

**SELF- AND COLLATERAL SPOUSE-REPORTED ALCOHOL USE IN MALAWI:
EXPLORING SOCIAL DRINKING NORMS' POTENTIAL FOR ALCOHOL PREVENTION**

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ABSTRACT

Adult (18+ years old) Malawian men and women's alcohol use and social drinking norms were examined. From 31,676 screened households, heads and spouses in 1,795 households with at least one alcohol user were interviewed. Alcohol use last 12 months was reported by 27.3% and 1.6% of all adult men and women respectively. Male and female alcohol users' mean consumption was 8.05 litres and 1.51 litres of pure alcohol respectively. Spouses reported 55 and 61% higher consumption level for their spouses compared to self-reports. Without including non-drinkers, drinking norms explained 6.7% of men's and 20.9% of women's alcohol consumption. Prevention efforts could be directed at helping women not to start drinking by supporting their existing gender-specific descriptive drinking norms.

Key Words: Alcohol, same-sex descriptive norms, household survey, Malawi

INTRODUCTION

This paper examines adult Malawians' alcohol use and whether social norms represent a promising candidate for future alcohol prevention. Alcohol use is learned through socialization processes

(Bandura, 1986) and social norms guide adolescents on how and when to use, or not to use alcohol. Norms' maximum expected potential effects on drinking in Malawi is constrained by the size of the correlation between norms and drinking (Hansen & McNeal, 1996).

Malawi has a population of 15.9 million (WHO, 2012). It is one of the poorest and least urbanized among the sub-Saharan countries (Eidhammer, 2005). In sub-Saharan countries, alcohol is mainly home-brewed by women and used in rituals, ceremonies, weddings, and on special occasions (Clausen, Rossow, Naidoo, & Kowal, 2009). They consume substantially less alcohol compared to North-America and Europe (Kabiru, Beguy, Crichton, & Ezeh, 2010). Based on WHO's data-collection from 2002-2004, Clausen et al. (2009) estimated from 20 African countries that about 80% of women and 50% of men were nondrinkers. In WHO's (2014) recently published report, 28.3% and 10.6% of 15+ years old Malawian males and females respectively had used alcohol last 12 months in 2010. Martinez, Røislien, Naidoo, and Clausen (2011) found that among Malawian women 92.8% were lifetime alcohol abstainers and only 1.0% considered themselves as current alcohol consumers. This is contrasted by a study of students at the University of Malawi by Zverev (2008) in which 78% (men) and 63% (women) reported to use alcohol. These contrasting studies suggest that students drink substantially more than the general population. Obot (2006) examined the WHO Global Alcohol Database and reported that recorded consumption per Malawian 15+ years was 1.60 litres 100% alcohol in 1961; 2.72 litres in 1971; 1.81 litres in 1981; 1.00 litres in 1991; and 1.44 litres in 2001. He warns that survey data on unrecorded alcohol use is sparse and figures uncertain.

We calculated litres of 100% alcohol from standard units (SU) reported in WHO's data-collection from 2002-2004 (Rossow & Clausen, 2013). Consumption per alcohol user was estimated from

SU from Table 1 in Rossow and Clausen (2013). We use Malawian figures in the example, while the neighboring countries below were calculated through the same formula: $12.8 \text{ SU per week} * 52 \text{ weeks} * 10 \text{ gram per SU} / 0.789 \text{ specific weight for alcohol} / 1000 = 8.44 \text{ litres per year}$. Malawian alcohol users consumed about the same as alcohol users in neighboring countries like South Africa (8.50) and Zambia (8.30), and more than in Kenya (5.54), Namibia (5.40), Zimbabwe (6.39), and Swaziland (6.85).

Norms are social by nature and can be understood as common understandings among members of a group of what is considered suitable behavior (Cialdini, Reno, & Kallgren, 1990), and as both explicit and implicit social rules taken for granted (Hogg & Vaughan, 2011). Cialdini et al.'s (1990) *Focus theory of normative conduct* explains how social norms systematically influence behaviors. The theory divides social norms into injunctive and descriptive norms. Injunctive norms are how we believe those close to us want us to behave in a given situation. Descriptive norms are how we believe most other people behave in a given situation, or which behaviors we perceive as typical or normal (Cialdini et al., 1990). Social norms teach us whether our behaviors are likely to obtain positive or negative reactions if they are endorsed or not (Rimal & Real, 2005).

Alcohol norms are learned by observing and imitating significant other's behaviors and attitudes, as well as through the direct consequences we experience from these same socialization-agents when we drink ourselves (Bandura, 1986). Social acceptance of drinking behaviors varies between and within cultures based on demographic differences such as gender, age, religion and socioeconomic status

(Houghton & Roche, 2001). *Self-categorization theory* postulates that the more strongly one identifies with a group, the more one will be influenced by the group's norms and the more one will conform to these norms (Turner & Reynolds, 2012), including drinking norms (Neighbors et al., 2010). Most studies connecting social norms and alcohol are based on US-students in which both descriptive and injunctive norms consistently have been found to be strong predictors of students' alcohol use (Borsari & Carey, 2003; Neighbors et al., 2008; O'Connor, Lewis, Chawla, Lee, & Fossos, 2008; Rimal & Real, 2005; Rimal, 2008). Similar results have been reported from Australian samples (Halim, Haskin, & Allen, 2012), and from adult samples in the U.S.A. (Lau-Bar-raco & Collins, 2011). Descriptive norms tend to correlate stronger than injunctive norms with alcohol (Lewis et al., 2010; Reno, Cialdini, & Kallgren, 1993).

Neighbors et al. (2008) found that both types of norms together with own approval explained almost 40% of the variance in students' alcohol use. The relationship between perception of others approval and one's own drinking depends heavily on how others is defined. Proximal referents (friends and family) seem to consistently give significant associations between injunctive norms and drinking, while more distal referents (typical students) has been less consistent (Neighbors et al., 2008) or non-existent (Halim et al., 2012). Neighbors et al. (2010) reported descriptive norms to be among the best predictors for American college students' drinking. Further, they found that believing that others drank heavier relative to oneself increased one's own drinking. Finally, Neighbors et al. (2010) found that the closer one identified with

the reference group, the stronger the association between the perceived drinking norms in that specific group and one's own drinking. It may therefore be important to examine gender specific norms, especially in cultures such as in Malawi with clearly different gender roles.

Adolescents' group size and gender composition influence their alcohol use (Cullum, O'Grady, Armeli, & Tennen, 2012). Larger groups drink heavier, but only when context-specific norms accept alcohol use (Cullum et al., 2012). Men drink more with only men present, while women drink more when both other women and men are present (Borsari & Carey, 2003).

To our knowledge, no large surveys have explored the relationship between drinking and social norms in a sub-Saharan context. In this paper, we will describe alcohol consumption among adults (18+) in Malawi, examine how gender and age moderate drinking, and compare current consumption with 10-year-old WHO-data (Rossow & Clausen, 2013). Second, we will examine whether social drinking norms are promising candidates for prevention programs in Malawi. Finally, self-reported alcohol use will be compared to spouses reports of the others' alcohol use.

METHOD

Sample

A screening questionnaire was administered to 31,676 randomly selected households. This sample was representative of the Malawian adult population and enabled us to determine the proportions of men and women (18 years+) in the general population who had been drinking any alcohol in the 12 months preceding data

collection. This survey obtained ethical clearance from research ethics committees in both Malawi and Norway.

Malawi's National Statistical Office (NSO) sampling procedures were followed to obtain representativeness to the whole adult population, without needing to weight the data. NSO based their stratification procedure on systematically selecting enumeration areas (EA) which ensured that the sample of 31,676 households matched the urban (18%) and rural (82%) distribution and the proportions of the adult population, both in the North (13%), Central (43%) and South (45%) regions. The population in all three Malawian regions consisted of 45% adults (18 years+). Before selecting a subsample of households which were administered our large questionnaire from the 31,676 households, all single-adult-households ($n = 5,209$) and households in which neither the head nor the spouse ($n = 23,012$) reported any alcohol use last 12 months were excluded. Both heads and spouses in the final subsample of 1,795 households were interviewed separately with two nearly identical standardized questionnaires. These households were systematically selected based on the houses physical location from each of the selected EA. The 10 first households which included both head and spouse, and had at least one alcohol user, in each EA were chosen for the final subsample and administered the long questionnaires. Their mean ages were 41.5 (males) years ($SD = 14.5$) and 35.5 (females) years ($SD = 13.0$). Average number of persons in the 26,467 households (excluding single-adult-households) was 4.9, and 5.1 in our 1,795 selected households, which closely resembles the average Malawian household size (including single-headed) of 4.5.

The written questionnaire was administered orally in the respondents' homes and responses written down by 10 Malawian interviewers trained at the University of Malawi. Part of their supervised training consisted in collecting data and discussing procedures over several days during the pilot study. See the summary report (Eide et al., 2013) from the project for further details.

Measurements

Alcohol consumption was measured through seven beverage-specific pairs of frequency and quantity items. The beverage-types were: chibuku; masese; Carlsberg green, stout or special brew; all other types of beer and cider; wine; kachasu; sachets and bottled imported/industrial spirits. Frequency ("During the last 12 months, how often have you been drinking...") was measured on a nine-point scale ranging from "every day or nearly every day" to "never last 12 months". Quantity ("How many standard units/drinks would you have on a typical day the last 12 months when you drink?") was measured on a ten-point scale ranging from "none last 12 months" to "13 or more drinks". Total consumption was controlled through one item asking: "On those days when you had any kind of beverage containing alcohol, how many SU (drinks) did you usually have per day?", with one open ended response-option. Interviewers presented pictures of SU (ca. 12.5 g alcohol) of each beverage type and litres 100% alcohol was calculated ($(\text{Sum SU} \cdot 12.5 \cdot 0.789) / 1000$). Spouses were asked one frequency question with the same nine-point scale as for self-reports, and one open ended quantity item about number of (12.5 grams) drinks they thought their spouse typically drank. More than half of all self-reported alcohol

consumption are from homebrewed alcohol types. Masese and Kachasu are the most important types and these two types amounted to 27.4% and 24.6% respectively of the total reported alcohol consumption. Women's proportions were higher than men's, 39.9 versus 25.6% for Masese and 36.4 versus 22.9% for Kachasu.

Descriptive norms were a sumscore of four items. Two items asked how many of the men and two about how many of the women they knew at about their own age who they believed 1) drank some alcohol at least once a week and 2) got drunk at least once a month. Four response options were used: All or most of them, 90-100%; more than half of them, 50-89%; less than half of them, 10-49%; none or almost none, 0-9%. Men's mean score and standard deviation (*SD*) were 8.75 (2.54) while women's were 8.63 (2.60). Cronbach's alphas were .77 for both genders.

Same-sex descriptive norms were the sum of two of the four abovementioned items for men and the two others for women. Men's mean score (*SD*) was 5.59 (1.57), Cronbach's alpha was .79. Women's mean score (*SD*) was 3.17 (1.51), Cronbach's alpha was .90. The difference in mean scores reflects that men describe perception of other men's alcohol use, while women describe perception of other women's drinking. The opposite pattern appeared for the next sum-score.

Opposite-sex descriptive norms were sums of the other two descriptive norm-items. Men's mean score (*SD*) was 3.15 (1.51), Cronbach's alpha was .91. Women's mean score (*SD*) was 5.46 (1.66), Cronbach's alpha was .82.

Injunctive norms was sumscore of eight items asking how much alcohol most people who were close and important for you thought was OK for you to drink in

different situations (At a party, at someone else's home; As a mother/father spending time with small children; As a couple of co-workers out for lunch; As a wife/husband having dinner out with his/her wife/husband; As a woman/man out at a bar with friends; When with friends at home; When getting together with friends after work before going home; With friends in the street). Four response-options were given: No drinking (1); 1-2 drinks (2); up to 5 drinks was all right (3); more than 5 drinks was sometimes all right (4). Men's mean score (*SD*) was 11.23 (4.06), Cronbach's alpha was .85. Women's mean score (*SD*) was 8.76 (2.19), Cronbach's alpha was .89.

RESULTS

From the 31,676 households surveyed, 14.5% of all 63,352 adults, 27.3% ($n = 8,662$) of the males and 1.6% ($n = 505$) of the females had drunk any alcohol in the last 12 months. The figures included single adult-households and were representative of the Malawian 18+ year-old population.

Male alcohol users' mean consumption was 8.05 litres, while female alcohol users' mean consumption was 1.51 litres last 12 months (Table 1). Only those who reported any alcohol use last 12 months were included when means of alcohol consumption were estimated. There was no significant difference in consumption levels between neither the males' nor the females' age-groups. Average consumption per year for the whole Malawian adult population was obtained by multiplying males' consumption by 0.273 and females' by 0.016, resulting in 2.20 and 0.02 litres 100% alcohol for males and

Table 1. Litres 100% alcohol consumption last 12 months by gender and age-groups, standard deviations in parentheses (Only alcohol users are included)

Age-groups	N	Men		Women	
		Litres 100% alcohol (SD)	N	Litres 100% alcohol (SD)	N
18-24	124	5.9 (11.7)	10	1.1 (1.9)	
25-29	265	9.5 (14.5)	12	0.5 (1.2)	
30-34	298	8.2 (11.8)	16	0.8 (1.1)	
35-39	283	9.1 (15.7)	20	1.2 (2.0)	
40-44	210	7.5 (10.8)	16	1.1 (1.5)	
45-49	157	7.5 (11.4)	14	1.8 (1.7)	
50-54	109	9.1 (11.3)	14	2.9 (4.1)	
55-64	180	7.2 (10.6)	34	2.0 (3.3)	
65-92	150	6.8 (10.9)	20	1.6 (2.3)	
Total	1776	8.05 (12.59)	156	1.51 (2.49)	

females respectively. All alcohol users’ mean yearly consumption in our study was calculated in the following manner; $[(1776 \text{ men} * 8.05 \text{ litres}) + (156 \text{ women} * 1.51 \text{ litres})] / 1932 = 7.52$. Compared to the 10-year old Malawian WHO data, mean consumption dropped from 8.44 to 7.52 litres.

Spouses’ reported quantities for males (self-reported alcohol users) were 12.46 litres 100% alcohol and it was 2.73 litres for the females (also only the self-reported alcohol users). To obtain comparable numbers, only self-reports from households without missing responses

on spouses’ reported alcohol use were included, which included 1680 men (self-reported average was still 8.05 litre) and 112 females (removing the 44 women increased mean from 1.51 to 1.70 litre). Pearson *r* for spouses’ reports about their consumption and men’s self-reports were .25 ($p < 0.001$) and .56 ($p < 0.001$) for females’ self-reported consumption.

Table 2 presents how closely related each of the social norms was to alcohol consumption, and whether gender interacted in these relationships. The two correlations between men’s alcohol consumption and their injunctive and

Table 2. Pearson *r* between alcohol consumption (log), injunctive and descriptive norms by gender

Variables	Men (n = 1776)	Women (n = 156)
	Alcohol consumption	Alcohol consumption
Injunctive norms	.21***	.22**
Descriptive norms	.18***	.30***
Descriptive norms same-sex	.17***	.43***
Descriptive norms opposite-sex	.13***	.08

** = $p < .01$; *** = $p < .001$

descriptive norms were quite low and very similar ($r = 0.21$ and 0.18). Splitting males' descriptive norms into same- and opposite-sex norms, only gave the same or lower correlations (0.17 and $.13$). Female's injunctive norms ($r = 0.22$) correlated almost like men's, while their descriptive norms correlated higher ($r = 0.30$). The difference were, however, not statistically significant (between 0.30 and 0.18 , $z = 1.51$, $p = 0.13$). With as many women as men in the analyses, the differences would have been highly significant (z -value of 3.81). However, when splitting the descriptive norms into same- and opposite-sex norms, same-sex norms correlated much higher ($r = .43$) with alcohol consumption, and significantly higher than men's correlations of $.17$ ($z = 3.42$, $p < 0.001$).

Multiple linear regressions were preliminary done without splitting descriptive norms into same- and opposite-sex norms. More of women's variances in alcohol consumption were explained by their norms than men's; 10.6% versus 6.5% . Descriptive norms were more important than injunctive norms for women's total consumption (betas of $.25$ and $.14$) while the opposite pattern emerged for men (betas of $.14$ and $.18$). These preliminary results showed that women

were more influenced by how they perceived others' use of alcohol than by how they believed others wanted the respondents to drink/not drink. The tendency was opposite for the men, although their norms were weaker related to the drinking measure than females. These gender differences are shown in Table 3 by separating the perceived descriptive norms by gender as the correlations in Table 2 show significant gender-differences.

Women's alcohol consumption was much better predicted by their norms than men's (Table 3), and the difference was much clearer after splitting descriptive norms into same- and opposite-sex norms compared to the preliminary regression analyses above. Especially noteworthy was the increase from 10.6% till 20.9% explained variance in women's alcohol consumption, while men's explained variances hardly changed after the split.

Finally, the two regression-analyses presented in Table 3 were also performed as hierarchical multiple linear regressions with the nine age-groups presented in Table 1 multiplied with the three independent predictors used in Table 3 and entered after the main effects to examine possible interactions. No significant interactions emerged which led to the

Table 3. Multiple linear regressions for each gender explaining variance in yearly alcohol consumption (log) by injunctive norms and sex-specific descriptive norms

Variables	Men (n = 1776)	Women (n = 156)
	Alcohol consumption	Alcohol consumption
	Beta	Beta
Same-sex descriptive norms	.13***	.47***
Opposite-sex descriptive norms	.05	-.16
Injunctive norms	.19***	.10
R ² =	.067***	.209***

*** = $p < .001$

conclusion that age did not act as a moderator on the relationships found when yearly alcohol consumption was predicted by injunctive norms, same- and opposite-sex descriptive norms.

DISCUSSION

To our knowledge, this is the most comprehensive study of alcohol use ever conducted in Malawi. The most striking results were that so few as 1.6% of the women and 27.3% of the men reported to have used alcohol in the last 12 months. Both proportions are in line with the other sub-Saharan countries (Rossow & Clausen, 2013), but low compared to European and North American levels. The big gender difference in proportions of alcohol users is also reflected in the quantum reported, 1.51 litres 100% alcohol per year for female alcohol users and 8.05 litres for male alcohol users.

In spite of possible differences in estimation of alcohol consumption between the current study and the earlier WHO-estimates (Rossow & Clausen, 2013), a reduction in alcohol consumption among those who drink alcohol over the last 10 years is indicated, from 8.44 to 7.52 litres 100% alcohol per year. Total alcohol consumption did not vary significantly with age. Norms were significantly, but not strongly related to alcohol consumption, and clearly stronger for female compared to male alcohol users.

Among alcohol users, Malawian men's quantum was comparable to many European countries, while women drink far less than their European sisters. When estimating the average quantum for all adult Malawians, men's average went down to 2.20 litres, while women's average

approached zero; 0.02 litres. This represents just above one litre per capita 18+ years, and the consumption would have been even lower if 15+ years had been used as in Obot's (2006) paper.

Compared to other studies of alcohol use in Malawi and other African countries (Clausen et al., 2009), men's consumption was somewhat lower, while female's consumption was much lower than anticipated. However, the low proportion of female alcohol users was comparable to the study by Martinez et al. (2011).

When spouses estimated their spouses' alcohol consumption, men's level was increased by 55% and women's consumption level increased by 61%. We did not try to correct the self-reports, partly because the consumption levels would become less comparable to almost all other surveys as these use self-reports without any such corrections, and partly because we cannot know whether spouses estimates were more accurate than the self-reports. Neither did the rather low correlations support any individual corrections, although correlations would have been higher if non-drinkers had been included in the analyses. However, Midanik (1982) have compared self-reports to sales-statistics and found 40-60% underreported consumption.

Compared to most European and North-American surveys showing that alcohol consumption reaches its peak in the early twenties, it was somewhat surprising that the youngest group in Malawi (18-24 years) consumed less than Malawians in their fifties. It may very well be social norms that guide such differences. This interpretation can be supported by Zverev's (2008) study in which much higher proportions of university students reported alcohol use and episodes of

binge-drinking than the Malawian general population.

Injunctive- and descriptive norms were significantly, but rather weakly related to men's alcohol use. It is of course no reason to avoid including norms in an intervention effort directed at men's alcohol use, but one should not focus only on norms as the results here indicate that less than seven percent of men's alcohol use could be reduced as a maximum (see Hansen & McNeal, 1996). As we have used questionnaires developed for use in Europe, we might have measured norms in a suboptimal manner and missed out on some social norms important for Malawians. However, women's alcohol consumption was much stronger related to their norms, and most strongly to their perception of other women's alcohol use. Therefore, norms might be a promising pathway for further exploration for planners of prevention efforts. Still, as so few women reported drinking; intervention efforts would probably be most effective by supporting the abstainers' norms for not drinking, not by trying to alter the drinkers' norms in an attempt to reduce their drinking. There is of course no contradiction in pursuing both goals.

Since age did not moderate the relationship between alcohol use and norms, this study does not support age-differentiated prevention efforts when targeting drinking norms.

The strong research design helped us obtain a representative sample of all adults in Malawi, while thorough training of the interviewers, and well organized data-collection have helped us obtaining data of high quality. Still, differences between interviewers, the lengthy data collection and limitations inherent in the survey-method may have influenced the

results as in all such surveys. However, this study was implemented very meticulously in order to reduce such problems to a minimum. The use of internationally acknowledged research instruments and procedures for estimating alcohol consumption optimally (Gmel, Graham, Kuendig, & Kuntsche, 2006) further supports the validity and reliability of the results.

This study has provided Malawi with much needed data on male and female alcohol consumption. The results may be useful for policy development, formulation of targets and planning of intervention efforts. Malawi now have a solid basis for monitoring development of alcohol use and monitoring effects of policies and measures in order to keep the proportion of abstainers high and to reduce problem drinking.

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