sales. School fees and other necessities were paid through its sales. Government was then reluctant to upset the voters.

In responding to the health effect of home-brewed alcoholic beverages, one young male bar patron discussant said:

Alcohol types like skhokho and laela mmaago, when people drink them, they black-out the whole day or even two days. This makes people who are on ARVs skip taking ARVs, thus contributing to non-compliance of ARV therapy.

Another elderly male bar patron discussant claimed:

Skopdonnor and stopoti cause diarrhea and for people who do not know their HIV status, this speeds up HIV to convert to AIDS as people become dehydrated and malnourished. Addicted drinkers of these alcohols lose appetite and become malnourished and AIDS immediately sets in if one is infected.

One other young *shebeen* queen respondent said:

Those who drink these types of alcohol, cannot immediately be put on ARVs if their CD count is below 200. They have to be encouraged to stop drinking and first be given medicine that will strengthen their livers. You cannot be given ARVs if your liver is weak. I saw that with my alcoholic cousin. He was told that his liver is weak and he actually had Hepatitis B and he refused to quit. The alcohol killed him as he died while under the liver treatment, due to the fact that sometimes he would skip his prescriptions for days because of intoxication, after sneaking from home.

There were those who felt that because consumers of home brewed alcoholic beverages drink in groups, exchanging containers can expose others to infection. A young *shebeen* queen in a FGD argued: “*These people will spread disease to one another as they always exchange utensils willy-nilly. Diseases like TB and Hepatitis B and C are easily communicable and utensils should not be shared but they do*’.

Another elderly *shebeen* queen discussant said:

Even shebeen queens know the corrosive nature of skhokho. That is why they use Mayonaise bottles because they know that if they use a cup or anything that is painted, skhokho corrodes the paint and in no time the cup will be leaking. . . . Now tell me, what do you think of a person's inside?. What happens... to the liver, lungs, intestines? Serious problems I tell you. Skhokho has weakened youth and adults alike. They are all hollow inside.

Discussing the effect of *laela mmaago*, one elderly *shebeen* king discussant contended:

Laela mmaago, as the name implies is really dangerous. These names were not given to these alcohols for no good reason. They denote what happens in people's real life. For instance, after consuming laela maago, one can hardly manage to walk. It paralises your body, thoughts and you become a cabbage

While the majority of discussants and respondents felt that home brewed alcoholic beverages have negative health effects, there were, a few respondents who refuted this claim. One elderly male *shebeen* King said:

It is quite unfortunate that these days people have deviated from the cultural norm of alcohol brewing. When I grew up, alcohol was consumed only by elders. Khadi for instance, was never meant to be consumed by youth. It was an aberration (bothodi) to see a young person drinking khadi. However, during winter, khadi that had honey additives would be given to children in very small quantities to prevent flu. Even those that already had flu would be given small amount of khadi to cure flu. It was used as medicine. Nowadays young people abuse it and it works the opposite.

Another elderly shebeen king discussant said

Whenever young people were under stress, like after bereavement, they would be given a little of home brewed alcohol like khadi under strict supervision of elders to mollify their feelings. They would immediately sleep as they were not used to it and when they woke up they would feel better. Home brewed alcohol was used as a therapy (go alafa) for stress in young and old people alike. Only adult married men were allowed to imbibe alcohol. Nowadays, alcohol is abused by young boys and girls and shebeens and bar owners do not guard against this abuse because of commerce. Children drink anyhow and this has contributed to moral decadence (maitseo a a mak-gasa' literally, bad manners).

It was argued that alcohol in low and moderate doses was effective in the treatment of psychiatric disorder problems among young people. Alcohol drinking by young people was associated with adverse health and social consequences. Traditionally, home brewed alcohol was prepared and consumed under strict cultural rules and it was always ensured that it did not disrupt societal norms and harmony. There were rules as to where, when and by whom it should be drunk. They stated that health benefits of moderate alcohol drinking included things like psychotherapy. The overall sentiment was that the traditional use of home brewed alcohol was waning and home brews with high alcohol content were now commonplace, increasing the incidence of alcohol-related harm to individuals.

Desirability of Home Brewed Alcoholic Beverages

Motives for concocting home brewed alcoholic beverages

It was repeatedly stated that out of pressure to make money rapidly, most *shebeen* owners opt for unorthodox recipes and ingredients. Some of the materials used are not suitable for health. Nevertheless, since the beer from Kgalagadi and Botswana Breweries is not affordable to everyone, home brew is a substitute.

Motives for consuming home brewed alcoholic beverages.

The motives of patrons of *shebeens* drinking home brewed beverages despite their debilitating effect were: to relieve stress, to pass time, to socialize, to enhance confidence, as a sexual stimulant and addiction.

Thriving sales are the result of 4As: availability, accessibility, affordability and acceptability in Selibe Phikwe. Some discussants lamented that Selibe Phikwe had a high density of *shebeen* liquor outlets and claimed that one in every three households was a *shebeen*. Relatively cheap home-brewed alcohol found an easy market among the low-income or no-income consumers in Selebi Phikwe. *Shebeen* depots were construed as locations offering a conducive milieu for overindulgence in alcohol consumption.

It was unanimously reported that in the highly dense poor settlements of Selibe Phikwe such as Botshabelo, Kagiso and White City, domestically produced "homemade" or "informal-sector" drinks dominate the market. Almost all home or locally made beverages were cheaper than factory produced "branded" alcohol. The price difference was reported to be very significant. For instance, whereas 1.5 litre of *skhokho* costs P10.00, an equivalent amount of Gin is P30.00 (US\$ 5.00). None of the home brewed alcohol beverages mentioned here cost more than P2.00 for 750 millilitres whereas the cheapest beer is P4.00. Reinforcing the issue of availability and affordability an elderly male bar patron discussant who also imbibe home brewed alcohol stated:

Here in Botshabelo, which is a place for the poor like me, we thrive on home brews and it is an integral part of our diet. As early as six in the morning, we simply knock at Mmasepoto (shebeen queen) for drink for the day. Any time, any where, whether you have money or not, they give you credit knowing that you are a regular customer.

Consumers of home brewed alcohol beverages call *shebeen* brews 'low costs', *chibuku* depots 'medium costs' and bars 'high costs', meaning *shebeens* are much cheaper and more affordable than *chibuku* depots and the most expensive bars, bottle stores and clubs. This was epitomised by an adult male bar patron discussing in a bar when he said:

If I have P20.00. I know that I am fine. I spend P15.00. Then I remain with P5.00 that I take to while away time at the high cost place (meaning bars) and life goes on without any problems, you see. Because we do not have money, we start drinking shebeen queens' home brewed alcohol. Once we feel a bit intoxicated, we go to bars and when we get there, we buy Black Label Beer and it is usually enough to keep us until bars close. When people see us drunk, they think we are drunk from bar alcohol whereas we are really stoned by home brewed alcoholic beverages. That is how we survive, us, poor people here in Phikwe

One elderly *shebeen* queen claimed:

Unlike the bars, shebeens do not have age restrictions and young people literally stay at the shebeen spots. So you could rightly say drinking alcohol is youth's job especially when the unemployment level is high in Phikwe.

DISCUSSION AND CONCLUSIONS

Five major findings emerge from this study. First, the heterogeneous home brewed alcoholic beverages consumed in Selebi Phikwe were a reflection of the multifarious Setswana ethnic groups found in Selebi Phikwe.

Second, the original basic ingredients of most home-brewed/distilled alcoholic beverages are fermentable starch source, such as

malted sorghum, water and either white or brown sugar. However, it is contentious whether yeast was originally part of the ingredients. The most common starch source used for fermentation is malted cereal.

Third, *shebeen* queens were varied in ethnic origin and gave home-brewed/distilled alcoholic beverages different names, giving the impression of a multitude of different alcohol styles. However, the underlying basics of either brewing beer or distilling spirits like *skhokho* were shared across the diverse *Setswana* cultures.

Fourth, although the majority of *shebeen* queens still use traditional local ethnic names for home-brewed/distilled alcoholic beverages, they use unorthodox ingredients to make their brews more intoxicating. The health effect of this on their patrons is debilitating and pernicious. Traditionally, these home-brewed beverages had very low alcohol content and did not include hazardous toxins. Anecdotal studies in Botswana reported that even though traditional beverages were initially designed to contain small amounts of alcohol, their increasing economic value has influenced the inclusion of solvents and sulphuric acid from motor vehicle batteries to enhance their capacity to intoxicate. Home brewed alcoholic beverages were made into more lethal brews with toxic substances such as battery acid, pool chemicals, tobacco and even old shoes. They further claimed that this concoction had earned home brewed alcoholic beverages a poor reputation (MacDonald, 1996; Campbell 2003; Denbow and Thebe, 2006). In other African countries, there are examples of health consequences related to harmful impurities and adulterants of these traditional forms of alcohol (WHO, 2004). In Kenya, for instance, 140 people died while many went blind and hundreds were hospitalised after consuming illegally brewed and poisonous liquor called *kumi kumi*. This is a concoction of sorghum, maize or millet, methanol and other dangerous additives such as car battery acid and formalin (Mureithi, 2002). In Namibia, seven workers died at the Omuramaba Hunting Lodge after consuming a concoction

of unorthodox *Khadi* which contained swimming pool cleaner, battery acid, and other corrosive substances (Inambao, 2000). The exigency of meeting expectations of quick intoxication by patrons has maligned most of these beverages.

The fifth observation is that, much as the health effects of these home-brewed/distilled alcoholic beverages were speculative as they were not based on any scientific proof, they resonated very well with many scholars' accounts. Even though conclusive scientific evidence for alcohol related health problems is lacking, closer scrutiny of many accounts indicated that almost all the studied beverages have the potential for substantial negative health impacts. Claims of *skhokho* cooking the liver of a goat explicate this. It therefore follows that *skhokho* can cause cirrhosis of the liver and premature death. Also, it was associated with cancer of the upper gastrointestinal tract as well as pancreatitis.

Skopdonnor and *morula* were associated with nutritional deficiencies and dehydration. Diarrhoea and vomiting as well as loss of appetite were some of the related symptoms. *Skopdonnor* and *stopoti* were also associated with symptoms of cognitive impairment or neuropsychiatric disorders. It was also asserted that some *shebeen* queens' patrons who are on ARVs skip prescriptions when grounded by heavy intoxicating beverages.

While most informants recognized the negative health effects of consuming home brewed alcoholic beverages, the overwhelming majority alluded to the accessibility, availability, acceptability and affordability of these beverages. The coping motives (to relieve stress and forget family and life hardships), social motives (to meet friends and socialize) and enhancement motives (to facilitate boldness and dis-inhibition) were three reasons given for consumption.

The above findings call for the Botswana Government to seriously consider a thorough examination of home brewed beverages produced in the country. Limiting the operating hours of bars, bottle stores and night clubs

would inevitably make such beverages a plausible substitute. The development of a clear-cut and comprehensive alcohol policy that understands the intricacies and nuances of the ingredients and brewing styles of home brewed alcohol cannot be overemphasized. WHO (2004) recommend that the goal of a comprehensive, effective and sustainable alcohol policy can be attained only if it is ensured that there is an active and committed involvement of all relevant stakeholders. There is a need for a nationally representative study to assess types of home brewed alcohol to study their prevalence and to investigate their ingredients as well as toxins present in these beverages. The present study gave just a microcosm of the likely alarming alcohol related problems in the country.

It is imperative to assess whether what *shebeen* queens say they ought to do (the rules), what they say they do (the norms) and what they actually do (the reality) concerning home brewed alcohol beverages production is congruent with WHO guidelines. Overall, production and drinking behaviours vary substantially among different groups in Selebi Phikwe. An understanding of such differences can help policy makers develop prevention, diagnostic, and treatment measures as well as overall alcohol policies that are appropriate for Botswana. In the adoption of the National Alcohol Policy, it is imperative to explicitly state if the 1986 Presidential Commission on Economic Opportunities that legitimized home brewing for commercial purposes (Molamu & Manyeneng, 1988: 86), should be retained in light of the evidence that these are now posing health problems. Cross-cultural comparisons, combined with information on historical changes and variations in home-brewed alcoholic beverages production and drinking behaviour within each culture, would foster better understanding of the relationships between drinking patterns, drinking-related consequences, and the outcome of informal and formal alcohol policies. Such analyses would help in the development of suitable alcohol-related policies (Bennet et al, 1998). The currently proposed national alcohol policy is neither rooted in socio-cultural

research insights nor informed by a nationally representative study; and is thus likely to be flawed.

REFERENCES

- Busang, C.M., (1986) *Report on the socio-economic activities of women in the north-east district squatter areas*. Gaaborone: Applied Research Unit, Ministry of Local Government and Lands.
- Campbell, E.K. (2003). A note on alcohol consumption and sexual behaviour of youths in Botswana. *African Sociological Review*, 7(1), 146–161.
- Denbow, J.R. & Thebe, P.C. (2006). *Culture and Customs of Botswana*. Westport: Greenwood Press.
- FHI (2002): Behaviour Change: A Summary of Four Major Theories. Paper obtained from website <http://www.fhi.org/NR/rdonlyres/ei26vbslpsidmahhxc332vwo3g233xsqw22er3vofqvrjvubwyzclvqjcbdgexyzl3msu4mn6xv5j/BCCSummaryFourMajorTheories.pdf> URL:<http://www.fhi.org>. Accessed on 30 June 2006
- Haggblade, S. (1992). The shebeen queen and the evolution of Botswana's sorghum beer industry. In J.Crush and C. Ambler (Eds). *Liquor and labour in Southern Africa* (pp.395–412). Athens, OH: University of Ohio Press.
- Haworth, A. & Simpson, R. (2004) *Moonshine markets: issues in unrecorded alcohol beverage production and consumption*. Executive Summary. A. Haworth, and R. Simpson.(eds.), International Center for Alcohol Policies Series on Alcohol in Society. Andover, UK: Thomson Publishing Services.
- King, R., (1999). *Sexual behavioural change for HIV: where have theories taken us?* UNAIDS Best Practice Material Collection: Key Material. UNAIDS/99/27E.
- Pollack, M., G. Paicheler & J. Pierret (1992). *AIDS: A problem for sociological research*. London: Sage Publications.
- MacDonald & Molamu (1999) From pleasure to pain: a social history of Basarwa/San alcohol use in Botswana. In S. Peele and M. Grant (eds.), *Alcohol and pleasure: a health perspective* (pp73–86). London: Brunner/Mazel, Taylor and Francis Group.
- Malahleha, G.M. (1984). *An ethnographic study of Shebeens in Lesotho*. Unpublished doctoral dissertation, University of Surrey, Guildford, UK.
- Molamu (1989). *Alcohol in Botswana: A historical overview*. Contemporary Drug Problems, 16, 3–42.
- Ministry of Health. (2001). *The sexual behaviour of young people in Botswana*. Gaborone, Botswana: Author.
- Molamu, L., & Manyeneng, W.(1988). *Alcohol use and abuse in Botswana*. Gaborone, Botswana: Government Printer
- Mureithi, K. Kenya's love of 'poison'. *BBC News Africa Live*, 27 August 2002.
- National AIDS Coordinating Agency. (2003). *Botswana 2003 second generation HIV/AIDS surveillance: A technical report*. Ministry of State President, Gaborone, Botswana.
- National Institute on Alcohol Abuse and Alcoholism (NIAAA).(2002). *Alcohol Alert*. Number 57, September (downloaded from NIAAA website).
- Tsimako, T., (2003). *Tsogang banna, emang basadi*. Report of the national workshop on alcohol and other substance abuse and HIV/AIDS. Gaborone Sun Conference Centre, Ministry of Health. Gaborone, Botswana. 24–27 June, 2003.
- Weiss, R.S. (1994). *Learning from strangers: the art and method of qualitative interview Studies*. New York: The Free Press.
- WHO (2004). *Global status report on alcohol 2004*. Geneva: World Health Organization.

Conversation with ALAN HAWORTH



This conversation with Dr Alan Haworth is the first in a series of interviews with individuals who have distinguished themselves in the field of alcohol and other drugs in Africa. The interview was conducted on 18th October 2007 by a team from the journal made up of Isidore S. Obot (Editor-in-chief) and Charles Parry (Deputy-editor, Southern and Central Africa) in Nairobi, Kenya. In the interview Dr Haworth shares his professional experience in the fields of psychiatry and addiction. He talks about growing up in England, life in Zambia, his work in the alcohol field, collaboration with the industry-funded International Center for Alcohol Policy, and other professional activities.

African Journal of Drug and Alcohol Studies (AJDAS): Let us begin with a very general question about you, about your early childhood. Can you tell us about your background and how you grew up?

Alan Haworth (AH): I think in talking about my childhood I will emphasize that in a sense this gave me the ability to empathize with people from or who resemble the people that I grew up with, my own social class if you will. Because after all if my father was a barefoot half-timer in a cotton mill at the age of 12, with very little education, that is really towards the bottom of the heap. We were not well off in the home but we as children never appreciated this; you don't miss what you don't have if you don't know that it exists. And with the kind of parents that I had, I was able to grow up in a very warm loving atmosphere. My parents gave me two important things – love of reading

and music. They had an encyclopedia and I liked reading that all the time when I was a small child, and they had a piano, which somebody had given them in those days.

I grew up in a cotton town with many of my relatives working in cotton mills and nobody with any great aspirations in the academic field, no connections to academia at all. When I went to the local grammar school buying a uniform, etc. was a big challenge for my parents, as it still is for many parents nowadays in Zambia. I decided at the age of 12, that I was going to be a doctor, no argument, and stuck to that through thick and thin. People didn't really believe it, but there it was. I joined the local library and I was reading books of all sorts from the non fiction section, and enormous amounts of fiction as well.

At the age of 14 I had read and did not think much of Freud's *The Interpretation of Dreams*,

and while I was fascinated by it, I did not really believe much of it. I was a skeptic from the beginning, but at the age of 14 perhaps one's entitled to be skeptical of this kind of things. I went on to the local grammar school and passed the examinations. I then had to do my national service and chose the Royal Air Force which was in fact educational and enjoyable. I went to the medical branch and started by scrubbing lavatories and floors, and then was posted to Egypt where I became a sergeant. In the meantime I'd applied to go to Queens' College Cambridge and was admitted to study medicine. At that time one could only do pre-clinical studies for 3 years; Cambridge had no clinical school so you had to find a school in London. I went to the London Hospital [now called the Royal London] and completed my studies there.

AJDAS: What did you do after you finished medical school?

AH: I got a Diploma in Obstetrics and off I went to Zambia, what was then Northern Rhodesia and spent two years on the mission station. There were 3 of us who arrived at the same time and we didn't really fit in, none of us did. The missionaries of the older generation, they were great people but somehow we felt, I certainly personally felt, that they were not fully aware of what was happening in Zambia. They were not fully aware of political changes about to take place and somehow we were told that we wouldn't even be able to offer an opinion until we had at least 5 year experience, but we had our opinions well before that. So that approximately two years after we all arrived, we'd all left the mission. I stayed on in Zambia with one of my colleagues, a nurse, but posted to different parts of Zambia. We both joined the Federal Health Service. So, I became a government medical officer in Lusaka.

AJDAS: You have not lived in England since then?

AH: Not really. I mean I've been back doing post graduate studies, to that extent living in England, but my real home ever since 1957 has been Zambia.

AJDAS: Did you ever take Zambian Citizenship?

AH: No, I decided not to, for a number of reasons. And I must say that President Kaunda was really quite angry about it. I met Kaunda in rather unusual circumstances and in a sense this was my introduction to alcohol problems in Zambia. Because, in 1959 which was when I moved to Lusaka in the government health service, there were just three of us working, no two junior doctors only, that's all. We had a male ward, a female ward and a pediatric ward. I had to do six lumbar punctures at least each day on the children's ward. We had a Polio epidemic going on, Meningitis was there. It was hard work, but we also had to look after the prisoners and I was a prison medical officer. One of my prisoners was Kenneth Kaunda [who later became the first president of the country]. There he was, a prisoner and he talked about his people, and their problems and he said, "You know you're a doctor. I want you to do something when you can about my people's drinking, they are drinking too much." That was pretty well almost the first thing he said to me and his concern was so strong. It is interesting also that I talked to a colleague at that time, because there were two political leaders, Harry Nkumbula and Kaunda. Harry Nkumbula was well known as a beer drinker and my missionary colleague said "Nkumbula is not going to lead Zambia into independence, Kaunda is. The reason is that one likes beer and the other likes milk."

AJDAS: So, this was your introduction to substance abuse.

AH: That was my introduction to alcohol problems in Zambia.

AJDAS: But you first had to get involved in psychiatric work before you came back to alcohol.

AH: Well, yes. I had one other introduction to the effects of alcohol which involved me very personally. At that time they had the old beer halls in Lusaka and the beer halls might have several thousand patrons at one time. They were horrible places. They used to close at 6 pm every night and hordes, hordes of people would come out of them; they'd been

drinking as much as they could just before they came out. Many of them were drunk. One day I was driving between my house and the hospital and I came across a body on the road, obviously a hit and run accident. The guy was bleeding from the ear and he needed to be taken to hospital. The people coming out of the beer hall found me with my car standing by the side of a person who'd been knocked down. This was pre-independence Zambia and me a white man. You've heard of instant justice: it almost happened. Luckily there was a young man in the crowd with a bicycle and he said to me 'I know what's going to happen, I'm going to get help.' The police station was just 300 yards away so he got the help just before they started beating me, otherwise I wouldn't be here. It was frightening but I could see the effects of alcohol on large numbers of people at that time and the results of this particular style of drinking.

AJDAS: Drinking to intoxication?

AH: Yes, intoxication, large numbers of people and so on. So here was Kaunda talking about it and me in a sense experiencing it.

AJDAS: So these were mainly men in the beer hall?

AH: All men. Yes, because as I was to learn later on, men don't drink with younger women, the older women may join the men but women don't generally drink with men. Women kept the beer ready traditionally for the men.

AJDAS: So Kaunda talks about alcohol problems and you experienced an alcohol event on the road. Did you now begin to think about trying to understand the problem leading probably to research or reading more about it?

AH: Not really. Not at that time. I was still an ordinary medical officer. In fact I was taken from the African Hospital and sent down to the Zambezi Valley where they were building the Kariba dam and I spent four months camping down there, trying to discover what was killing the people who were from the area of the dam. That's entirely a different story and I won't go into details now. It was there that I met an anthropologist, Elizabeth Colson, and she was able to describe later, and I think it is highly significant, the way that the drinking

habits of these people changed because of the stress that they were under when they moved and she wrote a fascinating book about this. [*For Prayer and Profit: The Ritual, Economic, and Social Importance of Beer in Gwembe District, Zambia, 1950-1982*]. She is now Emeritus Professor of Anthropology at the University of California, Berkeley, and still comes back to Zambia regularly.

AJDAS: You later went to study at the Institute of Psychiatry in London.

AH: I went first to Bulawayo for a time and then to the Institute of Psychiatry and the Institute of Neurology because you had to do some work in both in those days. Griffith Edwards was a senior Registrar at that time and as a very junior doctor I didn't dare talk to him. He was among the established seniors there and I was a very junior colonial visitor because I was classed as a colonial coming from one of the colonies at that time. After my studies I came back and started to work in Zambia as a psychiatrist and my job then was to begin setting up a psychiatric service. There were just two of us to begin with for the whole country and that meant looking after patients in Lusaka, training staff, clinical officers, and medical auxiliaries. There were no registered nurses because the girls were not going to school up to grade 12 at that time.

AJDAS: This was when?

AH: This was in 1964. So here we were setting up the service, a lot of mentally ill people who were all just being taken to prisons all over the country. Three times, three weeks out of four, I was visiting various parts of Zambia, getting this service going. That was my main pre-occupation, not anything academic. But still by 1967 I had started collecting data on Cannabis use. I had done no research, I had not belonged to any unit doing research, I didn't know anything about it but I knew what I wanted to know, so I devised a questionnaire. One of the things I discovered was if you ask questions in two different ways you got very different answers. If you asked open questions: "Do you ever experience anything, any effects from smoking dagga", as against: "When you smoke dagga do you feel dizzy or do you feel

this or that'', you'll get very different answers. So I learnt already that one had to be very careful when asking questions. And, I chose three groups to compare at that time: patients within the hospital, prisoners in prisons and school boys in one or two of the compounds in Lusaka, and I managed to recruit two boys to do the interviewing. It was more or less snowballing. They said they knew some boys who smoked cannabis and they contacted them and it went on and on and we recruited that way. One of the things that came out was that cannabis use was really very frequent and appeared to be most frequent amongst the school boys partly because the prisoners, of course, and the patients didn't get a chance within their institutions (although we asked about 'usual' use). I was also asking about the respondents' families and their use, and it was very apparent that most of them were introduced by other members of the family, uncles or brothers and so on, and I worked out that the rate of use in the populations was probably 40% of males, but that was just a very rough estimate.

AJDAS: 40%?

AH: Yes, 40% of all males, but that was a rough calculation.

AJDAS: It was your first study then.

AH: It was my first study, never published because my colleague left Zambia. I was by myself for some time, the only psychiatrist, and you had to work and look after patients first, so no writing up.

AJDAS: When did you first have more time to get involved with substance abuse matters?

AH: That wasn't until almost 10 years later when we had a visit from Joy Moser who was with the mental health division of the World Health Organization in Geneva. She came to Zambia to help and develop further mental health services. We were developing a community mental health service in Lusaka, really going out in the community, and Joy was one of the main leaders in guiding us along these lines. And it was Joy, I suspect who then suggested that Zambia might be a good place, when somebody came up with the idea of having the community response to alcohol-related

problems project. This was being funded by the NIAAA.

AJDAS: A multi country study?

AH: Yes, a multi-country study involving three very different countries — Scotland, Mexico and Zambia. They were going to use exactly the same methodology. They had Dick [Richard] Jessor from Boulder, Colorado, a social psychologist, Robin Room from Berkeley and Griff [Griffith Edwards] as our consultants. So now I was able to at last meet Griff officially and get to know him. We were meeting every six months in one or other place, with a meeting in Washington, a couple of meetings in California, one in Mexico, a couple of meetings in Edinburgh and one in Zambia.

AJDAS: Was the project written up?

AH: Yes, it was written up in a small book edited by Ritson. [Bruce Ritson, PI of the Scotland project]

AJDAS: What was the big lesson from this project?

AH: One of the important things that I learned from the beginning was that we had to set this in the historical context, and that was important because then one could begin to understand the pattern of drinking. One of the things I'd learned from my clinical work was that one did not see patients with alcohol dependence. You didn't see the dependence syndrome. I didn't see people with *delirium tremens*, or very rarely. In fact as far as I can remember the first person I saw with *delirium tremens* (I didn't make the diagnosis at the time) was a white boy aged 13, no wonder I didn't make the diagnosis. It was only when he came back at the age of 18 with delirium again that I made the diagnosis. Why? Because the drinking is mainly binge drinking. Look at this historical context now. When you drink in the village, the grain supply is there at a certain time of the year, when its there, and if there's sufficient you make beer. It takes six days to make it, its hard work, and if you've got to go and collect the fire wood and got to go and bring the water by hand as well — the women are doing this — its even harder work. And no matter how much you have made, the fermentation is going to go on, and it is going to

go sour so once you've made it with all that hard work you are going to drink it until every drop is gone. So here is binge drinking *par excellence* as you might say.

AJDAS: Maybe that set the scene for later.

AH: That set the scene for later. That was the pattern of drinking people adopted; they had to. Of course the difference was that for younger people for example they would dilute it even further, let the young boys drink but they would be drinking a diluted form. There was drunkenness but it was under certain social contexts; on the whole drunkenness didn't result in any problems that the village really had to deal with. Of course there were people who were drinking excessively and Elizabeth Colson describes this in this wonderful book that I mentioned. And now when they set up the mines in Zambia and indeed in other parts of Africa they decided to recruit local women to make the local brew. They then discovered that if they wanted to make it in the quantity that was needed they'd have to go commercial. So this resulted then in the making of Chibuku. Chibuku in Zambia and Zimbabwe is unfiltered opaque beer with the alcohol content of approximately 3% on release from the factory.

AJDAS: The community-response project brought you in contact with the World Health Organization.

AH: Yes. I was going to say just one other thing I learned about this, and that is that we as researchers define problems that the community does not define. We are seeking problems that we have decided are problems and sometimes within the community there might not in fact be problems from their point of view. We have to begin to listen to what other people define as the problems. Why should we impose our definition? This occurs in a lot of anthropology where one has to classify in a lot of social science work. The anthropologist will make a classification, say spirits and so on, which is not really recognized in the same way by the people they are working amongst. But they've got to have some means of analyzing it.

AJDAS: Did that mean the people were always right?

AH: Well, one wonders sometimes. It depends very much on the circumstances. Let me give an example here. One thing that came up very clearly was that the politicians and everybody was saying "These shebeens have got to be closed down; that is where the crime is". What does a shebeen owner, shebeen queen do? She has her regular clientele, she controls who goes there, she has the same people going there regularly every time they are drinking. She doesn't want trouble, she doesn't necessarily run a brothel, she's not having commercial sex workers there. We noted with great interest that there were more fights, there was more theft from people who were too drunk in the government taverns. After independence the big beer halls were closed down; the shebeens, if anything, were the places where drinking was conducted in the most orderly way.

AJDAS: Did that study lead to other works? Did it draw you more into substance abuse work?

AH: Yes, it did. The study altogether went on for six years and I had a great disagreement with a colleague of mine, two colleagues in fact, because they said the community must decide its own priorities and if they are not interested in drinking problems then we don't go ahead with it, and I said there is a limit to democratic choice here. If they don't recognize certain problems that we see are real problems we have a duty to at least push things along in order to activate communities. What you must do with the community is find people who are the natural leaders in the particular area and have a special interest in that area, a vested interest in some way, because they are going to be the ones who will lead. A community response is not simply a matter again of coming up with a theoretical and prejudged perspective. You have got to be ready to listen to the people and also to listen to the work of others. For example there is a lot of work on social networking which I think is of tremendous importance.

AJDAS: You did some other things for WHO including research and serving on committees and so on.

AH: Yes, I did. My next two studies were in fact on drug abuse and not on alcohol. One was just a survey of what drugs were being used by student populations, school boys, school girls and at the university, and some other colleges. Looking at cannabis use, looking at petrol sniffing which was very common: about 10% of all boys were sniffing petrol usually at about the age of 10.

AJDAS: You were you still doing mainly clinical work, so research was done in your spare time?

AH: All in my spare time; and again with nobody to give me much guidance.

AJDAS: Were you publishing these reports or anything? Were the finding presented to Government?

AH: University of Zambia publications. They were presented to government in various meetings.

AJDAS: Were you going to international conferences at this stage?

AH: I was beginning to get involved with the ICAA [International Council on Alcohol and Addictions] and went to one or two conferences. I became an academic in 1974 which means that I didn't start any full time academic work until the age of 46. I learned on the job from working with people like Robin Room at the Alcohol Research Group at Berkeley. I spent some weeks there and it gave me more of an insight as I was beginning to learn about research on alcohol. But in the meantime I wanted to know more and only slowly began to use standard instruments and so on. Up until then I had to invent my own.

AJDAS: Did you start to publish your research?

AH: Well, some of them were published in the *Bulletin on Narcotics*. But then in the early 80's AIDS arrived in Zambia. I tried to keep out of it. I didn't want to be involved, but I was talking to a friend of mine, a surgeon. She was seeing a lot of patients who were dying of Kaposi's sarcoma. She had this special clinic and she said you must come along and help, let's train some counselors. I initiated the training of counselors for AIDS. When the [government] AIDS management team was set

up in Lusaka I was in charge of the AIDS counseling unit and at that time the prevalence of HIV was just going up and up and up.

I've been drawn away from substance abuse all the time by these competing things and AIDS in particular because that grew so rapidly, and we set a paradigm for training counselors which is used up until this day in Zambia.

AJDAS: Let's go back to your interest in alcohol. Can you tell us about some things you've done recently?

AH: Yes, I suppose there was a kind of renewal of my interest in alcohol when I had an invitation from Marcus Grant. I've known Marcus since he had been working next door to the Institute of Psychiatry in London, so I've known him for very many years and he was providing me with books and all sorts of things at that time. When he was at WHO he invited me to help develop a basic manual on drug abuse surveys to which many people contributed. I remained in touch with Marcus over the years, and when he decided to leave WHO and set up a organization which would attempt to bring together members of the alcohol industry and public health workers and get a dialog going he invited me to join this project in some way.

I think that the first thing he did was to ask me to do a review of drinking in Africa for a worldwide review which led me to reading quite a lot of literature. I enjoyed it a great deal. I did it with Wilson Acuda. That increased my admiration for the historians who did some magnificent work on the early development of drinking. So, I got involved with this. Now I was aware that there were, and I still am only too well aware that there are, certain persons who do not approve of this because by associating myself with the International Centre of Alcohol Policies [ICAP] some people even would say that I've been fraternizing with the enemy as it were. Of course, this came about at the time when the smoking industry was blatantly trying to cover up the effects of smoking and so on, and the assumption was that the alcohol industry would certainly be doing the same. I said we may not agree with the people,

we may not agree with their entirely commercial emphasis but if we don't talk to them, where are we going to go? Is it going to be one of constant warfare all the time? This was Marcus's attitude as far as I can see. I trusted Marcus but I also trusted a number of the people that I knew who were friends of mine, John Orley for example from WHO, who were also in touch and working with Marcus in ICAP. So I've always been very open about it and ICAP has provided some funding for some of the projects I have done. What ICAP has not done is tell me what to write. They have not altered what I have written. The last thing we did was to hold a meeting, I think a couple of years ago, in Zambia on the relationship between drinking and HIV. We had representatives from SAB [South African Breweries], Heineken, and Diageo. We had very senior researchers from the public health field from in San Francisco and Johns Hopkins [in Baltimore], people with the highest credentials. And we talked and we talked frankly with each other and the public health people felt that a report prepared for the meeting was biased too much towards the industry point of view. I feel that we had some influence there with [through] ICAP.

AJDAS: You suggested changes to the report? Were the changes made?

AH: Yes, we did. They made the changes. Of course they did. This was the understanding that we would not allow anything to be published with our names anywhere near it.

AJDAS: Has the report been published, has it been issued in any way?

AH: I don't have the latest on that; I think it has. But certainly anything that I have contributed myself has not had anything with which I disagree. So, my own feeling here is that while it is right to take a stance on this, and a strong stance on what one feels is absolutely right to do, it is wrong not to enter into a dialogue.

AJDAS: You didn't cross the line between dialogue and collaboration?

AH: Collaboration in the sense, for example, of the book that I [with Ronald Simpson] edited, called *Moonshine Markets*. The introduc-

tory chapter was a collaborative chapter between an industry person and myself; I wrote most of it but he had his part. My name is on the book, obviously as one of the editors and a contributor, the link with ICAP is out there in the open. I know some people have their doubts about it. Is it really a hidden agenda which I am too naïve to recognize?

I'm a pragmatist. The study we did in Zambia which was funded by ICAP, in which we did a diary study of a relatively small number of families, interestingly confirmed what we already learnt many years before, almost 30 years before from the community response project. The style of drinking was still pretty much the same. There were changes and we could monitor these changes but the diaries were producing very accurate, much more accurate data about the amounts being consumed and so on.

AJDAS: What concerns some people about the collaboration is that ICAP is funded by the alcohol industry.

AH: It is fully sponsored by the industry but my understanding was that the approach came from Marcus to the industry.

AJDAS: If the industry is the main funder of ICAP, the fear people have is that the industry has its own agenda and the industry wants to be successful in what they do — sell beer, sell drinks — and when people like you with prestige and many years of experience get to work with them, they probably get more out of it. With such association we may not be doing justice to the cause of public health.

AH: I appreciate that but if we were not talking to them they would through their advertising campaigns be making even more gross claims, false claims. At least, coming through ICAP with those people in the industry who were working through ICAP we were having some control over what they do say. They can't make the exaggerated claims or the false claims. So we do have some control.

AJDAS: What advice would you give to young alcohol researchers who may not be as sophisticated as you are in dealing with the industry, for example, if and when they are invited to participate in an activity funded by ICAP or any other similar organization?

AH: There is a problem here because none of the meetings I have attended have been attended by young investigators. They all have been attended by the old hands as it were.

AJDAS: Suppose they did, what advice would you give to them?

AH: The advice I would give is be perfectly open about it with your colleagues. And providing you have an understanding colleague who will back you up in any situation and even review what you are writing and the data you are getting and point out when you are getting too close to a viewpoint which is not going to be shared by other people. You need good mentoring as it were, and if you trust your mentors why not, but this does mean that the mentor has to be willing to be a mentor in these circumstances and I think this is where one of the problems is.

AJDAS: Maybe we should move on to a different area of questioning. We are here in Nairobi to set up an African harm reduction network. In your presentation you talked about a pragmatic approach to dealing with problems. What do you feel about the initiative to set up the Harm reduction network in sub-Saharan Africa?

AH: I think it's an excellent initiative. Though I have done consultancies in other countries both in the mental health field and in the alcohol and drug fields, I can only really speak now about the situation in Zambia and one of the problems there as I see it is the tendency to see things too much on the part of some people in terms of black and white. Some things are either good or bad. Drugs are bad, period. Therefore those who use drugs must equally be bad. They are criminals and so on. This is partly because in the drug abuse field the people on the supply reduction side are getting most of the support. They get most of the public's support. The public is excited by major seizures, by the amounts of money being mentioned and so on. The politicians are excited by this as well. It's much less interesting to anybody to learn what one is doing for some person who really needs help. They are not interested and in any case if we are helping

such people in a professional way this is all highly confidential. We can't tell these stories.

AJDAS: Harm reduction involves some controversial activities, like needle exchange programs and substitution therapies. How do you feel about that?

AH: Well, in terms of my own view here I'm all in favour of these programmes. I don't know much about the substitution therapies because we've not had this problem in Zambia and if we haven't had the problem in a major fashion one doesn't have the practical experience. But I know enough because of having been so thoroughly involved with HIV.

AJDAS: You have recently retired from your job at the University of Lusaka but you are not a person who is going to sit back in a deck chair and soak up the sun. What sort of plans do you have for this next chapter of your life?

AH: To relax sometimes. I've just been on a cruise and its been wonderful and I intend to do more, to do quite a lot of writing I hope, to do some research in the linguistic communication field because I feel this is so important. At the moment people are being recruited as subjects on projects with informed consent which doesn't exist because they didn't understand what they were reading about, things like that. Even some of the instruments being used in research are so badly translated. I feel passionately about this, that one has to work on that, particularly in the psychiatric field, which is a very difficult field. It's much easier to ask about single behaviours than when you are asking about feelings. Anyway I digress. So those are two areas. I also probably want to, in fact so many people have said I have to, write about my experiences as a psychiatrist because we haven't touched upon the fact that I've done quite a lot of work with displaced people in war time situations. I have been a consultant in Liberia, I have been in Congo during the fighting there. This is something that has to be written about as well, even the people down in Kariba and people who rebelled against Kaunda just before independence. I was involved in helping them.

AJDAS: Do you want to write a biography?

AH: Not so much a biography. I don't want to write so much about me, but about situations and particularly put over this idea that one has to begin to empathize with the underdog; empathize with the person who is still at the bottom of the pile, somehow to enable them to get out of such a situation.

AJDAS: Do you see yourself staying in Zambia?

AH: I guess so, Zambia is my home. Health reasons may cause me to shift and spend more time in England. My health is pretty good now; the only problem is that my sight is getting worse and worse and it seems to be just deteriorating slowly.

AJDAS: You started this conversation talking about you love of reading and music. You probably have a big library. Have you any plans for that?

AH: The library has about 7,000 books in it at the moment. Ultimately, if I go to live in England, I can't carry that library with me but there are lots of other ways of getting access to the books there anyway. A lot of the books will go to the University of Zambia, some will go to the Department of Psychiatry, for example; other people would want part of the library because the university won't want all the books. I've got a pretty large collection of books on music.

AJDAS: Maybe we can end this conversation with you talking a little about your family life. Do you have children, a wife?

AH: Let me just say that I managed to acquire a family of seven children without ever having a wife. It was one family; I say was, because as the children grew up one had to cope with all the sadness, with all the tragedies, as well as the joys of bringing up a family. Two of the boys died of AIDS. It's perhaps helped me to understand, to better to do my job in the AIDS field. I am a person who has been living with AIDS in that regard. Now there is one great grandchild. I'm not quite certain of the total number of grandchildren. Where I live in Lusaka we are a small community, so that I am not quite certain of the number sleeping in the house on any one night, might be anything between 10 and 15. I should say in the yard, because it's a big house, there's a guesthouse and another house there as well. One of the children is now a doctor studying psychiatry. He is living in England with his wife and two children, and when I'm in England I stay with them. In fact the interesting thing is that when I go to the UK I spend more time with Zambians than I spend with some of my relatives. I feel more at home in a sense.

AJDAS: Maybe you are Zambian after all.

AH: Exactly.

AJDAS: Thank you very much.

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REVIEWERS NEEDED FROM LOW AND MIDDLE INCOME COUNTRIES

Researchers from low and middle income countries are underrepresented among scientists who contribute papers to or review articles for journals in the addiction field. There is increasing recognition that scholars in these countries can contribute unique perspectives and expertise to the mission of these specialized journals.

The International Society of Addiction Journal Editors (ISAJE) is developing a database of researchers in low and middle income countries whom editors can invite to review papers and provide other scholarly services.

Interested researchers should send their CVs including a comprehensive list of their publications to the address shown below. The following information should appear on the first page of the CV: full name, current position, institutional address, phone and fax numbers, e-mail

address, areas of research competence (e.g. epidemiology, pharmacology), editorial board membership(s) and journals for which you have reviewed previously.

This information will be considered for inclusion in a database that will be made available only to editors of ISAJE member journals. All submissions will be assessed by ISAJE and the society reserves the right to reject the application of anyone deemed unqualified for inclusion in the database. Journal editors will then be responsible for the decision to contact any researcher for an assignment.

Please send your application to:

Mrs Susan Savva, ISAJE Executive Officer, National Addiction Centre PO48, 4 Windsor Walk, London SE5 8AF, United Kingdom. Fax (+44 20 or 020) 7703 5787; susan@addiction-journal.org

International Society of Addiction Journal Editors (ISAJE) World Health Organization (WHO) The ISAJE/WHO Young Scholars Award

The ISAJE Board is pleased to announce the first winner of the ISAJE/WHO Young Scholars Award. Dr Jaeuk Hwang, a research scientist from Seoul National University Hospital, Korea, receives the award for a paper published in *Drug and Alcohol Dependence* on decreased cerebral blood flow in former methamphetamine users. Dr Hwang will receive his prize at an international scientific meeting to be held during 2008.

The ISAJE/WHO Young Scholars Award aims to provide recognition for the contributions to addiction science of young scholars from developing countries and to promote their involvement in the field. The award is given for the best paper published the previous year by a young scholar in a developing country on any topic related to addiction. The successful candidate will receive a certificate and finan-

cial support to attend an international scientific or clinical meeting, to be chosen by the winner in consultation with ISAJE.

Applications are welcomed for the 2008 award. Candidates should be less than 35 years old, must hold an academic or research position in a low or middle income country, and should be the lead author in the paper being submitted for the award.

Further details including the application procedure may be obtained at www.isaje.net or from the Executive Officer of ISAJE, Mrs Susan Savva, National Addiction Centre, 4 Windsor Walk, London SE5 8AF, United Kingdom. Email: susan@addictionjournal.org.

Closing date: 30 June 2008.

The award is sponsored by ISAJE, WHO and Virginia Commonwealth University.

AFRICAN JOURNAL OF DRUG AND ALCOHOL STUDIES
(AJDAS)

Special Issue on

Drugs, Social Welfare and Development in African Societies

The AJDAS invites authors to submit papers that focus on the link between alcohol/tobacco/other drugs and development for publication in a special issue of the journal. This special issue is scheduled for publication in **Volume 7(1) in June 2008**. High-quality original research, reviews, commentaries and book reviews on these and other related themes will be considered for publication:

- Social and economic costs of alcohol, tobacco and illicit drug use and abuse
- Alcohol production and marketing
- Illicit drug trafficking
- Young people and drugs
- Drugs, crime and violence
- Alcohol and road traffic accidents
- Abuse of inhalants and indigenous substances
- Women and alcohol
- Substance abuse and HIV/AIDS
- National drug control policies
- Impact of substance use on health and education sectors
- Treatment of drug use disorders

Manuscripts should be received by the end of February 2008 in order to be included in this special issue. Please send inquiries and completed papers directly to the Editor-in-chief. In

keeping with the tradition of the journal, all papers for this special issue will be subjected to the peer review process.

AJDAS is an international scientific journal published twice a year by the African Centre for Research and Information on Substance Abuse (CRISA). The Journal publishes original research, evaluation studies, case reports, review articles and book reviews of high scholarly standards. For more information about the journal, and for access to papers published in back issues of the journal, visit www.crisanet.org/html/journal.htm or www.sahealthinfo.org/admodule/books.htm.

Please distribute this announcement widely to colleagues who might be interested in contributing papers to this special issue of the journal.

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Drugs and Society in Africa

8TH BIENNIAL INTERNATIONAL CONFERENCE

Announcement & Call for Participation

The *Centre for Research and Information on Substance Abuse (CRISA)*, a leading non-profit organization devoted to research on psychoactive substance abuse and the prevention of substance-related health and social problems in Africa, announces its eighth biennial international conference. Researchers, health care professionals, policymakers, other experts and students interested in all issues related to alcohol, tobacco and illicit drugs are invited to participate in this important conference.



Papers addressing the broad theme of drugs and development, including the production and marketing of alcohol and tobacco; increasing availability and use of illicit drugs in African countries; the relationship between substance abuse and HIV/AIDS, violence, accidents and injuries, school and workplace problems; young people and drugs; will be accepted for presentation. Preference will be given to papers based on original research or comprehensive reviews of the literature that seek to show the impact of licit and illicit drugs on development in African societies.

Conference Registrations: The conference registration fee is N10,000 (\$100 for international participants, and N3000 for students). This fee will cover conference materials, lunch and snacks for two days, and participation in all conference activities, including two workshops on (1) publishing addiction research and (2) development and implementation of alcohol policy. Certificates of attendance will be issued to all registered participants.

Abstracts of papers for presentation should be limited to 150 words and submitted by e-mail to the addresses shown below.

Submission Deadlines

Abstracts: Monday, 28 April 2008 *Full Papers:* Friday, 27 June 2008

For further information about registration, travel and hotel accommodation please contact:

Dr Andrew Zamani, *Chairperson*, Local Organizing Committee
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In Memory of Professor Olabisi Odejide

1941–2007

Bisi Odejide, Professor of Psychiatry, University of Ibadan, first Director of the Drug Demand Reduction Unit of the National Drug Law Enforcement Agency (NDLEA), Nigeria, and Deputy-Editor (West Africa) of the *African Journal of Drug and Alcohol Studies* passed away suddenly in December 2007 at the age of 66 years. Bisi was a well-known international substance abuse expert, a committed teacher and mentor, and a distinguished professional. The community of substance abuse researchers in Africa and, in particular, CRISA Associates and members of the Editorial Board of the AJDAS will miss him deeply.

ACKNOWLEDGEMENTS

This second issue of Volume 6 of the AJDAS, like the three previous issues, is published with the financial support of the IOGT-NTO, Sweden, through a collaborative arrangement with *Nordic Studies on Alcohol and Drugs* (NAT). The editorial board of the Journal and CRISA, Inc., its publisher, continue to be grateful to the IOGT and NAT for their generous contributions to the dissemination of addiction science in Africa.