If the alcohol doesn’t get you, then the toxins will: The health impacts of bulk wine provision in the Western Cape province of South Africa

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Background

The Western Cape province of South Africa has a reputation for producing some of the finest wines in the world. However, the area has an extremely high prevalence of excessive alcohol use and problem drinking by rural communities (London, 2000) culminating in the highest published prevalence of Foetal Alcohol Syndrome (FAS) in the world (May et al, 2000; Viljoen et al, 2001). Much of this has to do with the historical practice of providing farm workers with cheap wine as part of their payment (Figure 1). However, the active provision of wine rations (the “drop” system) has been phased out and replaced by sale through formal and informal liquor outlets. Given widespread alcohol dependence, the most pressing public health challenge is therefore the ease of availability of cheap, bulk, low quality wine. In particular, a common form of wine packaging is unsealed foil bags (“papsak”), 4 of 5 or more litres volume (Figure 2). De-regulation has led to a proliferation of intermediaires in the supply chain who transfer bulk wine to a variety of plastic containers (Figure 3), sold in rural stores or informal liquor outlets with little attention to appropriate storage conditions such as refrigeration.

Aims

Provincial authorities commissioned a study to investigate the nature, extent and social impact of bulk alcohol sales in the rural Western Cape province of South Africa to provide data for policy interventions to restrict bulk alcohol availability. Bulk wine is defined as alcohol in containers between 300ml and 5lt, and includes plastic bottles, foil bags outside of a box.

Methods

Two rural Western Cape farming areas were selected (Figure 4).

a) A survey of 40 randomly selected farms in each area: Interviews in the respondent’s first language were conducted by trained interviewers using standardised structured questionnaires with the heads of households (n=456) on all farms.

b) This was complemented by a survey of non-random sample of consumers (papheen/wasting at alcohol retailer outlets in the rural towns in the same areas.

c) Chemical analyses were conducted on 35 samples of bulk wine purchased from liquor outlets from 17 towns across the province for the presence and quantity of pesticides, trace metals, Ochratoxin A, Phthalate Esters, other volatile compounds.

Alcohol consumption was assessed as current (in past 30 days), ever or never, and problem drinking by the CAGE score (Cutting down, Angry, Gilty, Eye-opener; Range 0 to 4, cut-off for problem drinking 2).

Results

Demography: 76% male; mean age 35 (men) and 52 (women); 24% had any tertiary education;

Socio-economic status: 79% reported monthly household income < $ 350; 28% of family were in receipt of some form of social grant; Average number of commodities owned were 1.6 (typically TV and fridge).

High rates of drinking and of problem drinking were confirmed in this population, consistent with previous research (London et al, 1998). Papshak consumption is associated with lower socio-economic status and higher prevalences of problem drinking and is the liquor of choice for poor families because of low price.

Contamination of papshak wine with toxianks is widespread, particularly for plastic, rather than foil containers. Contaminants of concern are:

1) Mercury was present in 20% of samples above maximum permissible levels. Mercury is known tertatogen and neurotoxicant.

2) Ochratoxin A (OTA) is a secondary metabolite produced by Penicillium and Aspergillus species and was present in 28% of samples above maximum permissible levels. Exposure over a long period of time has carcinogenic, nephrotic, teratogenic and immunotoxic effects.

Given the known teratogenic effects of alcohol and documented rates of foetal alcohol syndrome amongst rural children in this region in excess of 3%, the presence of these toxins and the potential for interaction with alcohol is of great concern, and may help to explain why women in the Western Cape appear to be vulnerable to having a FAS child at lower levels of drinking than other exposed populations (Viljoen et al, 2002).

Action to restrict availability of papshak wine to protect vulnerable rural populations in South Africa is warranted. Proposals to ban papshak and inferior plastic containers are under presently consideration in the province. Control of decanting and illegal vendor activities is a priority, as is the monitoring and control of conditions under which bulk wine is stored and sold. Comprehensive programmes to address the causes and impact of alcohol abuse in the rural Western Cape should be strengthened.

Discussion

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References


The study was funded by a grant from the Department of Economic Develop- ment & Tourism, Provincial Government of the Western Cape.

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