13 "If you drink alcohol, drink sensibly." Is this guideline still appropriate?

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Abstract

Background: Alcohol abuse remains one of the most serious substance abuse disorders in South African society, resulting in inordinately large social, economic and health problems at all levels of society. Alcohol consumers in South Africa are estimated to drink 16.6 l per annum, with a per capita consumption of 7.1 l. South Africa has one of the highest rates of deaths attributable to crime, violence, traffic accidents and HIV/AIDS in the world. These rates relate directly to the high prevalence of alcohol abuse and risky drinking patterns. A food-based dietary guideline that appears to encourage alcohol consumption is not in the nation's best interest.

Method: A search was conducted of websites supported by the World Health Organization to find published literature on substance abuse in South Africa. The website of the Medical Research Council of South Africa for studies on the social impact of alcohol abuse on humans was also reviewed. The search terms "alcohol guidelines", "alcohol abuse", "noncommunicable diseases", "health benefits of alcohol", "moderate drinking", "alcohol" and "intake patterns" were used. Studies published between 2002 and the present were reviewed.

Results: Based on evidence of the past two decades, messages that convey the positive health benefits of moderate alcohol consumption (e.g. increased levels of high-density cholesterol) should be promoted and even encouraged in moderate drinkers (i.e. one alcoholic drink per day for women and a maximum of two drinks per day for men). Moderate drinking is not encouraged in those who do not consume alcohol at all. Nutrition educators should emphasise the negative consequences of alcohol abuse.

Conclusion: The current food-based dietary guideline "If you drink alcohol, drink sensibly", issued by the South African Department of Health, should not remain as is.

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Introduction

In 2002, the Department of Health in South Africa adopted food-based dietary guidelines (FBDGs) that included an alcohol-consumption guideline to be adopted by the general public: "If you drink alcohol, drink sensibly".[1] This FBDG was based on findings from the South African expert consultation group that examined published evidence on alcohol use. In this article, we examine evidence from 2002 to date in order to re-evaluate the appropriateness of this FBDG. When the FBDG was developed, the responsible expert working group discussed whether or not there should be a guideline on alcohol. Most of the discussion centred on the negative aspects of alcohol consumption, the high prevalence of alcohol addiction, related crime and violence, and concerns that an FBDG would have the unintended consequence of encouraging alcohol consumption. However, a strong body of evidence supported the cardiovascular health benefits of moderate alcohol consumption,[2] which was difficult to dismiss, as the FBDGs are intended to foster nutritional health and well-being. The final decision was to include an FBDG on alcohol that would clearly identify the recommended amount of alcohol consumption in a supporting document.

Socio-political influences on historical trends in alcohol consumption in South Africa

The history of alcohol dependence in South Africa includes the history of the country's segregation. In traditional African society, the use of alcoholic drinks was well regulated socially.[3] After colonisation, the British unsuccessfully prohibited the use of alcohol by Africans in an attempt to prevent what they saw as social decay and disorder.[4] In 1962, it became legal for black people to purchase alcohol from white-owned liquor stores.[5] Alcohol was also viewed as a means of establishing and maintaining economic and social control, particularly on farms and mines and in urban industry.[4] Employers at vineyards and other farms in the Cape and in the

emerging diamond and gold mines to the north used alcohol to attract and retain workers from rural areas.[5] Although not allowed legally, the "dop" system is still practised today on various vineyards in the Western and Northern Cape provinces,[4] where workers receive alcohol as partial compensation in lieu of money. In the townships, municipal beer halls were established by local authorities to help finance township development and control. Responses to these controls were abuse and social decay, as well as defiance and resistance. Many people turned to illegal alcohol-related activities, both brewing sorghum beer and setting up illegal shebeens where alcohol was sold for on- or off-premise consumption. For some, setting up a shebeen was an act of resistance against the apartheid government, while for others it was a way of making a meagre living.[4]

The establishment of shebeens was also a natural response to a situation in which there were 15 times as many legal liquor outlets per unit population in white suburbs than there were in black suburbs.[5] It is important to note some of the differences in alcohol consumption in urban versus rural communities. Home brews were more popular in rural areas where ancestral rituals and ceremonies were undertaken. Depression, resulting from unemployment, was also a key reason why people in rural areas consumed alcohol. Yet, in urban areas, alcohol was more accessible and affordable to the population. Reports indicate that in South Africa from 1970-1997, the consumption of malt beer increased rapidly. Roughly 87% of alcoholic beverages consumed were malt and sorghum beer.[6] South Africa was considered to be the world's fastest growing alcoholic fruit beverage market, and recorded a 10% increase in 1998.[6] Compared to residents in other middle-income countries, higher levels of alcohol consumption were found in South Africans.[7] Urbanisation caused a shift in food intake, with increased use of cheaper and more energy-dense food and drinks lacking in micronutrients.[2] Urban areas have a greater availability of cheaper, unhealthy foods, but also higher rates of alcohol consumption. Chronic drinkers, particularly those who consume a substantial portion of their daily calories in the form of alcohol, often show evidence of malnutrition (e.g. deficits in protein and certain micronutrients).[2] Despite new alcoho-use policies developed between 1994 and 2009 (e.g. the regulation of retail sales of alcohol, alcohol taxation and controls on alcohol packaging) alcohol abuse in South Africa is a growing public health concern.

Do South Africans consume too much alcohol?

Intake patterns

Knowledge on alcohol consumption patterns mainly derives from the South African Demographic and Health Survey of 2003[8] and the Youth Risk Behaviour Study of 2002[9] and 2008.[10] Nationally, 21.4% of male and 6.9% of female adults were categorised as being alcohol dependent.[9] The rate of alcohol dependency in adults was highest in coloured (31.2%) and African males (21.6%), and lowest in white (10%) and Indian (11%) males. Alcohol dependency was highest in coloured women (14%) and lowest in white women (1.7%). The highest rates of dependency in males were found in the Northern Cape (38%), Eastern Cape (35.9%) and North West (34.5%). Alcohol dependency rates in females were highest in the Northern Cape (18.8%) and the Free State (13.2%), and lowest in KwaZulu-Natal (1.9%) and Mpumalanga (2.7%).[8] In 2002, 16% of South African youth started drinking alcohol before the age of 13 years,[9] but the rates of early white and coloured male drinkers increased to 33.6% and 24.1%, respectively (Table I). Nearly one third (29.3%) of males and 17.9% of females indicated that they had had a binge-drinking episode in the previous month. In 2008, similar figures were found with regard to the youth. However, compared to 2003, there were a few disturbing trends. Taken over a month, bingeing had increased nationally from 23% to 28.5%: 20.7% to 26.4% in black people; 32.3% to 38.6% in coloured people and 35.9% to 40.6% in white people.[9,10] These data clearly indicate that high alcohol consumption is a serious problem for South African youth and adults, and is most severe in males.

Per capita consumption of alcohol

The consumption of alcohol in South Africa has been reported to be 16.6 l per person per year for those who drink alcohol, of whom 10.3% are classified as heavy drinkers (i.e. 0.40 g per day for males and 0.20 g per day for females)[11] (Table II). On a scale of 1-4, with 4 being the highest level of drinking (i.e. the proportion of drinkers who drink daily or nearly daily) South Africa scored 3.1. However, the worst drinking pattern of 3.6 was attributed to the Europe C region. The percentage of heavy drinkers in the Africa E region was considerably lower than that in the Europe A and C regions. However, the percentage of heavy drinkers was double the rate in the Africa D region (Nigeria, Algeria, Angola and Gambia).[11] Parry et al calculated alcohol per capita consumption in South Africa to be 7-8 l/person/year.[12] However, this value includes a large percentage of people who do not drink, unlike findings from Rehm et al based solely on persons who drink, i.e. 16.6 l/person/year.[11] Alcohol consumption appears to have been normalised in South Africa through cultural activities and has been reported to be the primary substance of abuse in patients in treatment centres, accounting for 62-78% of admissions in Cape Town, Durban and Port Elizabeth.[9] Alcohol consumption is entrenched in South African society in all forms of media, the advertising industry and agriculture (especially vineyards), and honed through cultural rites of passages, such as male initiation ceremonies and when proving masculinity.[13] Traditionally, drinking does not occur on a daily basis. People do not drink alone or just for the sake of drinking. Instead, drinking serves a communal purpose or is consumed at ceremonial

Table I: Percentage of high school learners (according to gender and race) who used alcohol[9,10]

2002	Ever used alcohol			Used alcohol (past month)			Binge drinking (past month)			Age of initiation (< 13 years)		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
N	4 897	5 584	10 481	4 799	5 484	10 283	4 904	5 592	10 496	4 811	5 508	10 319
National (%)	56.1	43.5	49.1	38.5	26.4	31.8	29.3	17.9	23.0	15.8	9.0	12.0
CI	53-60	40-47	46-52	36-42	24-29	29-34	27-32	16-20	21-25	14-18	8-10	10-14
Black (%)	52.0	37.8	44.0	34.4	21.7	27.3	27.1	15.7	20.7	13.0	7.4	9.8
CI	48-56	34-41	41-47	31-38	19-24	25-30	24-30	13-18	19-23	11-15	6-9	8-11
Coloured (%)	67.2	65.1	66.0	49.1	44.1	46.4	38.5	26.9	32.3	24.1	15.3	19.4
CI	61-74	57-73	60-72	42-56	32-56	39-55	32-45	19-35	26-39	19-29	11-19.6	16-23
White (%)	88.4	84.1	86.0	65.3	58.3	61.4	38.8	33.6	35.9	33.6	19.4	25.7
CI	83-94	79-89	82-90	57-73	50-67	54-69	31-46	27-41	30-42	27-40	15-24	21-31
Indian (%)	40.1	39.3	39.7	37.3	21.9	29.4	31.8	16.1	23.7	20.8	8.4	14.5
CI	26-54	24-55	28-52	24-51	14-30	22-37	20-44	5-27	15-32	14-28	1-16	10-19
2008	**Ever used alcohol**			**Used alcohol (past month)**			**Binge drinking (past month)**			**Age of initiation (< 13 years)**		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
N	4 909	5 129	10 038	4 878	5 102	9 980	4 905	5 120	10 025	4 914	5 119	10 033
National (%)	54.4	45.1	49.6	40.5	29.5	34.9	33.5	23.7	28.5	15.3	8.6	11.9
CI	51-58	41-50	46-53	37-44	27-33	32-38	31-36	21-27	26-31	14-17	7-11	10-14
Black (%)	51.0	40.3	45.5	38.4	25.7	31.8	32.4	20.9	26.4	13.0	6.6	9.7
CI	47-55	36-45	42-49	35-42	23-29	29-35	30-35	19-23	24-29	12-15	5-8	9-11
Coloured (%)	63.7	70.0	67.0	45.3	51.8	48.7	37.6	39.5	38.6	21.5	16.8	19.0
CI	57-70	63-76	61-73	38-53	47-57	43-54	32-44	34-45	34-44	18-26	14-21	16-23
White (%)	73.9	78.4	75.9	59.8	51.9	56.4	41.4	39.6	40.6	31.9	22.0	27.5
CI	68-79	69-86	69-82	51-68	44-60	50-63	26-59	26-55	27-55	24-41	9-43	19-39
Indian (%)	68.8	57.8	62.6	42.2	28.9	34.8	30.2	17.4	23.1	34.1	17.7	25.1
CI	63-74	52-63	59-67	36-48	24-34	31-39	25-36	14-22	20-29	29-40	14-22	22-29

CI: confidence interval

functions.[6] In their 2011 technical paper,[1] Van Heerden and Parry cited the emergence of new drinking patterns, new types of alcohol, rapid socio-cultural influences such as urbanisation, the growing number of food and wine festivals, and easy-to-access alcohol. Normalisation of alcohol consumption in South Africa is attributable to accessibility, affordability and peer influence.[14]

Detrimental aspects of alcohol consumption

Alcohol (ethanol) is metabolised mainly in the liver by alcohol dehydrogenase to form acetaldehyde with the transfer of nicotinamide adenine dinucleotide (NAD), reducing it to NADH.[15] The acetaldehyde then loses hydrogen and is converted to acetate, which is released into the blood. Because of an excess of NADH, numerous metabolic disturbances occur, including hyperuricaemia, hyperlacticacidaemia, ketonaemia and acidosis. The mitochondria use the hydrogen from ethanol, rather than the hydrogen from the oxidation of fatty acids, which leads to reduced fatty acid oxidation and accumulation of triglycerides.[15] Furthermore, NADH may also promote fatty acid synthesis. Hypoglycaemia may also occur, coupled with decreased gluconeogenesis owing to ethanol. A sustained high alcohol intake leads to many social and health problems, including alcohol-related crime, violence and traffic accidents, risky sexual behaviour and increased risk of human immunodeficiency virus (HIV), foetal alcohol syndrome, liver disease and malnutrition.[2] The negative health outcomes of alcohol consumption far outweigh the positive ones in South Africa. In terms of burden of disease, alcohol accounted for 7% of deaths and 7.1% of all disability-adjusted life years (DALYs) lost in South Africa in 2000, resulting in 1.1 million lost life years.[12] In terms of alcohol-attributable

Table II: Characteristics of adult alcohol consumption in different regions of the world[13]

WHO region	Beverage type	Total consumption (in litres)	% unrecorded drinkers	% heavy drinkers	% drinkers (males)	% drinkers (females)	consumption per drinker (in litres)	Average drinking pattern
Africa E (Ethiopia and South Africa)	Mainly fermented beer	7.1	46	10.3	55	30	16.6	3.1
Africa D (Nigeria and Algeria)	Mainly fermented	4.9	53	5.3	47	27	13.3	
Europe A (Canada and the USA)	Wine and beer	12.9	10	15.7	90	81	15.1	1.3
Europe C (Russia and Ukraine)	Spirits	13.9	38	18.6	89	81	16.5	3.6
Western Pacific A (Australia and Japan)	Beer and spirits	8.5	20	4.2	87	77	10.4	1.2

WHO: World Health Organization
Population-weighted averages noted as a country in the Africa E region

disability, foetal alcohol syndrome ranked third (18.1%), interpersonal violence second (23.2%) and alcohol use disorders first (44.6%). Of the DALYs relating to injury, interpersonal violence attributed to alcohol accounted for 42.8% in males and 25.9% in females. A systematic review on alcohol use trends in South Africa showed that risky and binge drinking was associated with alcohol-related deaths in 50% of transport and homicide deaths. Foetal alcohol syndrome was observed at a rate of 10-74 per 1 000 births, and the practice of having multiple indiscriminate sex partners by those living with HIV.[16] This review emphasised that South Africa was categorised in a group of countries that has the most hazardous patterns of drinking, whereby a third of drinkers were found to drink at risky levels over the weekend and for whom drinking to intoxication was common.[16] A recent report by Rehm et al[17] provides evidence of a causal relationship between an average volume of alcohol consumption and the following major diseases: oesophageal cancer; rectum and colon cancers; female breast cancer; liver cancer; diabetes mellitus; alcohol use disorders; tuberculosis; mouth, nasopharynx and oropharynx cancers; ischaemic heart disease; ischaemic and haemorrhagic strokes; hypertensive heart disease; unipolar depressive disorders; epilepsy; cardiac conduction disorders; lower respiratory tract infections (pneumonia); cirrhosis of the liver; preterm birth complications; and foetal alcohol syndrome.[17]

Chronic alcohol abuse leads to liver disease and cirrhosis, which is one of the most serious outcomes. The pathogenesis of alcoholic liver disease comprises three stages: hepatic steathorrhoea (fatty liver); alcoholic hepatitis (inflammation of the liver); and cirrhosis (necrosis and regeneration of the liver), which leads to an increase in fibrous tissue formation and changes in the normal liver structure.[17] At this stage, the person will usually develop ascites, gastrointestinal bleeding, hepatic encephalopathy and portal hypertension.

From a nutritional point of view, it needs to be recognised that drinkers with risky habits frequently replace meals with alcohol. Although alcohol is high in calories or kilojoules (28 kJ/g), it is not metabolised as efficiently as carbohydrates and fats, and is deficient in essential micronutrients.[17] Impaired digestion results in the malabsorption of thiamine, vitamine B_{12}, folic acid, zinc and amino acids. Metabolism is also altered and certain nutrients are frequently affected, including thiamine, vitamin B_6, vitamin D, zinc, vitamin A, magnesium, phosphorus and selenium.

Social and legislative concerns relating to alcohol consumption

Social concerns

With consumption per capita at 7-8 l per person per year[12] for all persons, not just drinkers, and given that half the population or more do not drink, the consumption of absolute alcohol per drinker is more than 16 l/person/year, and places South Africa among nations with the highest absolute alcohol consumption per drinker in the world.[7] According to the World Health Organization, South Africa has also been identified as one of the nations with the most harmful patterns of alcohol consumption (e.g. heavy episodic drinking).[7]

Reducing the high levels of alcohol consumption in South Africa requires comprehensive primary prevention efforts that address injury-related mortality, root causes of violent and accidental deaths, child abuse, poverty and suicide.[18] The physical and emotional abuse of children by parents under the influence of a substance is also of concern around the world and in South Africa. Studies have shown the harmful effects of alcohol on the foetal development of alcohol-dependent mothers.[19] While child abuse is a crime in South Africa, the current Child Care Amendment Act, 1999 (No 13 of 1999), does not consider the abuse of alcohol during pregnancy to be a

crime. No protection is offered to the foetus. According to Pretorius, exposure to alcohol in the family leads to rebelliousness, having friends who drink, poverty and other factors relating to adolescent alcohol consumption.[20] Another study conducted in schoolchildren in the Western Cape concluded that risky drinking was associated with school truancy, mental distress and lack of parental and peer support in adolescent African schoolchildren.[16] While suicide is not a leading cause of death in South Africa, it is a serious public health concern. The incidence of suicide varies across ethnic and socio-economic groups and geographical regions.[4] Alcohol abuse studies have documented the association between poverty, low education levels and poor mental health, including suicide attempts.[7,9,10,16] The children of parents who are dependent on alcohol are at greater risk of eating disorders, learning disorders, teenaged pregnancy and suicide.[16] Contextual factors that have been identified by some studies include abject poverty as a result of unemployment, low education levels, a childhood within dysfunctional family environments, early alcohol use and current alcohol dependence, previous and current interpersonal conflict and violence, a sense of hopelessness and the absence of coping mechanisms.[20,21] The South African Depression and Anxiety Group estimates that depression affects an estimated 5-6% of the South African population.

South African regulatory framework regarding alcohol consumption

In an attempt to reduce heavy drinking, and consequently address the social decay caused by alcohol abuse, the South African government institutionalised a regulatory framework with regard to alcohol consumption. Initially, the sale and consumption of liquor was a nationally legislated policy, governed by the Liquor Act of 1928.[22] From 1996 to 2004, the provincial governments proved competence in processing the development of local legislation that governed liquor. From 2004, as outlined by the Liquor Act of 2003, the national government regulated the manufacturing and distribution of alcohol. The provincial governments regulate micro-manufacturing and retail sale.[23] To this end, the latter continue to administer the Liquor Act of 1989, but must pass their own provincial liquor legislation.[23] To date, the Western Cape and KwaZulu-Natal have already started this process.[24] The Western Cape Liquor Bill provides for licensing with regard to the retail sale of liquor and the micro-manufacture of liquor, monitors the manufacture of traditional African beer within the province, established the Western Cape Liquor Board and its committees and liquor forums and provides for the appointment of designated liquor officers and municipalities as agents of the Liquor Board, as well as competent licensing authorities.[24] The KwaZulu-Natal Economic Development Department was responsible for piloting the KwaZulu-Natal Liquor Act.[25] This Act is more controversial than the Western Cape Liquor Bill, because the KwaZulu-Natal Liquor Bill promotes expedition of granting liquor license applications, and offers R9 million for education on the KwaZulu-Natal Alcohol Act. The Act allows liquor to be sold on Sundays. Liquor stores are able to trade until 20h00 during the week.

The following socio-economic consequences have been attributed to the Western Cape and KwaZulu-Natal Liquor Acts:

- Reduced illegal liquor sales in townships across the provinces.
- Limited Sunday trading in respect of new licenses.
- A general shortening of trading hours for liquor-licensed establishments.
- A social and educational fund that places strong focus on alcohol-related social problems and the need for responsible trading.[24,25]

The positive and beneficial aspects of alcohol consumption

Health

Moderate alcohol intake (5-10 g per day) has been shown to decrease risk of myocardial infarction and coronary heart disease mortality.[26] However, regular alcohol consumers should not exceed one drink per day (women) and two drinks per day (men). Moderate drinking should not be encouraged in those who do not imbibe. Alcohol that is consumed in moderation increases subfractions of high-density lipoprotein cholesterol, providing a protective cardiovascular effect.[27] The typical traditional Mediterranean diet includes alcohol consumption in moderate amounts with meals, which is associated with a reduced cardiovascular risk.[28] Rehm et al observed the beneficial effects of light to moderate drinking in those with ischaemic heart disease, ischaemic strokes and diabetes mellitus.[17] A recent study in the Limpopo province of South Africa concluded that "traditional beer consumption seemed to prevent iron deficiency in those at risk of developing such a deficiency, but appeared to precipitate iron overload in those at risk of developing iron overload".[2] This potential beneficial effect of alcohol consumption on serum ferritin levels and iron status has also been observed in other elderly African, Danish and Australian populations.[2]

Economic benefits

It is argued that the majority of people who consume alcohol in South Africa do so without negative consequences.

Furthermore, there are some beneficial economic aspects to alcohol consumption and production in South Africa:

- The contribution of the liquor industry to the economy. For example, South African Breweries employs 8 232 people.[29]

- The contribution of R120 million to community partnerships to aid responsible drinking initiatives.[17]
- The liquor industry has contributed to black economic empowerment by financing a range of small and medium-sized empowerment business initiatives.[17]
- The liquor industry invests an estimated R560 million in advertising annually. The majority is spent on television advertising, followed by print and radio advertisements.[21]

Conclusion

Historical events, such as the prohibition of alcohol in the USA from 1920-1933, and unsuccessful attempts by the British to prohibit alcohol use in Africans after colonisation, signify that alcohol consumption cannot be prescribed. For this reason, the current FBDG, "If you drink alcohol, drink sensibly", issued by the South African Department of Health, should not remain as it is. Although this article has identified the social and health benefits of alcohol if it is used moderately, the definition of moderation needs to be carefully described within the South African context.

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